FSU CATALOG

This version of the FSU catalog contains the programs available to students during the 2018-2019 academic year. It was derived from the online catalog that is used as a tool to help students learn more about the programs available at Ferris, as well as make it easier to determine program requirements, degree offerings, and course pre-requisites.

Academic Affairs

Office of the Provost and Vice President of Academic Affairs

2018-2019 FERRIS STATE UNIVERSITY CATALOG
This Catalog is intended to provide students, prospective students and families with written information regarding the different colleges, programs, degrees, courses, and student services offered at Ferris State University.

Each college within the University maintains current information on program admissions, degree completion requirements, course prerequisites and related information. Therefore, although the University endeavors to provide current information in this Catalog at the time of publication, students, prospective students, and families are encouraged to obtain current written information on program admissions, degree completion requirements, and course prerequisites, from the individual colleges.

The University reserves the right to change the contents of this Catalog at any time without notice. Because this Catalog is for informational purposes only, it does not establish any contractual relationship with the University.

Contact: Dr. Leonard Johnson at LeonardJohnson@ferris.edu

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Students with disabilities requiring assistance or accommodation may contact Educational Counseling & Disabilities Services at (231) 591-3057 in Big Rapids, or the Director of Counseling, Disability &
Tutoring Services for Kendall College of Art and Design at (616) 451-2787 ext. 1136 in Grand Rapids. Employees and other members of the University community with disabilities requiring assistance or accommodation may contact the Human Resources Department, 420 Oak St., Big Rapids, MI 49307 or call (231) 591-2150. Inquiries and complaints of disability discrimination may be addressed to the 504 Coordinator/Educational Counselor, 901 S. State St., Starr 313, Big Rapids, MI 49307 or by telephone at (231) 591-3057. Other inquiries or complaints of discrimination may be addressed to the Director of Equal Opportunity, 120 East Cedar St., Big Rapids, MI 49307 or by telephone at (231) 591-2152; or Title IX Coordinator, 805 Campus Dr., Big Rapids, MI 49307, or by telephone at (231) 591-2088.

Reference:


Non-Discrimination Grievance Procedures
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2018-2019 Academic Year

Ferris State University
Biology/Pre-Optometry Concentration (BS)  
Biology/Pre-Pharmacy Concentration (BS)  
Biology/Pre-Physical Therapy Concentration (BS)  
Biology/Pre-Veterinary Medicine (BS)  
Biotechnology (BS)  
Building Construction Technology (AAS)  
Business Administration (BS)  
Business Administration (MBA)  
Business Administration - Professional Track (BS)  
Business Administration, Nursing Concentration (MBA)  
Business Data Analytics (BS)  
Business Education -  
Marketing (BS)  
Business, Management, Marketing, and Technology Education (BS)  
Business-to-Business Marketing (CT)  
CAD Drafting and Tool Design Technology (AAS)  
Cancer Information Management (CT)  
Career and Technical Education/Instruction Concentration (MTE)  
Career and Technical Education/Postsecondary Administration Concentration (MTE)  
Career and Technical Education/Training and Development Concentration (MTE)  
Catering Management (CT)  
Cell and Molecular Biology (MIN)  
Chemistry (BA)  
Chemistry Education Secondary (BS)  
Chemistry Teaching for Secondary Education (MIN)  
Chemistry/Pre-Pharmacy Concentration (BA)  
Civil Engineering Technology - Highway Emphasis (AAS)  
Club Management (CT)  
Club Management (MIN)  
Communications (MIN)  
Community College Leadership (EDD)  
Communication (MIN)  
Construction Administration (CT)  
Construction Management (BS)  
Computer Information Systems (BS)  
Computer Information Systems (AAS)  
Computer Information Systems (MIN)  
Computer Information Technology (BS)  
Computer Networking (CT)  
Computer Networking (MIN)  
Computer Networks and Systems (BS)  
Computer Science (CT)  
Computer Science (MIN)  
Computerized Business Applications (CT)  
Construction Administration (CT)  
Construction Management (BS)  
Creative Writing (MIN)  
Creative Writing (CT)  
Criminal Justice (AA)
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| 283  | Forensic Science (MIN)                          | Concentration (BS)                              |                                                |
| 284  | French (MIN)                                    | Health Information Management (BS)              | History Education Secondary Education (BS)     |
| 286  | General Business (AAS)                          | Health Information Technology (AAS)             | Hospitality Management (BS)                    |
| 288  | General Studies (AA)                            | Healthcare Administration Accelerated Track (MHA)| Hotel Management (CT)                          |
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2018-2019 Academic Year

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Quality Leadership (CT)
Quality Technology (CT)
Radiography (AAS)
Real Estate (CT)
Respiratory Care (AAS)
Respiratory Therapy (BS)
Restaurant and Food Industry Management (AAS)
Restaurant and Food Industry Management (CT)
Retailing (CT)
Risk Management and Insurance (BS)
Risk Management and Insurance (CT)
Risk Management and Insurance (MIN)
Rubber Engineering Technology (BS)
Ski Resort Management (CT)
Small Business and Entrepreneurship (MIN)
Small Business Management (CT)
Social Studies Elementary Education (BS)
Social Studies Secondary Education (BS)
Social Work (AA)
Social Work (BSW)
Social Work (MSW)
Social Work (BS)
Sociology (BA)
Sociology (MIN)
Spa Management (CT)
Spanish (MIN)
Spanish for the Professions (BS)
Spanish Teaching (MIN)
Special Education Endorsement Only (CT)
Speech Communication Teaching (MIN)
Sports Communication (BS)
Sports Communication (MIN)
Sports Communication (CT)
Sports Communicatio (AAS)
Sports Engineering (MIN)
Sports Engineering (CT)
Sports Engineering (BS)
Surveying and Mapping (MIN)
Surveying Engineering (CT)
Surveying Engineering (BS)
Surveying Technology (AAS)
Technical and Professional Communication (BS)
Technical Education (BS)
Technical Writing (CT)
Television and Digital Media Production (BS)
Total Quality Management in Education (CT)
Vascular Ultrasound (CT)
Welding Engineering
Accountancy

Required Courses

Why Choose Accountancy?

An accounting education can lead to a highly respected and rewarding career. Accountants routinely earn incomes that are in the top 5 percent of the community in which they may live. If you elect to major in Accountancy, you may prepare yourself for a variety of careers in industry, government, not-for-profit organizations, and public accounting. Many accountants are self-employed and operate their own business.

The Accountancy program at Ferris is a professional, career-oriented course of study. Classes are offered which allow students to design their degree to fit their particular interests. Our graduates qualify to take professional accounting examinations such as Certified Public Accountant (CPA), Certified Internal Auditor (CIA), Certified Management Accountant (CMA), and Certified Fraud Examiner (CFE). Our faculty bring to the classroom relevant academic and real-world experience along with a spectrum of licensures in these areas. Whatever the course of instruction, employers laud the extensive level of preparation our graduates bring to the workplace.

Of increasing interest are our dual degrees (e.g. Accounting/CIS and Accounting/Finance); demanding in nature, but producing highly sought-after graduates. For those considering the CPA, our bachelor's degree covers all of the content required to sit for the examination. In addition, we offer several minors and concentrations tailored to individual areas of interest which can also be used to fulfill the 150 hour educational requirements. For more information on career opportunities in this field, visit bls.gov and enter "occupational outlook" in the search engine.

Career Opportunities

According to the Federal Bureau of Labor Statistics, accounting is the fastest growing profession. The job market for Accountancy graduates remains very strong, even during temporary economic downturns. Options include:

• Public accounting-auditing, taxation, and consulting
• Private/industrial accounting-financial and cost accounting
• Governmental/nonprofit accounting-fund accounting
• Forensic accounting-investigative accounting

Accountants are in high demand by government agencies such as the IRS, FBI, and CIA. Accounting also provides an excellent undergraduate background for a law degree.

Our graduates are prepared for advanced study in Accountancy, leading to career opportunities
in accounting education. Accounting provides an excellent foundation for non-accounting business careers including banking, consulting, and small business ownership.

**Admission Requirements**

**New Students SAT Scores**

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

**New Students ACT Scores**

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

**Transfer Students**

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

The Accountancy program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

More Information

Accountancy, Finance, & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP). Next accreditation review is February 2028.

http://www.acbsp.org

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Accountancy

Required Courses

Why Choose an Accountancy Minor?

The Accountancy Minor complements major fields of study in other programs and enhances students' marketability in the business world by providing a more in-depth education regarding the financial information of a company. It also allows students to choose a concentration in a particular area of accounting such as financial, managerial, or tax.

The Accounting Minor consists of six courses, or 18 credit hours. Four of the six courses are required and provide students with the accounting basics essential to all areas of accounting. The two electives can then be tailored to the interests of the student.

Admission Requirements

Any current Ferris State University undergraduate student who is in good academic standing may enroll in this minor. The minor is not available for Accountancy majors.

Graduation Requirements

A Ferris student will receive the Accountancy Minor upon graduation with a Baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in Accountancy Minor courses.

Note: No more than 50% of the credits in this minor may be transferred from another institution. A maximum of one third of the credits, but not more than 7 credits in a minor, may overlap with the student's major.

More Information

Accountancy, Finance, & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

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Accountancy

Required Courses

Why Choose Accountancy?

An accounting education can lead to a highly respected and rewarding career. If you elect to major in Accountancy, you may prepare yourself for a variety of accounting careers in industry, government, not-for-profit organizations, and professional services.

Career Opportunities

More and more employers are demanding a degreed individual to fill staff accounting and office positions. This program provides a solid basis in accounting as well as the computer accounting skills that are critical to employers. An Associate degree in Accountancy can be just the thing to open doors for entry-level positions that provide excellent earnings potential.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or
higher or Accuplacer English score of 6 or higher.
- Transfer equivalency for SU MATH 114/115 or placement during the first semester at SU which would require an ACT Math score of 19 or higher SAT Math score of 500 or higher or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

**General Education Requirements**

All University General Education requirements for an Associate’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Accountancy program leads to an Associate in Applied Science degree. Graduation requires a minimum 2.0 GPA in core and related classes, in the major, and overall. Students must complete all General Education requirements of the degree as specified.

**More Information**

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119 South Street, BUS 212
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AFIS@ferris.edu

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http://www.acbsp.org

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Accountancy/Computer Information Systems

Required Courses

Why Choose Accountancy/Computer Information Systems?

An accounting education can lead to a highly respected and rewarding career. Accountants routinely earn incomes that are in the top 5 percent of the community in which they may live. If you elect to major in Accountancy, you may prepare yourself for a variety of careers in industry, government, not-for-profit organizations, and public accounting. Many accountants are self-employed and operate their own business.

The Accountancy program at Ferris is a professional, career-oriented course of study. Classes are offered which allow students to design their degree to fit their particular interests. Our graduates qualify to take professional accounting examinations such as Certified Public Accountant (CPA), Certified Internal Auditor (CIA), Certified Management Accountant (CMA), and Certified Fraud Examiner (CFE). Our faculty bring to the classroom relevant academic and real-world experience along with a spectrum of licensures in these areas. Whatever the course of instruction, employers laud the extensive level of preparation our graduates bring to the workplace.

Of increasing interest are our dual degrees (e.g. Accounting/CIS and Accounting/Finance); demanding in nature, but producing highly sought-after graduates. For those considering the CPA, our bachelor's degree covers all of the content required to sit for the examination. In addition, we offer several minors and concentrations tailored to individual areas of interest which can also be used to fulfill the 150 hour educational requirements. For more information on career opportunities in this field, visit bls.gov and enter "occupational outlook" in the search engine.

Career Opportunities

The Ferris Accountancy/CIS curriculum is designed to provide students with valuable tools in Information Systems and Accountancy necessary to solve problems faced by businesses today. Students with expertise in both Accountancy and Computer Information Systems have high marketability, and are in high demand. The abilities to resolve the many and varied accountancy and information needs of business can lead to positions such as Controller, Cost Analyst, Director of Information Systems, Computer Programmer, System Analyst, and many other related categories.

Admission Requirements

New Students SAT Scores
• 2.5 High School GPA (on a 4.0 scale)

• Two of the Three Criteria:

1. SAT ERW score of 450 or higher

2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).

3. SAT Composite of 900 or higher

New Students ACT Scores

• 2.5 High School GPA (on a 4.0 scale)

• Two of the Three Criteria:

1. ACT English score of 16 or higher

2. ACT Math score of 19 or higher

3. ACT Reading score of 19 or higher

Transfer Students

• Combined college or university GPA of 2.5 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

• Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

• Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

General Education Requirements

All University General Education requirements for a bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Accountancy/CIS program at Ferris leads to a bachelor of Science degree. Graduation
requires a minimum 2.0 GPA in core classes, in the major and overall.

**More Information**

Accountancy, Finance Info Systems  
119 South Street, S 212  
G Rapids, MI 49307-2284  
231-591-2434  
AFIS@ferris.edu

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http://www.acbsp.org

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Accountancy/Finance

Required Courses

Why Choose Accountancy/Finance?

An accounting education can lead to a highly respected and rewarding career. Accountants routinely earn incomes that are in the top 5 percent of the community in which they may live. If you elect to major in Accountancy, you may prepare yourself for a variety of careers in industry, government, not-for-profit organizations, and public accounting. Many accountants are self-employed and operate their own business.

The Accountancy program at Ferris is a professional, career-oriented course of study. Classes are offered which allow students to design their degree to fit their particular interests. Our graduates qualify to take professional accounting examinations such as Certified Public Accountant (CPA), Certified Internal Auditor (CIA), Certified Management Accountant (CMA), and Certified Fraud Examiner (CFE). Our faculty bring to the classroom relevant academic and real-world experience along with a spectrum of licensures in these areas. Whatever the course of instruction, employers laud the extensive level of preparation our graduates bring to the workplace.

Of increasing interest are our dual degrees (e.g. Accounting/CIS and Accounting/Finance); demanding in nature, but producing highly sought-after graduates. For those considering the CPA, our bachelor's degree covers all of the content required to sit for the examination. In addition, we offer several minors and concentrations tailored to individual areas of interest which can also be used to fulfill the 150 hour educational requirements. For more information on career opportunities in this field, visit bls.gov and enter "occupational outlook" in the search engine.

Career Opportunities

Graduates of this dual major possess an excellent foundation for future growth and career development. They're highly marketable and in high demand. Graduates qualify for careers as accountants, financial analysts, credit analysts, stock brokers, real estate agents or brokers, bankers, and financial planners or counselors. They're prepared to assume responsible entry-level managerial positions in accountancy or finance.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 400 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More information: Additional guidance can be found on the College of Business web page under the Admissions tab.

General Education Requirements

All University General Education requirements for a bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Accountancy/Finance program at Ferris leads to a bachelor of Science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

More Information
Actuarial Science

Required Courses

Why Choose Actuarial Science?

Actuarial Science deals with design, financing and operation of insurance plans. Financial security for people and companies is the main goal of an actuary. Typical problems could include setting the premium for automobile insurance, insuring an athlete against injury or determining the payout for a sweepstakes contest.

Actuaries are in demand in business and industry, and the average salary is quite high. Prospective actuaries take a series of tests, and this program will prepare you for the first test, which should lead to quick employment.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT scores for admission review.

General Education Requirements

This degree requires completion of the General Education requirements for a Bachelor of Science degree. Details of these requirements are delineated on the General Education website.

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Actuarial Science program leads to a bachelor of science degree. Graduation requires a minimum 2.0 overall GPA and a minimum of 120 credits including completion of all general education requirements as outlined on the General Education website. Additionally, a minimum 2.5 GPA in all math and computer science course work is required.
More Information

ADVISOR: Dr. Kent Sun
PHONE: 231-591-2579
EMAIL: MathDepartment@ferris.edu

Department of Mathematics
Ferris State University
820 Campus Drive/ASC 2021
Big Rapids, MI 49307
Phone: 231-591-2565

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Advanced Geographic Information Systems

Required Courses

Why Choose Geographic Information Systems Certificate?

A Geographic Information System uses computers and software to leverage the fundamental principle of spatial data and information management. It is a tool used for managing information according to where it is located. There is currently a shortage of qualified professionals to fill GIS related positions in diverse disciplines ranging from different levels of government to various private companies to large corporations. GIS is one of the most important components in approaching global problem solving. It helps us look for patterns in both the man-made and natural worlds. People in business, government, education, and natural resources are using GIS to analyze markets, manage parcels of land, conduct research, and protect natural resources.

What is GIS?

Geographic Information Systems (GIS) is a computerized method for displaying spatial data. This means that information about the world is stored in a database and can be viewed on a map. The information can be just about anything. Take your house as an example. There are a lot of different kinds of information you can collect about your house - price, size, number of bedrooms, the year it was built. All of this information can be stored in a table created in a program like MS Excel. This database is the beginning of an Information System. Your house also has an address. The address is a type of geographic information. You put the two kinds of data together - information + geographic and you have GIS. You can see where the house is located and you can see information about the house.

Why should I take a GIS class?

GIS is a multidisciplinary discipline that relates to applications in various other fields. GIS can help deal with complex issues by modeling the earth and developing generalizations about how it functions. It can also be used in a variety of ways for any endeavor linking information to features on the ground.

Career Opportunities

What is the employment outlook for the GIS industry?

The growth of GIS applications in desktop computing is expanding exponentially, creating new and exciting developments. GIS technology represents a billion dollar industry worldwide, growing 25% per year and serving 50,000 to 100,000 users in more than 100 countries. At this time, job opportunities outnumber qualified graduates. There will continue to be a need for GIS professionals to deal with newer and tougher air and water regulations, as well as civil engineers to rebuild the nation's infrastructure. Look at this site to see the type of jobs offered and
qualifications desired by employers.

www.gjc.org

**Admission Requirements**

GPA of a 2.0 or higher. Completion fo ENGL 150 with a minimum grade of "C" or higher, or permission of program.

**Graduation Requirements**

A minimum of 50% of the total credits required must be earned at Ferris State University.

A minimum grade of C- is required for each course in certificate.

Cumulative GPA must be a 2.0 or higher.

**More Information**

Surveying Engineering Program
915 Campus Urie, SWN 312
        Grand Rapids, MI 49307-2291
Phone: 231-591-2633
e-mail: surveying@ferris.edu

www.ferris.edu/surveying

College of Engineering Technology
Ferris State University
1009 Campus Urie
        Grand Rapids, MI 49307-2280
Phone: 231-591-2890

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Advanced Studies in Business Intelligence

Required Courses

Why Choose Advanced Studies in Business Intelligence?

Responding to industry trends, Ferris State University's College of Business Graduate Programs has created graduate-level advanced studies certificates. These four or five course sequences can be used to obtain stand-alone certificates or as emphasis areas leading to master's degrees in either Information Security & Intelligence or a Master of Business Administration.

The Advanced Studies Certificate in Business Intelligence is designed to prepare individuals with both theoretical and practical experience in designing, developing and utilizing database and informatics systems. Students will utilize tools and techniques including predictive, geographic, and link/visual analysis in a big data/data analytics environment.

Admission Requirements

A bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or better on a 4-point scale.

Graduation Requirements

The Advanced Studies Certificate in Business Intelligence is awarded to individuals who have completed the 12 required credits with a minimum accumulative GPA of 3.0 or greater and no course less than 2.0.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

College of Business Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307-2434
Phone: 231-591-2168
   mail: Shannon ot@ferris.edu
   b: www.ferris.edu/MISI

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Advanced Studies in Design and Innovation Management

Required Courses

Why Choose Advanced Studies in Design and Innovation Management?

Responding to industry trends, Ferris State University's College of Business Graduate Programs has created graduate-level advanced studies certificates. These four course sequences can be used to obtain stand-alone certificates or as emphasis areas leading to a Master of Business Administration.

The Advanced Studies Certificate in Design and Innovation Management equips professionals to leverage design thinking as a change agent that enhances the organizational effectiveness of any business, in any industry. Through a blend of individual and collaborative learning experiences, students develop a comprehensive understanding of the ways in which the method, measure, and language of design drive the practice of business and the process of innovation, and emerge as leaders capable of building a thriving culture of innovation within organizations. (This certificate is offered at Kendall College of Art and Design in Grand Rapids, Michigan)

Admission Requirements

A bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or better on a 4-point scale.

Graduation Requirements

The Advanced Studies Certificate in Design and Innovation Management is awarded to individuals who have completed the 12 required credits with a minimum accumulative GPA of 3.0 or greater and no course less than 2.0.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

College of Business Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307-2434
Phone: 231-591-2168
mail: Shannon ot@ferris.edu
b:https://ferris.edu/mba-online/
rhttp://www.kcad.edu/programs/graduate/design-and-innovation-management-certificate/
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Advanced Studies in Global Logistics

Required Courses

Why Choose Advanced Studies in Global Logistics?

The Professional Development Certificate in Global Logistics provides upper level coursework in logistics, foreign culture, purchasing, and physical distribution. It builds on a person's current knowledge and experience to become more effective in making supply chain management decisions on a global or national level.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive the Global Logistics Certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

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ADA compliant checklist before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Advanced Studies in Incident Response

Required Courses

Why Choose Advanced Studies in Incident Response?

Responding to industry trends, Ferris State University's College of Business Graduate Programs has created graduate-level advanced studies certificates. These four course sequences can be used to obtain stand-alone certificates or as emphasis areas leading to master's degrees in either Information Security and Intelligence or a Master of Business Administration.

The Advanced Studies Certificate in Incident Response is designed to prepare individuals to secure computers, networks, and systems against intrusions and unauthorized access, test and assess security measures, and forensically analyze the environment to determine events and situations that may have occurred in a digital environment. Students will have the opportunity to sit for a variety of certification examinations in Penetration Testing and Digital Forensics.

Admission Requirements

A bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or better on a 4.0 scale.

Graduation Requirements

The Advanced Studies Certificate in Incident Response is awarded to individuals who have completed the 12 required credits with a minimum accumulative GPA of 3.0 or greater and no course less than 2.0.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

College of Business Graduate Programs
11 South Street, BUS 212B
Big Rapids, MI 4 30
Telephone: (231) 5 1-21
- mail: Shannon os t ferris.edu
 e b: www.ferris.edu business programs MISI

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Advanced Studies in Investment

Required Courses

Why Choose Advanced Studies in Investment?

The Investment Analysis Certificate provides a student in any major with the tools and techniques to evaluate investments.

Admission Requirements

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.

- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.

- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA

*This document is subject to change. Questions should be submitted to the COB Dean’s Office/Student Academic Affairs (BUS 200) in care of the Director of Student Academic Affairs (231-591-2420).

Graduation Requirements

2016-2017 Academic Year

22

Ferris State University
A Ferris student will receive the Certificate in Advanced Studies in Investment upon graduation with a Baccalaureate degree, and after completion of the requirements for the certificate with a minimum 2.0 grade point average in advanced studies in investment courses.

No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

**More Information**

Accountancy, Finance & Info Systems  
119 South Street, BUS 212  
Big Rapids, MI 49307-2284  
231-591-2434  
AFIS@ferris.edu

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http://www.acbsp.org

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Advanced Studies in Lean Systems and Leadership

Required Courses

Why Choose Advanced Studies in Lean Systems and Leadership?

Responding to industry trends, Ferris State University's College of Business Graduate Programs has created graduate-level advanced studies certificates. These four course sequences can be used to obtain stand-alone certificates or as emphasis areas leading to master's degrees in either Information Security and Intelligence or a Master of Business Administration.

The Advanced Studies Certificate in Lean Systems and Leadership delivers a comprehensive education for applying lean concepts to various industries: e.g. banks, nonprofits, offices, hospitals, restaurants, manufacturing. The classes prepare individuals to lead, manage, and evaluate a continuous improvement system in a complex work environment. This cutting edge approach will provide graduates with highly sought-after capabilities to improve operational & financial performance and monitor growth within any type of organization.

Admission Requirements

A bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or better on a 4.0 scale.

Graduation Requirements

The Advanced Studies Certificate in Lean Systems and Leadership is awarded to individuals who have completed the 3-credit prerequisite and 12 required credits with a minimum accumulative GPA of 3.0 or greater and no course less than 2.0.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

College of Business Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307
Telephone: (231) 591-2168
E-mail: ShannonYost@ferris.edu
Web: https://ferris.edu/mba-online/

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ABA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Advanced Studies in Performance Metrics

Required Courses

Why Choose Advanced Studies in Performance Metrics?

Responding to industry trends, Ferris State University's College of Business Graduate Programs has created graduate-level advanced studies certificates. These four course sequences can be used to obtain stand-alone certificates or as emphasis areas leading to master’s degrees in either Information Security and Intelligence or a Master of Business Administration.

The Advanced Studies Certificate in Performance Metrics Certificate is designed to educate students in how to appropriately measure various strategies, projects and activities with respect to effectiveness, quality and efficiency. Students will obtain the certificate upon fulfillment of the requirements listed below.

Admission Requirements

A bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or better on a 4-point scale.

Graduation Requirements

The Advanced Studies Certificate in Performance Metrics is awarded to individuals who have completed the 12 required credits with a minimum accumulative GPA of 3.0 or greater and no course less than 2.0.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

College of Business Graduate Programs
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b: https://ferris.edu/mba-online/

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Advanced Studies in Project Management

Required Courses

Why Choose Advanced Studies in Project Management?

Responding to industry trends, Ferris State University's College of Business Graduate Programs has created graduate-level advanced studies certificates. These four course sequences can be used to obtain stand-alone certificates or as emphasis areas leading to master's degrees in either Information Security and Intelligence or a Master of Business Administration.

The Advanced Studies Certificate in Project Management prepares students for careers in program, project, and portfolio management. Several aspects of the Project Management Institute's Project Management Body of Knowledge are integrated into the courses including integration, scope, time, cost, ROI, quality, communication, human resources, risk, and procurement. Additionally, Agile frameworks such as SCRUM are also explored. Students research leadership styles and learn how it differs from management. Projects are assessed for risk and risk management strategies constructed using ethical approaches.

Admission Requirements

A bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or better on a 4-point scale.

Graduation Requirements

The Advanced Studies Certificate in Project Management is awarded to individuals who have completed the 12 required credits with a minimum accumulative GPA of 3.0 or greater and no course less than 2.0.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

More Information

College of Business Graduate Programs
119 South Street, BUS 212B
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Web: www.ferris.edu business programs MISI

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Advanced Studies in Supply Chain Management and Lean Logistics

Required Courses

Why Choose Advanced Studies in Supply Chain Management and Lean Logistics?

Responding to industry trends, Ferris State University's College of Business Graduate Programs has created graduate-level advanced studies certificates. These four course sequences can be used to obtain stand-alone certificates or as emphasis areas leading to master's degrees in either Information Security and Intelligence or a Master of Business Administration.

The Advanced Studies Certificate in Supply Chain Management and Lean Logistics is designed to prepare students to analyze and provide solutions for situations involving the integrated supply chain (manufacturing, purchasing, logistics and transportation, business development and operations, et al). The courses provide students with an ever increasing base of knowledge on how to create value added strategies. This knowledge is exercised through the optimal application of logistics and supply chain coordination. Future managers and executives will use this knowledge the rest of their careers.

Admission Requirements

A bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or better on a 4-point scale.

Graduation Requirements

The Advanced Studies Certificate in Supply Chain Management and Lean Logistics is awarded to individuals who have completed the 3-credit prerequisite and 12 required credits with a minimum accumulative GPA of 3.0 or greater and no course less than 2.0.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

More Information

College of Business Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307-2434
Phone: 231-591-2168
E-mail: ShannonYost@ferris.edu
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Advertising/Integrated Marketing Communications

Why Choose Advertising/Integrated Marketing Communications?

Ferris' Advertising/Integrated Marketing Communications (AIMC) program is at the forefront of a revolution that's sweeping the advertising industry: using advertising and promotion techniques in concert for maximum effect, rather than applying them separately. Our program is highly regarded by employers because it was one of the first to take this up-to-date approach. And there's another thing they like about Ferris' program. Ferris students have opportunities to apply what they're learning in real-world settings. They can interact directly with industry professionals, engage in projects with real clients, and develop complete integrated marketing communications campaigns which are all reasons Ferris AIMC graduates are highly regarded for being able to "hit the ground running."

Career Opportunities

Ferris' Advertising/Integrated Marketing Communications grads get great jobs. They have careers in the best ad agencies in the country from New York to LA. Fact is, the biggest agency in the U.S. has had more Ferris grads working in its headquarters than from any other university. Some Advertising/Integrated Marketing Communications career options are: advertising manager, account executive, account coordinator, account planner, creative director, copywriter, media planner, media buyer, media sales, traffic coordinator, production specialist, or research director. And, there are many others.

Admission Requirements

New Students SAT Scores

- 2.0 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.0 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Advertising/Integrated Marketing Communications program at Ferris leads to a bachelor of science degree in business. Graduation requires a minimum 2.0 GPA in the business core classes, in the major classes and overall.

More Information

Marketing Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2426
Email: MKTG@ferris.edu

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Advertising/Integrated Marketing Communications

Required Courses

Why Choose an Advertising/Integrated Marketing Communications Certificate?

Identified by the U.S. Dept. of Commerce as one of the fastest growing career fields, the Advertising/Integrated Marketing Communications Certificate will build these skills for you:

- Understanding media and markets
- Learning how corporations communicate effectively
- Learning how to effectively manage integrated marketing communications

You will be exposed to the latest thinking regarding creating and writing ads and skillfully placing them for maximum success in influencing customers. You will also learn how to manage the relationships between advertising agencies and their clients.

Career Opportunities

Students with an advertising and integrated marketing background are in demand at companies and agencies that market using advertising, direct and digital marketing, sales promotion and public relations. Job titles include work in account services, media, research or creative.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Advertising/Integrated Marketing Communications Certificate after completion of the requirements with a minimum 2.0 grade point.

No more than 50% of the credits in this certificate may be transferred from another institution,
nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

**More Information**

Marketing Department  
119 South Street, BUS 212  
Big Rapids MI 49307-2284  
Phone: 231-591-2426  
E-Mail: MKTG@ferris.edu

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Advertising/Integrated Marketing Communications

Required Courses

Why Choose an Advertising/Integrated Marketing Communications Minor

If you choose to enroll in this minor, you will be one of a very few select students to receive a minor in Advertising/Integrated Marketing Communications from a College of Business. The emphasis of your minor will not be in the creation of copy or illustration, but in developing integrated marketing communications campaigns that effectively convey an organization's message through the strategic combination of advertising, direct marketing, sales promotion and public relations techniques. As a graduate with this minor, you will be highly sought by companies and/or ad agencies looking for people with a solid grounding in business that are capable of managing client relationships and building marketing success. You will learn such concepts as:

- Understanding markets and media
- Learning how corporations communicate effectively
- Serving as a bridge builder between your organization and the customers who desire to use your organization's products and services.

You will find yourself in a very competitive, challenging and rewarding career. Your career ladder will often lead to high-paying senior management, executive and/or leadership positions.

The minor is based on the idea that there is no substitute for experience. As a student, you become directly involved in the integrated marketing communications and advertising process. You write copy, create layouts, develop media plans and produce integrated marketing communications strategies. In addition, you will choose two specialized classes that will help to focus your career preparation.

Career Opportunities

Integrated marketing communications is a field that offers an astonishing number and variety of specialized career opportunities. It encompasses all the facets of integrated marketing communications, including general advertising, sales promotion, direct marketing, publicity, trade shows and more. You will find yourself in a very competitive, challenging and rewarding career in this field in positions such as account executives, copywriters, creative directors, managers, media planners and buyers, sales people and researchers. Your career ladder will often lead to high-paying senior management, executive and/or leadership positions.

Admission Requirements

Any person who is admitted to a Ferris State University Bachelor’s degree program is welcome
to obtain this minor.

**Graduation Requirements**

You will receive the Advertising/Integrated Marketing Communications minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the Advertising/Integrated Marketing Communications minor courses.

No more than 50% of the credits in this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

**More Information**

Marketing Department  
119 South Street, BUS 212  
Big Rapids, MI 49307-2284  
Phone: 231-592-2426  
Email: MKT@ferris.edu

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African American Studies

Required Courses

Why Choose the African American Studies Minor?

African Americans have made important creative, political and intellectual contributions to the United States and to the cultures of the world. In the study of the history, cultural expression, and political struggles of African Americans, students are given the opportunity to gain a deeper appreciation and understanding of this diverse, dynamic culture and people. In addition, the minor allows students to develop writing and critical thinking skills that are essential to job placement and advancement.

Admission Requirements

This African American Studies minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. Students should choose courses carefully to avoid excessive overlap with their major or second minor. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credits of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Kimn Carlton-Smith
PHONE: 231-591-5850
E AI : KimnCarlton-Smith@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive/ OH 119
-stop Rapids, MI 9307-2280
Phone: 231-591-3675
To request an ADA compliant checklist before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Allied Health Sciences

Required Courses

Why Choose Allied Health Sciences?

The Associate of Applied Science in Allied Health Sciences degree provides an opportunity for three separate groups of students to earn a degree. First are those students who are required to enroll in an associate degree program while earning qualification or meeting requirements for entry into a bachelor degree program. Second the program benefits students who choose to only complete an associate degree program. And the third group of individuals who benefit from this degree are those who have a credential or license in a health profession but who require a degree for employment enhancement.

The program allows students to develop competencies that can be matched with their intended career and/or educational goals. Students can also earn certificate options within the degree that will provide additional specificity.

Career Opportunities

Although it is not the intent of this degree to prepare students for a specific career, it does prepare graduates for entry level or healthcare support positions within healthcare agencies that require a background in medical terminology and an understanding of the health care field. This degree may open doors to other professional opportunities or inspire an interest in advanced study.

According to the Bureau of Labor Statistics, healthcare support positions for associate degree graduates are projected to grow by about 23 percent between 2014 and 2024 (http://www.bls.gov/careeroutlook/2015/article/projections-occupation.htm).

Admission Requirements

Students must meet university admission standards to enter the associate degree program. Students may enter the program in the fall, spring or summer semester.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements
In order to graduate from the program, students must have a cumulative grade point average of 2.0 or better, earn a minimum of 15 credit hours from Ferris State University, and have earned a minimum total of 60 credits.

More Information

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2740
Phone: 231-591-2270

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Allied Health Sciences

Required Courses

Why Choose Allied Health Sciences?

The Bachelor of Science in Allied Health is a completion degree for graduates of associate degrees in the various allied health disciplines who are interested in pursuing a bachelor degree to advance in their chosen profession. The curriculum is designed as a "+2" degree allowing students to transfer 50 credits of professional coursework into the degree. The curriculum includes courses earned during the associate degree, completion of all required general education courses specified by the university, the College of Health Professions upper level core requirements, and 19 credits of electives. The curriculum has been designed to allow students to develop baccalaureate-level competencies that can be well matched with their intended career and professional goals. The program is offered on-line to accommodate the needs of adult learners.

Career Opportunities

The graduates of this program will be able to pursue positions that may open doors to other professional opportunities that require a bachelor's degree as the entry level. As the bachelor degree becomes the standard entry-to-practice for many allied health careers, graduates of this program will be prepared to meet this requirement. Likewise graduates will be prepared to enter graduate programs to pursue alternative career paths.

Graduates who possess both a professional certification in one of the allied health professions and a bachelor degree will face higher job prospects than those with an associate degree only. Employment of healthcare occupations is projected to grow 19 percent from 2014 to 2024, much faster than the average for all occupations, adding about 2.3 million new jobs. (http://www.bls.gov/ooh/healthcare/home.htm).

Admission Requirements

To be admitted to the program, students must have a cumulative grade point average of 2.5, and be enrolled or have earned an associate degree in a health specialty from an accredited college or university. Students may enter the program in the fall, spring or summer semester.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

In order to fulfill graduation requirements, students must have a cumulative grade point average of 2.5 or better, earn at least 40 credits at the 300 level or higher, and earn a minimum of 30 credits from Ferris State University.

More Information

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
Phone: 231-591-2270
http://www.ferris.edu

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Alternative Energy

Required Courses

Why Choose the Alternative Energy Certificate?

Are you concerned about the future of energy resources and its availability? Do you want to be part of the solution to our energy needs? Are you a problem solver?

This certificate will provide you with basic exposure to Energy, Wind-Solar and Alternative energy generation to diversify your educational background.

Admission Requirements:

2.5 Cumulative GPA with successful completion of MATH 216 or MATH 220 and PHYS 211 or PHYS 241.

Graduation Requirements:

A minimum grade of C- in each course and must complete the certificate requirements with an average GPA of 2.0 or higher.

A minimum of 50% of the total credit hours required must be earned at Ferris State University.

More Information:

Mechanical Engineering Program Office
915 Campus Drive, SWN 405B
Big Rapids, MI 4930
Phone: 231-591-2 55
Fax: 231-591-22 1
Email: mech@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 4930 -2280
Phone: 231-591-2890

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Applied Mathematics

Required Courses

Why Choose Applied Mathematics?

The Mathematics Department at Ferris State lets you choose from two different application concentrations for your Bachelor of Science degree in Applied Mathematics: Applied Mathematics and Computer Science. Each concentration requires that you satisfy the General Education requirements of the University plus the Applied Mathematics core courses and the required courses for your chosen concentration.

Career Opportunities

The Applied Mathematics concentration is designed for students who want a broad knowledge of mathematics and its many types of applications. Courses in statistics, operations research and computer science can be combined for a well-rounded applied mathematics foundation, which can lead to careers in business and industry.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Applied Mathematics program leads to a bachelor of science degree. Graduation requires a minimum 2.0 overall GPA and a minimum of 120 credits including completion of all general education requirements as outlined on the General Education website. Additionally, a minimum 2.5 GPA in all math and computer science course work is required. Students may earn only one
B.S. degree in Mathematics from Ferris State University.

**More Information**

ADVISOR: Dr. Kent Sun  
PHONE: 231-591-2579  
EMAIL: MathDepartment@ferris.edu

Department of Mathematics  
Ferris State University  
820 Campus Drive/ASC 2021  
Big Rapids, MI 49307  
Phone: 231-591-2565

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Applied Mathematics/Computer Science Concentration

Required Courses

Why Choose Applied Mathematics/Computer Science Concentration?

The need for people with a computer science background is very high and continues to grow. Virtually every organization relies heavily on computers. Computer scientists write programs, develop algorithms and design software.

Career Opportunities

The field of computational mathematics combines knowledge of computer science with that of mathematics and is in great demand throughout the world.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Applied Mathematics program leads to a bachelor of science degree. Graduation requires a minimum 2.0 overall GPA and a minimum of 120 credits including completion of all general education requirements as outlined on the General Education website. Additionally, a minimum 2.5 GPA in all math and computer science course work is required. Students may earn only one B.S. degree in Mathematics from Ferris State University

More Information
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Applied Speech Communication

Required Courses

Why Choose Applied Speech Communication?

Speech communication is an interdisciplinary field of study that draws upon its historic roots in rhetoric as well as theory and research in anthropology, psychology, and sociology. Students take foundational courses in public presentation, group dynamics, and interpersonal communication. Additional coursework includes studies in intercultural communication, organizational communication, communication ethics, and communication theory and research.

One unique feature of the Applied Speech Communication program is the option to choose an existing FSU minor or "Application to the Workplace" which requires students to take at least six courses in their chosen career area. Additionally, students must also complete an internship for the purpose of gaining real-world experience that employers value.

Career Opportunities

A degree in Applied Speech Communication provides students with specific skills and in doing so prepares them for a variety of careers in today's ever-changing job market. Program graduates are working in customer service and sales, community outreach and advocacy, human resources, and management, and the mass media field such as broadcasting. Careers are pursued in both the public and private sectors.

Admission Requirements

First-year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity, and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here.

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

The Applied Speech Communication program leads to a bachelor of science degree. Graduation requires (1) a minimum 2.0 GPA overall, (2) no grade lower than 'C' in any COMM or ENGL class, (3) a 2.0 GPA in the applications to the workplace courses, (4) at least 40 credits at or above the 300 level, (5) completion of all general education requirements as outlined on the General Education website and (6) completion of a minimum of 120 credits.

More Information

ADVISOR: Dr. Neil Patten
PHONE: 231-591-3621
EMAIL: NeilPatten@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive/JOH 119
Big Rapids, MI 49307-2280
Phone: 231-591-3675

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Applied Speech Communication

Required Courses

Why Choose Applied Speech Communication?

Speech communication is a broad and dynamic field of study. Students pursuing an associate of arts degree take foundational courses in public presentation, group dynamics and interpersonal communication. In addition, they are required to take coursework in communication theory. Once they have completed these core courses, students may then choose nine hours of electives that are particularly suited to their individual interests. These include courses in conflict resolution, family communication, gender communication, organizational communication, persuasion and persuasive speaking, interviewing, human relations, nonverbal communication, broadcast presentation, broadcast writing, technical and professional presentation, intercultural communication, and leadership.

Career Opportunities

While technical expertise is important to future employment, surveys of employers continually reveal that among the most desirable qualities of a job applicant are communication skills and the ability to work effectively with a diverse population. The associate degree in Applied Speech Communication provides graduates with a solid foundation in communication which will enhance their marketability in today’s competitive job market.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.
Graduation Requirements

The Applied Speech Communication program leads to an Associate in Arts degree. Graduation requires (1) a minimum 2.0 GPA overall, (2) a minimum 'C' grade in all communication courses, (3) completion of all general education requirements as outlined on the General Education website and (4) completion of a minimum of 60 credits.

More Information

ADVISOR: Dr. Neil Patten
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Ferris State University
1009 Campus Drive/JOH 119
Big Rapids, MI 49307-2280
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Applied Speech Communication with Public Advocacy Concentration

Why Choose Applied Speech Communication with Public Advocacy Concentration?

In the workplace or in the community, we are faced with issues that require people to take a position and to advocate for better solutions. Advocacy is a key communication skill for all careers, but especially for careers in law, government, healthcare, nonprofit organizations, and social services. The ability to advocate appropriately and effectively for personal needs contributes to life satisfaction. Students select elective courses from an array of disciplines to build a knowledge base for the workplace or community for which they will advocate.

Career Opportunities

A degree in Applied Speech Communication with a concentration in Public Advocacy positions students with specific skills and experiences to prepare them for success in a variety of careers in advocacy positions.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Applied Speech Communication program leads to a bachelor of science degree. Graduation
requires (1) a minimum 2.0 GPA overall, (2) no grade lower than 'C' in any COMM, or ENGL class, (3) a 2.0 GPA in the applications to the workplace courses, (4) at least 40 credits at or above the 300 level, (5) completion of all general education requirements as outlined on the General Education website and (6) completion of a minimum of 120 credits.

More Information

Advisor: Dr. Stephanie Thomson
Phone: 231 3504
email: StephanieThomson@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive/ OH 121
Big Rapids, MI 49307 2280
Phone: 231 3675

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Architectural Technology

Required Courses

Why Choose Architectural Technology?

The two-year Architectural Technology curriculum provides a comprehensive framework of technical abilities and conceptual knowledge that form the foundation of the architecture profession. Specifically, the curriculum is designed with an emphasis on visual communication, building materials, building systems and digital technology, combined with architectural history, sustainability and design principles.

Under the guidance of the faculty of professional, licensed architects, the program mission is to prepare students to continue education for a baccalaureate degree in professions related to the built environment.

Taught by practitioners, the Architectural Technology curriculum is unique in its emphasis on the practice of the profession. Studio classes provide students with experience in the areas of residential and commercial building materials, CAD and BIM (Building Information Modeling), building codes, presentation techniques, architectural history, and architectural design. The curriculum provides skills, knowledge, and the preparation necessary for success in further educational opportunities after graduation.

Many associate degree graduates take advantage of a double degree path that includes two of the following baccalaureate degrees: a BS in Architecture and Sustainability, a BS in Facility Management, or a BS in Construction Management. These paths consist of a structured, organized curriculum that allows students to complete the associate degree and two baccalaureate degrees in five years. (Further preparation may be required for entry into the Construction Management program.)

Career Opportunities

The ongoing expansion and specialization in technological applications of building systems and environmental issues, as well as the growth in architectural services, has greatly increased the need for skilled architectural technicians to function in a support role with architects and other professionals related to the built environment.

A beginning technician works closely with a team to produce design development drawings, construction documents and specifications. With experience, the architectural technician becomes involved in other phases of work such as project field observation, preparation of written specifications, building code analysis, CAD, BIM (Building Information Modeling), and presentation of designs.
Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of study. Among first-time students in our technical programs, the average high school GPA is 3.2, and the average ACT composite score is 21.

Students entering the Architectural Technology program must have a high school diploma with a minimum 2.75 GPA or equivalent, a minimum ACT composite of 19 or a minimum SAT composite of 990, a minimum ACT Math subscore of 19 or a minimum SAT MATH of 550, and an ACT reading subscore of 17.

General Education Requirements

For all University General Education requirements for an Associate’s degree click here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or a program advisor for program specific General Education requirements.

Graduation Requirements

The Architectural Technology program at Ferris leads to an Associate in Applied Science degree.

Student must:

Maintain a 2.0 Cumulative FSU GPA

Met the FSU Residency requirement of a minimum of 15 Ferris State credit hours earned.

Completed a minimum of 60 total credit hours.

Students must complete all general education requirements as outlined on the General Education website.

More Information

Architecture and Facility Management Program Office

915 Campus Drive/SWN 101
Big Rapids, MI 49307
Phone 231-591-3100
email: atfm@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890
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Architecture and Sustainability

Required Courses

Why Choose Architecture and Sustainability?

The two year Architecture and Sustainability curriculum grows from the AAS degree in Architectural Technology, which provides students with the foundation of technical knowledge critical in architectural education. The Bachelor of Science program adds to this foundation with studio courses in architectural design, community studies, environmental systems, and additional technical courses that shape a comprehensive undergraduate program in architecture.

The special emphasis of the program is the integration of sustainable building principles at all levels of the curriculum. Architectural materials and systems selection, site planning, community development and historic preservation are increasingly understood to play a vital role in the reduction of waste in terms of energy and natural resources. The program is designed to allow students to explore these important aspects of the profession of architecture. This critical evolution in architectural education prepares students to take their place in the next generation of professionals.

Taught by practitioners, the curriculum provides skills, knowledge and aspirations necessary to allow students to become successful professionals and prepare students to:

- Enter the employment market as intern architects
- Continue education for a master's degree in architecture and eventual licensure as a registered architect.

Courses and studios in the program are structured to mirror the professional office environment, requiring students to be motivated and self-directed. Studios balance the practical and the theoretical aspects of architecture, design and planning to reflect the complex set of parameters that shape the architecture profession.

A special focus of the program is the Small Town Studio (ARCH 441.) This unique program component allows students to engage directly with their community and explore the ways in which architecture and planning can expand on the cultural and economic potential of small towns in Michigan and regionally.

Career Opportunities

A recent study by the National Council of Architectural Registration Boards (NCARB) suggests that the next generation of architects will need to be capable of integrating the practices of sustainability into established work methods. Specialized training in sustainability as it relates to building materials, design and planning, as well as the development of an organic relationship
between buildings and their environment, will be a valuable credential in the decades ahead.

There are no geographic limitations on employment opportunities, however, educational requirements for architectural licensure vary by state, so students should research these requirements, as well as the requirements for graduate education should they choose to pursue a master's degree.

**Admission Requirements**

Admission to the program is competitive and open to Ferris State University AAS graduates, and transfer students at the third year with appropriate preparation. Students entering the Architecture and Sustainability program must have a minimum 2.75 GPA. In addition, they must present a portfolio that demonstrates competency in design principles, architectural graphics, architectural design, and construction documents.

Along with the portfolio, applicants must submit a letter of intent expressing their preparation for and commitment to the study of architecture. Applications and portfolio should be submitted by February 1 prior to fall semester requested. For Portfolio Guidelines visit the program website.

**General Education Requirements**

For the University General Education requirements for a Bachelor degree click here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or a program advisor for program specific General Education requirements.

**Graduation Requirements**

The Architecture and Sustainability program at Ferris leads to a Bachelor of Science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website.

**More Information**

Architecture and Facility Management Program Office
School of Built Environment

915 Campus Drive, S N 101
Big Rapids, MI 49307
Phone: 231-591-3100
e-mail: atfm@ferris.edu
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Art History

Required Courses

Why Choose the Art History Minor?

Art is at the core of the human experience, helping us to communicate our ideas and values visually. Art History minors study art in order to understand human culture and society. We study various media such as paintings, sculptures, prints, and photographs, as well as large-scale works of architecture and urban planning. Because we experience so much of our world visually, it is important to learn to analyze what we see. A minor in Art History will help prepare students to observe carefully, think critically, and respond creatively in whatever career paths they choose to pursue.

A minor in Art History provides interdisciplinary study that will complement a wide range of majors. Introductory courses offer a broad survey of art from Prehistory to the twenty-first century. Specialized courses provide in depth study of ideas and historical periods. These classes include Greek & Roman Art, American Art, African American Art, Modern Art, and Women and Art. Study Abroad courses are also taught by Ferris professors in Europe, with visits to world class museums and monuments.

Admission Requirements

This Art History minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Rachel Foulk
PHONE: 231-591-2776
E-MAIL: RachelFoulk@ferris.edu

Humanities Department
Ferris State University
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Automotive Engineering Technology

Required Courses

Why Choose Automotive Engineering Technology?

The AET program is a four year degree program that concentrates on engineering skills required by the automotive industry. Students receive hands-on laboratory experience in engineering processes, mechanical testing, metallurgy, emission and dynamometer testing. In addition, an on-the-job engineering internship is an important part of the program.

AET is an instructional program that prepares individuals to apply basic engineering principles and technical skills in support of engineers and other professionals engaged in developing, manufacturing and testing self-propelled ground vehicles and their systems. Includes instruction in vehicular systems technology, design and development testing, instrument calibration, test equipment operation and maintenance, and report preparation.

Career Opportunities

Every global automotive manufacturer doing business in America requires engineering development with the precise skills offered by this program, many graduates are faced with the difficult decision of choosing from several highly desirable and lucrative job offers.

Admission Requirements

Students entering the Automotive Engineering Technology program from high school must have a 2.75 cumulative GPA along with an 18 ACT composite and a math sub-score of 19 or 950 SAT16 Total and a SAT16 math sub-score of 500. Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

Students transferring into Automotive Engineering Technology must also have a minimum 2.75 GPA in automotive courses and a minimum 2.5 GPA overall. A transfer student expecting to enter the AET program as a junior must have completed the equivalent of the following Ferris State University courses: AUTO 111, AUTO 112, AUTO 113, AUTO 114, AUTO 115, AUTO 117, AUTO 200, AUTO 213, ENGL 150, ENGL 250, MATH 116, PHYS 211, MATL 240, CHEM 114, three credits of Cultural Enrichment and three credits of Social Awareness.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General
Education requirements.

Graduation Requirements

The Automotive Engineering Technology program at Ferris leads to a bachelor of science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website.

More Information

Automotive Programs Office
708 Campus Drive
Big Rapids, MI 49307-2281
Phone: (231) 591-2655
auto@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

The College of Engineering Technology Automotive Engineering Technology, BS program is accredited by the Engineering Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ETAC-ABET)
http://www.abet.org/
The next accreditation review is scheduled for 2018-2019.

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUcurriculum@ferris.edu
Automotive Management

Required Courses: 2+2 Option

Required Courses: 0-4 Option

Why Choose Automotive Management?

The Automotive Management (AMGT) program, formerly Automotive & Heavy Equipment Management (AHM), is a baccalaureate degree program that focuses on providing the transportation industry with state-of-the-art technical and business managers for service, parts, sales, leasing, warranty, and customer relations positions. Opportunities exist with car, truck, equipment, and component manufacturers; suppliers; dealers; fleets; insurance companies; the aftermarket; and local and federal government agencies.

The AMGT program prepares graduates for careers in the service sector. Regardless of where a product is designed or manufactured, graduates are prepared to provide knowledgeable, skilled, world-class customer service. One in seven jobs in the United States is related to transportation, primarily in the service sector, and these jobs cannot be outsourced. The AMGT program emphasizes developing verbal and written communication as well as organizational and time management skills. On-the-job management internships further prepare the graduate to enter this lucrative field with experience.

The AMGT program has two baccalaureate options:

The 2+2 option is available for students with an Auto Service, Heavy Equipment, or Auto Body related associate degree who desire to obtain a B.S. degree. (In other words - this option is for students who want to marry their 2-year associate degree with a third and fourth year and obtain a B.S. degree.)

The 0+4 option is available for high school graduates who know they want a technical and business management degree. This option has a technical focus the first two years, which will then transition into the Auto Management junior senior year curriculum.

Career Opportunities

Upon completion of this degree, graduates enter the field as: Service Managers, Field Service Representatives, Field Service Engineers, Sales Representatives, Customer Relations Managers, Insurance Adjusters, Fleet Managers, Parts Managers, Regional Parts Managers, Account Managers, Finance Managers, Sales Managers, Aftermarket Managers, Warranty Administrators, Service Advisors, and Body Shop Managers.

Because every global manufacturer and supplier doing business in America requires managers who know how to manage and lead teams effectively, graduates are in high demand.
with the precise skills offered by this program, many graduates face the difficult decision of choosing from several highly desirable and lucrative employment opportunities. Graduates are often sought by industry leaders including GM, Ford, Chrysler, Toyota, Honda, Nissan, Hyundai, Cummins Engine, Detroit Diesel, TAC Automotive, State Farm Insurance, as well as major dealership groups.

Admission Requirements

2+2 option: Individuals interested in transferring into the Automotive Management program must first have completed an associate degree in an automotive or a heavy equipment related technical area, or equivalent, with a minimum 2.3 G.P.A. and MATH 110 (College Algebra) competency. Graduates of manufacturer/dealership co-op programs such as General Motors' ASEP, Ford's ASSET, Chrysler's Cap, or Toyota's T-10 program also qualify.

0+4 option: Students interested in enrolling in this option must meet the program entry requirements of a 2.75 High School Cumulative GPA along with an 18 ACT composite and a math sub-score of 19 or 950 SAT16 Total and a SAT16 math sub-score of 500. Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

*Advanced standing in either program option can be achieved by transfer of credit, armed forces study, College Level Examination Program (CLEP) and course proficiency examinations.

General Education Requirements

All University General Education requirements for a Bachelor's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Automotive Management program at Ferris leads to a Bachelor of Science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website.

More Information

Automotive Management Program
Ferris State University
708 Campus Drive
Big Rapids, MI 49307-2281
E-mail: auto@ferris.edu
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Automotive Management

Required Courses

Why Choose the Automotive Management Minor?

This minor is designed to provide students with a solid overview of the business and cultural side of the transportation industry. Students are prepared to transition into sales, marketing, distribution, and customer relations positions with vehicle and equipment manufacturers, suppliers, dealers, and aftermarket companies.

Ferris has been providing the automotive industry with entry-level managers since 1971, and is well known and respected for providing individuals with these skills.

Admission Requirements

The minor is open to all students enrolled and pursuing a baccalaureate or higher degree in majors other than Automotive Management. Students are expected to meet prerequisites for all courses.

Graduation Requirements

Students are also required to meet with their Automotive Management faculty advisor to plan and track their progress throughout the minor degree.

An academic minor may only be awarded upon completion of a baccalaureate or higher at Ferris State University.

Students must

- maintain a 2.00 cumulative FSU GPA
- earn a minimum grade of C- for each course in the minor
- have a minimum of 18 semester credit hours
- have a maximum of 1/3 of the credits, but no more than 7 credits in a minor, may overlap the students major
- have a minimum of 50% (9 credits) of the courses in the minor at the 200 or above level
- have at least one-half (1/2) of the credits (9 credits) from Ferris (FSU Residency requirement)

More Information

Automotive Management Program
708 Campus Drive
Big Rapids, MI 49307-2281
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Automotive Service Technology

Required Courses

Why Choose Automotive Service Technology?

This program features instruction in modern facilities with an emphasis on automotive diagnosis, inspection, adjustments and service. In addition, students are taught to test, diagnose, service and replace electronic controls, fuel injection components and accessories, air conditioning units, power windows and seats, lighting circuits, and safety and warning devices.

Students complete more than 550 hours of repair and adjustment on vehicles under the supervision of automotive service faculty. Students who wish to continue their education may pursue a bachelor's degree in Automotive Management, Automotive Engineering Technology or nearly 20 other degree programs.

Career Opportunities

The importance of competent automobile repair in today's mobile society cannot be overstated. Because vehicles have skyrocketed in cost and are kept in service longer, there is a shortage of trained, knowledgeable technicians.

Skilled technicians are needed to perform preventive maintenance, repairs and adjustments. Challenges in this field include servicing electrical systems, brakes, wheel alignments, fuel injection systems, transmissions and driveline repairs, among many others.

Employment opportunities exist in every community and in all parts of the country. Advancement in the field is available, from service person to manager to shop owner. The opportunities are limitless.

Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20.

Students entering the Automotive Service Technology program must have a high school diploma and have a 2.75 cumulative GPA along with an 18 ACT composite and a math sub-score of 19 or 950 SAT16 Total and a SAT16 math sub-score of 500. Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

Enrolled students need to furnish their own hand tools, protective eye devices and work
uniforms.

**General Education Requirements**

All University General Education requirements for an Associate's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Automotive Service Technology program at Ferris leads to an associate in applied science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 15 credits of Ferris classes (FSU Residency requirement)
- have a minimum 60 total credits to earn an associate degree
- complete all general education requirements as outlined on the General Education website.

**More Information**

Automotive Program Office
708 Campus Drive, AUT 101
Big Rapids, MI 49307-2281
Phone: 231-591-2655
auto@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

The College of Engineering Technology Automotive Service Technology, AAS program is accredited by the National Automotive Technicians Education Foundation (NATEF) through December 2020.
http://www.natef.org/

The next accreditation review is scheduled for 2019-2020

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Basic CNC Programming and Machine Operation

Required Courses

Why Choose a Basic CNC Programming & Machine Operation Certificate?

This certificate gives you hands on experience with Basic CNC and Machine operations. You will taught basic fundamentals in programming, CNC and CAM and manufacturing processes. These skill sets match up well for anyone majoring in technical related programs or business programs related to the manufacturing industry.

Admission Requirements

Student must be have a 2.0 or higher cumulative GPA.

Must be eligible to take MATH 115 concurrently.

Graduation Requirements

A minimum of 50% of the total credits required must be earned at Ferris State University.

If a student is in an FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.

A minimum grade of C- is required for each course in certificate.

Cumulative GPA must be a 2.0 or higher.

More Information:

Manufacturing Program Office
915 Campus Drive - SWN 220
Big Rapids, MI 49307
Phone: 231-591-2511

manufacturingdegrees@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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Biochemistry

Required Courses

Why Choose Biochemistry BS?

The Bachelor of Science (BS) degree in Biochemistry at Ferris provides a core of chemistry courses that includes organic, inorganic, physical chemistry, and biochemistry. These courses take the student through the atomic and molecular nature of matter and ultimately focus on the behaviors of matter in living systems. The chemistry is supported by solid coursework in mathematics, physics and biology. Biochemistry students should have a particular interest in and aptitude for science, especially as it pertains to living systems, and a desire to explore the connections with other fields of knowledge. Advanced students may participate in independent study and undergraduate research projects.

Career Opportunities

In these days of rapid advances in the biosciences—from genetically engineered agricultural products to artificial photosynthesis to DNA fingerprinting—there are few careers that have no connection to chemistry and biochemistry. A BS in Biochemistry can prepare a student for a number of professional schools including medical, dental, veterinarian, even law school. Biochemists are often employed as research assistants in industry, government, education and health service. It can also be a very useful degree for individuals who are considering careers in interdisciplinary fields, for example, marketing new technologies, technical writing/communication, forensic analysis and so on. A major in biochemistry provides an education in a dynamic field with applications to suit a wide variety of personal career goals.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course or they will be considered as first year students.

General Education Requirements

This degree requires completion of the General Education requirements for a Bachelor of Science degree. Details of these requirements are delineated on the General Education website.

All University General Education requirements for a Bachelor’s degree is here.
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

In order to graduate with a Bachelor of Science in Biochemistry, a student must complete a minimum of 120 credit hours including the Biochemistry major, and all general education requirements for the Bachelor of Science degree. No grade lower than 'C' will count toward the major. Residency requirement is 30 minimum FSU semester credits, with a minimum of 40 credits numbered 300 or higher (excluding community college credits). Students may not earn the BIOC BS degree in conjunction with any of the following degrees: ICT AAS, CHEM BA, BIOC BA, Industrial CHEM BS or BIOT BS.

**More Information**

ADVISOR: Dr. Kim Colvert  
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Department of Physical Sciences  
Ferris State University  
820 Campus Drive/ASC 3021  
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Phone: 231-591-2580

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FSUCurriculum@ferris.edu
Biochemistry

Required Courses

Why Choose Biochemistry?

The Bachelor of Arts (BA) degree in Biochemistry at Ferris provides a core of chemistry courses that includes organic, inorganic, physical chemistry, and biochemistry. These courses take the student through the atomic and molecular nature of matter and ultimately focus on the behaviors of matter in living systems. The chemistry is supported by solid coursework in mathematics, physics and biology. It stresses breadth with fewer required chemistry courses than a Bachelor of Science degree but good scientists also need to be exposed to the arts, the social sciences, and humanities. Biochemistry students should have a particular interest in and aptitude for science, especially as it pertains to living systems, and a desire to explore the connections with other fields of knowledge. Advanced students may participate in independent study and undergraduate research projects.

Career Opportunities

In these days of rapid advances in the biosciences—from genetically engineered agricultural products to artificial photosynthesis to DNA fingerprinting—there are few careers that have no connection to chemistry and biochemistry. A BA in Biochemistry can prepare a student for a number of professional schools including medical, dental, veterinarian, even law school. Biochemists are often employed as research assistants in industry, government, education and health service. It can also be a very useful degree for individuals who are considering careers in interdisciplinary fields, for example, marketing new technologies, technical writing/communication, forensic analysis and so on. A major in biochemistry provides an education in a dynamic field with applications to suit a wide variety of personal career goals.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

This degree requires completion of the General Education requirements for a Bachelor of Arts
degree. Details of these requirements are delineated on the General Education website.

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

In order to graduate with a Bachelor of Arts in Biochemistry, a student must complete a minimum of 120 credit hours including the Biochemistry major, the BA core, an academic minor in another field of study, and all general education requirements for the Bachelor of Arts degree. No grade lower than 'C' will count toward the major.

**More Information**

ADVISOR: Dr. m Colvert  
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E AI: mColvert@ferris.edu

Department of Physical Sciences  
Ferris State University  
820 Campus Drive/ASC 3021  
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Biology

Required Courses

Why Choose Biology?

The B.S. Biology programs provides a quality bachelors degree in biology. Ferris is a recognized leader in vocational education, and students take 36 or more credit hours in biology courses plus eight or more semester credit hours in biology-related courses. The B.S. Biology program is individually designed, matching the abilities of each student with his/her academic interests. The B.S. Biology program at Ferris is flexible, allowing students of differing abilities and interests to choose a program of study that best fits them. The program also incorporates applied courses from the Ferris College of Health Professions and College of Pharmacy, creating a unique bachelors degree in biology.

Career Opportunities

Graduates of the B.S. Biology program are in high demand in the science and technology industry and may enter highly competitive professional programs. Students wishing to complete a health professions science degree program can work toward a bachelors degree in applied biology to increase their knowledge of basic science and increase their chances for employment advancement. Students may also choose to use this degree as a prerequisite for advanced study, such as medicine, dentistry or Optometry. Students may also choose to use their bachelors degree to pursue advanced degrees in the biological sciences. Because admission to advanced programs is competitive, academic excellence as an undergraduate is important.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General
Graduation Requirements

The Biology program leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C-' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

More Information

PROFESSIONAL ADVISOR: Kim Ducat
PHONE: 231-591-2745
EMAIL: KimberlyDucat@ferris.edu

PROFESSIONAL ADVISOR: Jenice Winowiecki
PHONE: 231-591-2555
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Department of Biological Sciences
Ferris State University
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Phone: 231-591-2550

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Biology

Required Courses

Why Choose the Biology Minor?

This minor is designed for students who desire to gain a general understanding of all major areas of the biological sciences. This minor is suitable for all students in all majors who want to advance their knowledge of living systems and their interactions with the environment.

Admission Requirements

This Biology minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. Students must have at least a 'C' in all BIOL courses and a minimum of 20 credits.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Brad Isler
PHONE: 231-591-2641
EMAIL: BradleyIsler@ferris.edu

Department of Biological Sciences
Ferris State University
820 Campus Drive/ASC 2004
Big Rapids, MI 49307
Phone: 231-591-2550

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Biology Education

Required Courses

Why Choose Biology Education?

Biology teachers combine strong quantitative skills with keen observational skills to explore the living world at scales ranging from molecular and cellular to community and global. The technological revolution has added an infectious new excitement to the lessons of biology. Biology education today provides access to new knowledge, helping people understand how things happen in the natural and physical environment.

The employment outlook for biology education students is excellent. Graduates of Biology Education are highly sought after for High School biology, Middle School science, as well as education programs at zoos, aquaria, nature centers, botanical gardens, and environmental camps. This program partners well with Chemistry Education and Mathematics Education for teachers in the most demand across the nation. Ferris has a strong program centered around the Michigan Test for Teacher Certification in Biology, emphasizing the ecology, genetics and evolution, organismal biology, cellular function, and scientific inquiry.

Graduates are prepared to teach in high schools and also have the necessary basic preparation to enter a career in industry or pursue an advanced degree in science. One semester of directed teaching at the secondary level is required. A teaching minor is also required.

Career Opportunities

Biology education is a four-year curriculum that may be selected as a major. A teaching minor also is required. You cannot have a biology teaching minor with this teaching major. Successful completion of the program leads to recommendation for a Michigan secondary provisional certificate. The program is designed to take full advantage of the unusual, hands-on Ferris instructional capabilities in developing both teaching and subject matter competency. Students receive the broad background in classroom, laboratory and field training essential to be effective teachers.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.
As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The biology education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, biology, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

A 2.50 GPA is required for successful completion of the Biology major.

**More Information**

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Biology Teaching for Secondary Education

Required Courses

**Why Choose Teaching Minors for Secondary Education Majors**

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

**Admission Requirements**

Secondary Education majors may choose an appropriate teaching major from the following areas: biology, business, chemistry, English, geography, history, marketing, mathematics, political science or social studies.

You cannot have a biology teaching major with this minor.

**Graduation Requirements**

A 2.50 GPA is required for successful completion of this minor.

**More Information**

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Biology/Environmental Biology Concentration

Required Courses

Why Choose Environmental Biology?

The environment belongs to everyone. Unfortunately, not everyone is taking care of the environment.

Ferris is a world leader in career-oriented education and is committed to undergraduate education. Ferris also has an exceptionally strong commitment to academic advising. In the Environmental Biology concentration, your academic advisor specializes in just environmental biology. The Applied Biology program at Ferris allows you to customize your academic program to meet both your academic abilities and career goals.

Sciences at Ferris are a University strength in part because of long-term nationally recognized science programs in pharmacy and optometry. You will be taught basic science courses by the same science faculty. The low student-faculty ratio at Ferris means that most basic science labs are taught by the science professors themselves.

Career Opportunities

Environmental policies and concerns are major issues facing everyone in the world in the twenty-first century. Career opportunities exist in environmental law, government, industry and academia.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General
Education requirements.

**Graduation Requirements**

The Environmental Biology program leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C-' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

**More Information**

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Biology/Forensic Biology Concentration

Required Courses

Why Choose Forensic Biology?

You've seen them on T.V. gathering evidence at a crime scene or testing DNA samples in a lab. They are forensics experts, scientific detectives who search for clues that answer the "who, what and when" questions of a legal investigation. If you have an inquiring mind and like biology and chemistry, you may be interested in Ferris State's Forensic Biology degree.

Forensic biology is the application of biological knowledge and laboratory techniques to criminal and civil investigations as well as to the identification of unknown individuals. The forensic biology degree builds on a solid foundation of biology and chemistry, with unique core courses in forensic biology, forensic chemistry, forensic human pathology and forensic DNA analysis. The degree is designed for the student who is interested in analyzing biological evidence as it relates to legal and other investigations, or collecting and processing evidence at a crime scene or in a laboratory. It is also excellent preparation for graduate work in specialized areas of forensics.

Students receive extensive training in the collection and analysis of biological evidence in both lab and field settings. Students learn how to evaluate mock crime scenes that include decomposition of animal remains in the field. They also learn how to document, collect and analyze the insects, plants and other biological evidence to determine the time of death. Students learn to identify skeletal remains, and evaluate trauma.

Career Opportunities

Forensic biology is in the midst of a revolution, and the need for well-trained forensic biologists is growing at a rapid pace. The demand for qualified forensic biologists is increasing due to the technological advances in the last five years in genetics and molecular biology.

Graduates with this degree would be eligible for entry-level positions in forensic laboratories, medical examiners offices and law enforcement agencies. It should be stressed, however, that further graduate-level education might be required for you to become employable in your chosen career. To fully prepare for any career you should understand the necessary qualifications. In the area of forensic biology, one good source of current job openings and the background required can be found at the American Academy of Forensic Sciences website (www.aafs.org).

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds that include high school courses in science and chemistry. High school courses and grade point
average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics sub scores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.5 overall GPA including an English and mathematics course or they will be considered as first year students.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Forensic Biology program leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C-' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

**More Information**

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Biology/Pre-Dentistry Concentration

Required Courses

Why Choose Pre-Dentistry?

The Pre-Dentistry program at Ferris emphasizes natural science courses including biology, organic and inorganic chemistry, biochemistry, microbiology, human physiology, anatomy and physics. This program is designed to prepare you for qualifying exams (DAT) and for professional schools.

Get Accepted to Dental School

A letter of acceptance from a dental school doesn’t come easily. It requires effort, time and careful preparation. Professors and advisors with knowledge and expertise in this field are essential, and students get a helping hand into dental school from the professionals at Ferris.

In fact, professional training in the health fields has been a specialty at Ferris for more than 100 years. Graduates of the Pre Dentistry program at Ferris benefit from this rich history and take with them important hands-on skills as they pursue a position in dental school. Students must be aware that admission to dental schools is highly selective and the student must achieve a very high grade average and DAT score to be competitive. FSU graduates with this type of academic accomplishment experience a high rate of acceptance into dental schools.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics sub test scores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and a mathematics course or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

The Pre-Dentistry program leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C-' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall.

Entrance to most dental schools is highly competitive. Most schools do not accept applicants who have less than a 3.5 college GPA. Applicants also must take qualifying exams (DAT) and be interviewed by dental school personnel. Students may earn only one B.S. degree in Biology from Ferris State University.

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Biology/Pre-Medicine Concentration

Required Courses

Why Choose Pre-Medicine?

The Pre-Medicine program provides a quality bachelor's degree in biology. Completion of this degree with the recommended courses enhances a student's application to medical school. Students who don't wish to enter medical school can consult with their advisor for alternate career paths.

Get Accepted to Medical School

Being accepted to medical school doesn't come easily. It requires effort, time and careful preparation. To ensure success for our students, Ferris offers a helping hand into medical school. To help students make the best choices for their professional goals, advisors from the Ferris Pre-Medicine advisory committee work closely with students throughout their four years of study. They help with course selection and development of social, personal and professional maturity. They also work with students to match abilities with interests to find the student's most appropriate health-related career path. Furthermore, the low student-faculty ratio at Ferris means that most basic science labs are taught by the science professors themselves.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Pre-Medicine program at Ferris leads to a Bachelor of Science degree. Graduation requires a
minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C-' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

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Biology/Pre-Optometry Concentration

Required Courses

Why Choose Pre-Optometry?

The Pre-Optometry program stresses a foundation of chemistry, biology, physics and mathematics to meet the requirements of the Michigan College of Optometry at Ferris State University and most other optometry schools. In addition to completing coursework, students can serve as practice patients in the University's optometry clinic and can join the Pre-Optometry Club, a supportive network of students with common goals and interests. Superior academic preparation and awareness of optometry as a profession are very important factors in a candidate's preparation.

The Michigan College of Optometry (MCO) prefers to accept applicants who have completed a bachelor degree. However, MCO will continue to accept applications from candidates who have completed a minimum of three years (90 semester hours) of specified course work at a college or university. The listing of courses presented in this program sheet fulfills the minimum specified course work to be contained in the initial 90 credits as well as the additional course work necessary to complete the Bachelor's Degree in Biology. An application to the Michigan College of Optometry may be submitted while the minimum requirements are being completed. The Michigan College of Optometry website at www.Ferris.edu/mco will provide additional information on application issues.

The coursework also prepares students to take the Optometry Admission Test. This test should be initially taken in early summer of the year prior to the year of entry to MCO. This test may be retaken without penalty ninety days after the initial test.

Career Opportunities

Pursuing a career in optometry can be demanding, but graduates find the career both financially and personally rewarding. Students who are interested in becoming optometrists and who are enrolled in the Pre-Optometry program are assured of programming that meets the specific requirements of the Michigan College of Optometry.

Students have the opportunity to interact with fellow students and faculty of the Michigan College of Optometry and to explore the program and facilities firsthand.

Generally, admission to a college of optometry requires at least three years of undergraduate preparation. The doctor of optometry degree offered by Ferris requires a minimum of three years of pre-professional study followed by four years of study in the Optometry curriculum.

Admission Requirements
First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.5 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Pre-Optometry program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a ‘C’ is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

More Information

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2018-2019 Academic Year 91 Ferris State University
Biology/Pre-Pharmacy Concentration

Required Courses

Why Choose Pre-Pharmacy?

The Pre-Pharmacy program provides a quality bachelor's degree in biology. Completion of this degree with the recommended courses enhances a student's application to pharmacy school. Students who don't wish to enter pharmacy school can consult with their advisor for alternate career paths.

Get Accepted to Pharmacy School

Being accepted to pharmacy school doesn't come easily. It requires effort, time and careful preparation. To ensure success for our students Ferris offers a helping hand into pharmacy school. To help students make the best choices for their professional goals, advisors from the Ferris Pre-Pharmacy advisory committee work closely with students throughout their four years of study. They help with course selection and development of social, personal and professional maturity. They also work with students to match abilities with interests to find the student's most appropriate health-related career path. Furthermore, the low student-faculty ratio at Ferris means that most basic science labs are taught by the science professors themselves.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they will be considered as first year students.

General Education Requirements

This degree requires completion of the General Education requirements for a Bachelor of Science degree. Details of these requirements are delineated on the General Education website.

All University General Education requirements for a Bachelor's degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements
The Pre-Pharmacy program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a C-is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50 percent of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

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Biology/Pre-Physical Therapy Concentration

Required Courses

Why Choose Pre-Physical Therapy?

The Pre-Physical Therapy program has been developed to prepare students for admission to the six professional Physical Therapy programs in Michigan. These programs are generally three years long and award a bachelor's degree after one year and a master's degree after three years. The successful candidate not only has excellent grades in preparatory course work, but also has several hundred hours of documented observational or work experience in a physical therapy setting.

The Pre-Physical Therapy program takes about three years to complete and can lead to an associate in science degree. Proper course selection during the optional fourth year can lead to a bachelor of science degree in Biology.

Career Opportunities

Physical therapists are in high demand and play a key role in helping patients gain mobility and strength after surgery or accident trauma. The future for physical therapists is very bright. With people living longer, joint replacement surgery has become very common and with it the need for compassionate and well-trained physical therapists.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

The Pre-Physical Therapy program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C-' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

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Biology/Pre-Veterinary Medicine

Required Courses

Why Choose Pre-Veterinary Medicine?

The Pre-Veterinary Medicine program provides a quality bachelor's degree in biology. Completion of this degree enhances your application to a veterinary college. Students who don't wish to enter a college of veterinary medicine can consult with their advisor for alternate career paths.

Successful completion of the first three years of this program and a minimum of 240 clock hours of veterinary experience under the direction of your local veterinarian will satisfy the course prerequisites for admission to the College of Veterinary Medicine at Michigan State University.

Career Opportunities

The Pre-Veterinary Medicine program at Ferris is designed to prepare students for admission to the School of Veterinary Medicine at Michigan State University.

Doctors of veterinary medicine may pursue a variety of career paths, such as ensuring public health, caring for companion animals, controlling animal diseases and providing veterinary medical education.

The future for doctors of veterinary medicine is bright. With an increasing population of companion animals, there is more need than ever for well-trained, compassionate professionals to enter the field of veterinary medicine.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 Reading and Mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Pre-Veterinary Medicine program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 121 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C-' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Students may earn only one B.S. degree in Biology from Ferris State University.

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Biotechnology

Required Courses

Why Choose Biotechnology?

The Biotechnology program is designed to prepare students for positions in biological, medical or agricultural research laboratories, for graduate school or for professional school. The program is built on five aspects of modern laboratory science: recombinant DNA, cell culture, immunology, laboratory animal care, and advanced protein isolation techniques.

The first two years of the Biotechnology program are preparatory, structured to complete the biotechnology foundations course work. The professional sequence of biotechnology course work typically begins with the student's junior year. Admission to the professional biotechnology sequence is competitive and based on the foundation coursework. Internships and independent research projects are available to biotechnology students and enable them to gain experience in a laboratory setting.

Career Opportunities

The Ferris Biotechnology program is designed for those who want to enter the workforce in a biotechnology laboratory, or pursue study in a graduate or professional school. Biotechnology is responsible for many of the medical, agricultural and environmental advances that are part of modern society. With a career in biotechnology, you will be able to better understand these advances and apply this knowledge towards the improvement of our world.

Job opportunities exist in most industries that conduct research and development programs. Biotechnology graduates are especially marketable, since the hands-on experiments conducted at Ferris give students real-world experience in a controlled laboratory setting. In fact, over 90 percent of graduates have jobs in the industry or are enrolled in graduate or professional schools.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High School courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements
All University General Education requirements for a Bachelor’s degree is here. 

Please consult this link for a complete listing of General Education Electives. 

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Biotechnology program leads to a bachelor of science degree. Graduation requires a minimum 2.0 GPA overall, and no grade lower than a C- in science and math courses. A minimum of 121 credits including completion of all general education requirements as outlined on the General Education website.

**More Information**

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Building Construction Technology

Required Courses

Why Choose Building Construction Technology?

This program prepares students for entry-level positions in the construction industry, working on commercial, industrial, or residential structures. Coursework emphasizes quantity estimating, field layout and hands-on laboratory courses. Construction technicians need a background in mathematics and physical science as well as a thorough knowledge of construction materials, methods and equipment.

The program includes general education courses in English, mathematics, physics, and program-specific courses in plans and specifications interpretation; materials testing; quantity estimating; computer applications including three-dimensional modeling; virtual design and construction; framing; mechanical and electrical systems; soils; surveying, administration; and construction practices.

Graduates of the Associate's degree program may choose employment in the construction industry or may continue their education and obtain a Bachelor of Science in Construction Management through our ACCE-accredited program.

Career Opportunities

The construction industry is the second largest contributor to the gross domestic product in the United States and it offers job opportunities in the commercial, industrial, highways, and residential sectors. The construction of a modern building is a complex endeavor requiring the efforts of a wide range of professional, technical and skilled personnel.

Technicians know how to lay out a building, prepare project quantity estimates, read blueprints and specifications, formulate material orders, coordinate project documents and the subcontractors, and extract information form multi-dimensional models.

Graduates of the Building Construction Technology program have the necessary skills to serve as an integral part of the construction management team. Positions also are available in related fields such as materials sales, insurance adjustment, building inspection and equipment sales/rental. Employment opportunities in the construction industry are strong and steady with projected growth continuing.

Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who
demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20 (SAT 16 Total of approximately 1030). Students close to the averages are encouraged to apply and will be reviewed on an individual basis.

Students entering the Building Construction Technology program must have a high school diploma with a ‘C’ average or better and be prepared to enroll in all required courses including mathematics and English. An ACT math subscore of 24 or SAT 16 math subscore of 580 or better also is required. Fully prepared students enter the program in the fall semester. Students not fully prepared who complete the preparatory courses during the fall semester may enter the program sequence in the winter semester, following a modified course sequence.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives. Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Building Construction Technology program at Ferris leads to an Associate's in Applied Science degree. To Graduate, students must:

- maintain a 2.00 cumulative FSU GPA
- have 32 credits of the BCTM and CONM courses taken at Ferris State University in order to qualify for the Associate’s degree
- 3 of the 4 BCTM courses must be taken at Ferris State University in order to qualify for the Associate’s degree
- complete all general education requirements as outlined on the General Education Website
- have a minimum of 60 total credits to complete an Associate's degree.

**More Information**

Construction Technology & Management Programs
605 S. Warren Avenue
Big Rapids, MI 49307-2280
Phone: (231) 591-3773

Email: consprog@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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ADA complaint checklist before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Business Administration

Required Courses

Why Choose Business Administration?

The Business Administration degree provides a broad base education in business that is intended to extend your career options. The program offers considerable flexibility in terms of the concentrations you may choose to complete your degree. The College of Business offers a wide array of business-related concentrations such as Fleet Management, Human Resource Management, International Business, Risk Management and Insurance, Lean Systems, Leadership and Project Management, Operations and Supply Management, and Small Business & Entrepreneurship. There are also a variety of unique certificates, minors or course combinations that can be used to complete your degree. We encourage you to visit: http: www.ferris.edu/business/degrees for details and information about available minor options.

The goals of this program are: to provide students a broad-based business education that will widen the field of start-up positions open to them upon graduation, to provide a solid undergraduate curriculum for those who intend to go to graduate school, and, finally, to establish a foundation for long-term career flexibility in a fast paced and ever changing competitive world. To these ends, the Business Administration Degree Program incorporates a combination of core business courses and application-oriented courses, concentrations that allow students to pursue specific areas of interest, internship opportunities, active student engagement opportunities, and faculty with real world experience.

Faculty combine corporate, consulting and academic experience to deliver the course content in practical and applied ways that effectively prepare students for their future careers in business. Courses on topics such as Management Metrics and Decision Making, Negotiations, and Cases on Strategy give students critical thinking and business skills that are invaluable in the workplace.

Students are encouraged to be involved in professional development activities relevant to their chosen fields. There are a number of registered student organizations affiliated with national and regional professional associations. Students get opportunities to debate current issues, network with professionals and engage in other professional development activity that complements their in-class learning.

Career Opportunities

When combined with a minor or specialized concentration, the Business Administration major provides an avenue for immediate employment and career advancement.
Employers seek graduates for positions ranging from business manager and sales representative to production supervisor and project planner. Graduates of the program with specialized concentrations obtain positions in manufacturing, retailing, construction, financial institutions, government and a host of other fields. Students also find this major to be of value in preparation for graduate or law school.

**Admission Requirements**

**New Students SAT Scores**

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher

**New Students ACT Scores**

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

**Transfer Students**

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

**More Information:**

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

**General Education Requirements**

All University General Education requirements for a Bachelor's degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Business Administration program at Ferris leads to a bachelor of science degree in business. Graduation requires a minimum 2.0 GPA in business core classes, the major courses and overall.

**More Information**

Management Department  
119 South Street/BUS 212  
Big Rapids, MI 49307-2284  
Phone: (231) 591-2427  
Email: MGMT@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.)  
http://www.acbsp.org

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FSUCurriculum@ferris.edu
Business Administration

Required Courses

Why Choose the Master of Business Administration?

An MBA provides a graduate with a comprehensive perspective on management and the business environment and tools and methods to approach and successfully solve complex business challenges in the global marketplace. The Ferris MBA combines a strong core curriculum focused on key business competencies with deeper learning in a specialty the student chooses.

While MBA courses cannot replace the value of work experience, courses designed specifically with a focus on a management perspective-- managerial accounting, managerial finance, strategic management-- provide students with experience in problem solving, interpretation, case analysis, and policy development in many different business contexts. This structured learning ensures that students can apply these lessons in their work environment, maximizing the effect of education and experience.

Career Opportunities

Students prepare for careers or advancement in many fields, including health care, manufacturing, sales, and more. The core courses develop team and management skills to improve organizational performance in accounting, finance, leadership, strategy, economics, statistics, marketing, legal, the global environment, information systems, and operations.

Some foundation competencies are required however our 39-credit MBA program does not require prerequisite courses which allows us to offer a much more robust core, including Lean Systems and Data Analytics, rarely found in other MBA programs.

Students must complete one of the concentrations below.

Nursing Concentration - MBA students who hold a RN license may select a 9-credit concentration from the Ferris Master of Nursing (MSN) curriculum.

Pharmacy Concentration - Students currently enrolled in the FSU Doctor of Pharmacy Program can pursue the Ferris MBA with a 9-credit Pharmacy Concentration that consists of one pharmacy management course and a 6-credit clerkship in their choice of; Corporate Pharmacy Management, Pharmaceutical Industry, or Health Systems Pharmacy.

Professional Concentration – Students who have specific career interests may work with an advisor to select a combination of existing graduate courses and/or propose independent research to customize a concentration in nearly any field of study.

Diversified Concentration – Students with various interests will select Business Graduate
Electives which provides the opportunity to explore areas of business they may apply in their future careers.

Students can choose one of our advanced studies certificates.

The Advanced Studies Certificate in Business Intelligence is designed to prepare individuals with both theoretical and practical experience in designing, developing and utilizing database and informatics systems. Students will utilize tools and techniques including predictive, geographic, and link/visual analysis in a big data/data analytics environment.

The Advanced Studies Certificate in Design and Innovation Management prepares graduates for leadership positions in design-centered businesses. The program provides students a comprehensive understanding of the ways in which the method, measure, and language of design drive the practice of business and the process of innovation and teaches them how to cultivate and build a culture of innovation within their organization. The ASDI certificate is offered at Kendall College of Art & Design in Grand Rapids.

The Advanced Studies Certificate in Incident Response is designed to prepare individuals to secure computers, networks, and systems against intrusions and unauthorized access, test and assess security measures, and forensically analyze the environment to determine events and situations that may have occurred in a digital environment.

The Advanced Studies Certificate in Lean Systems and Leadership delivers a comprehensive education for applying lean concepts to various industries: e.g. banks, nonprofits, offices, hospitals, restaurants, manufacturing. The classes prepare individuals to lead, manage, and evaluate a continuous improvement system in a complex work environment. This cutting edge approach will provide graduates with highly sought-after capabilities to improve operational & financial performance and monitor growth within any type of organization.

The Advanced Studies Certificate in Performance Metrics is designed to educate students in how to appropriately measure various strategies, projects and activities with respect to effectiveness, quality and efficiency.

The Advanced Studies Certificate in Project Management is designed to prepare individuals for careers as program, project, and portfolio managers consistent with the Project Management Institute’s Project Management Body of Knowledge and other industry standards. Students will study the entire project life cycle and supporting tools and technologies.

The Advanced Studies Certificate in Supply Chain Management and Lean Logistics curriculum is designed to prepare students to analyze and provide solutions for situations involving the integrated supply chain (manufacturing, purchasing, logistics and transportation, business development and operations, et al). The courses provide students with an ever increasing base of knowledge on how to create value added strategies. This knowledge is exercised through the optimal application of logistics and supply chain coordination. Future managers and executives will use this knowledge the rest of their careers.

**Admission Requirements**

Admission to a graduate program is granted to students showing high promise of success. The College of Business uses various measures of high promise including the candidate’s performance on the graduate admission test and upper-division grade-point average. Such
measures, along with other reasonable indications of promise, will be used in combination to arrive at a final decision.

To be considered for admission to the MBA Program, applicants must submit the following documents:

- Completed application (Free online application can be completed at ferris.edu/admissions/application).
- Official course transcripts from all undergraduate and graduate colleges and universities previously attended, which include confirmation of a Bachelor degree or higher degree from a regionally accredited university with an overall Grade Point Average (GPA) of 3.0 or better on a 4.0 scale.
- A current resume
- A Statement of Purpose, approximately one page typed, explaining reasons for seeking admission into the MBA program. Statement of Purpose should show that you have taken steps to learn about our program and are familiar with and prepared for online or mixed-delivery courses. You should also explain what factors have influenced your decision to pursue an MBA, and how this degree will help you achieve your short-term and long-term career goals.
- Three academic or professional recommendation letters attesting to your ability to succeed in graduate level studies.
- GMAT or GRE test scores. A formulated composite score of GPA and GMAT or GRE test scores will be used along with other required documents to arrive at an admission decision. (Written Requests for Waiver of GMAT/GRE test requirement will be considered if applicant has completed a previous Master’s or terminal degree, or has significant leadership experience).
- Applicants who have not earned a “C” grade or better in Accounting, Economics, Marketing, and Statistics within the last five years must pass the approved foundational test(s) with a score of 80% or better prior to enrollment in some MBA courses.

Additional Requirements for International Students

- Copy of identification page(s) of your passport.
- Confidential Financial Statement signed by you or your sponsor.
- Original official bank statement from you or your sponsor representing funds for at least one academic year.
- Proof of English proficiency (provide one of the following)
  - TOEFL score of 70 on Internet based test with no score in the low, weak, or limited range, and a writing sub score of 22 or higher
  - IELTS score of 6.5 with writing sub score of 6.0 or higher

Application Due Dates

- February 15 – for starting summer semester in May
- June 15 – for starting fall semester in August
- October 15 – for starting winter semester in January

The application alone is not sufficient to meet required deadlines.
When all required materials are received, the application file will be considered complete. The MBA Application Review Committee will review only complete application files and notify applicants by email of the admissions decision.

Graduation Requirements

- No grade below a C will be counted toward completion of a College of Business graduate degree or certificate.
- No more than two C grades will be counted toward completion of a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better is required to earn a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better must be maintained to avoid dismissal from a College of Business graduate degree or certificate.
- Degree must be completed within five years from the first semester of enrollment.
- No more than 30% of the credits in a College of Business graduate degree may be transferred from another institution.
- Students must “Apply to Graduate” to be awarded a degree. Application can be accessed in MyFSU under Student Records.
- Requirements for Graduate Honors are: 3.75 to 3.89 overall GPA for Distinction, 3.90 to 4.0 overall GPA for Highest Distinction.

More Information

College of Business Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307
Phone: 231-591-2168
E-mail: AlexanderManga@ferris.edu or ShannonYost@ferris.edu
Web: https://ferris.edu/mba-online/

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Business Administration - Professional Track

Required Courses

Why Choose Business Administration with Professional Track?

This program is uniquely designed to facilitate transfer from unrelated AAS programs (whether at Ferris or other institutions) with maximum credit for prior academic work. In this, it is often seamless, and is far more successful than competing programs at minimizing the total credits ultimately required for graduation, without compromising the integrity of the business degree. For the student who wishes to combine an intensive course of study in a non-business field with a sound business foundation, this is the ideal solution.

You will study under highly qualified faculty members who have combined their academic credentials with extensive work experience. You also may supplement classroom instruction with the chance to earn University credit while gaining work experience through an internship program.

Career Opportunities

A Business Administration major provides an avenue for immediate employment and for advancement to upper levels of management. Employers seek graduates for positions ranging from business manager, supervisor, and sales representative to production supervisor and project planner. Graduates of the program obtain positions in retailing, food service, construction, manufacturing, government and a host of other fields. Students find this major to be of value in preparation for law school where you can specialize in law related to your career specialty knowledge. It is also great preparation for graduate degrees.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
Two of the Three Criteria:

1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

**Transfer Students**

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU E G L 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher or SAT ERW score of 450 or higher or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher SAT Math score of 500 or higher or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

Business Administration with Professional Tracks at Ferris leads to a Bachelor of Science degree in business. Graduation requires a minimum 2.0 GPA in business core courses, the major, and overall.

**More Information**

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: (231) 591-2427
Email: MGMT@ferris.edu

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http://www.acbsp.org

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Business Administration, Nursing Concentration

Required Courses

Why Choose the Master of Business Administration with Nursing Concentration?

An MBA provides a graduate with a comprehensive perspective on management and the business environment and tools and methods to approach and successfully solve complex business challenges in the global marketplace. The Ferris MBA combines a strong core curriculum focused on key business competencies with deeper learning in a specialty the student chooses.

While MBA courses cannot replace the value of work experience, courses designed specifically with a focus on a management perspective-- managerial accounting, managerial finance, strategic management-- provide students with experience in problem solving, interpretation, case analysis, and policy development in many different business contexts. This structured learning ensures that students can apply these lessons in their work environment, maximizing the effect of education and experience.

MBA students who hold a RN license may select their specialization from the Master of Nursing (MSN) curriculum.

Invest in your Future

The MBA with a Concentration in Nursing is designed for Registered Nurses interested in acquiring the management tools and skills needed to be successful in the world's leading Health Care organizations.

The Nursing concentration allows MBA students who hold a RN license to select their 9-credit concentration from the Master of Nursing curriculum at Ferris State University's College of Health Professions. Suggested MSN courses would be Advanced Nursing Roles, Health Care Systems Policy and Advocacy, Critique of Evidence for Practice, Quality Improvement and Safety, and Nursing Research Methods and Analysis.

Admission Requirements

Admission to a graduate program is granted to students showing high promise of success. The College of Business uses various measures of high promise including the candidate's performance on the graduate admission test and upper-division grade-point average. Such measures, along with other reasonable indications of promise, will be used in combination to arrive at a final judgment.

To be considered for admission to the MBA Program, applicants must submit the
following documents:

- Completed application *(Free online application can be completed at ferris.edu/admissions/application).*
- Official course transcripts from all undergraduate and graduate colleges and universities previously attended, which include confirmation of a Bachelor degree or higher degree from a regionally accredited university with an overall Grade Point Average (GPA) of 3.0 or better on a 4.0 scale.
- A current resume
- A Statement of Purpose, approximately one page typed, explaining reasons for seeking admission into the MBA program. *Statement of Purpose should show that you have taken steps to learn about our program and are familiar with and prepared for online or mixed-delivery courses. You should also explain what factors have influenced your decision to pursue an MBA, and how this degree will help you achieve your short-term and long-term career goals.*
- Three academic or professional recommendation letters attesting to your ability to succeed in graduate level studies.
- GMAT or GRE test scores. A formulated composite score of GPA and GMAT or GRE test scores will be used along with other required documents to arrive at an admission decision. *(Written Requests for Waiver of GMAT/GRE test requirement will be considered if applicant has completed a previous Master's or terminal degree, or has significant leadership experience).*
- Applicants who have not earned a “C” grade or better in Accounting, Economics, Marketing, and Statistics within the last five years must pass the approved foundational test(s) with a score of 80% or better prior to enrollment in some MBA courses.

**Additional Requirements for International Students**

- Copy of identification page(s) of your passport.
- Confidential Financial Statement signed by you or your sponsor.
- Original official bank statement from you or your sponsor representing funds for at least one academic year.
- Proof of English proficiency *(provide one of the following)*
  – TOEFL score of 70 on Internet based test with no score in the low, weak, or limited range, and a writing sub score of 22 or higher
  – IELTS score of 6.5 with writing sub score of 6.0 or higher

**Application Due Dates**

- February 15 – for starting summer semester in May
- June 15 – for starting fall semester in August
- October 15 – for starting winter semester in January

The application alone is not sufficient to meet required deadlines.

When all required materials are received, the application file will be considered complete. The MBA Application Review Committee will review only complete application files and notify applicants by email of the admissions decision.
Graduation Requirements

- No grade below a C will be counted toward completion of a College of Business graduate degree or certificate.
- No more than two C grades will be counted toward completion of a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better is required to earn a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better must be maintained to avoid dismissal from a College of Business graduate degree or certificate.
- Degree must be completed within five years from the first semester of enrollment.
- No more than 30% of the credits in a College of Business graduate degree may be transferred from another institution.
- Students must “Apply to Graduate” to be awarded a degree. Application can be accessed in MyFSU under Student Records.
- Requirements for Graduate Honors are: 3.75 to 3.89 overall GPA for Distinction, 3.90 to 4.0 overall GPA for Highest Distinction.

More Information

College of Business Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307
Phone: 231-591-2168
E-mail: ShannonYost@ferris.edu
Web: https://ferris.edu/mba-online/

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Business Data Analytics

Required Courses

Why Choose Business Data Analytics?

Our Business Data Analytics (BDA) program was created in response to the critical need in today’s workplace for employees who are capable of drawing meaningful insight from vast quantities of data. It is the only undergraduate program of its type in the state.

Data analytics is a growing field that uses data to gather intelligence in business, marketing, finance, accounting, human resources, insurance, homeland security, criminal justice, education, government, healthcare and manufacturing. Data mining turns raw data into information. This information creates knowledge used by leaders and managers to establish and achieve organizational goals and sustain a competitive advantage. For example, it assists businesses in spotting customer trends, creating customer loyalty, enhancing supplier relationship, reducing financial risk and uncovering new sales opportunities.

Organizations today face tough competitive challenges. Some challenges can be met with the competitive advantage of better knowledge. Your future employer may assign you to help create that knowledge by using sound research methods to discover information hidden within vast databases. For example, you may be asked to help a team discover customer buying patterns that signal new niche markets. Or discover a pattern of credit card use that points to fraud. Or you may help discover patterns of cell growth helpful in diagnosing cancer. Or you may assist a team searching for patterns of terrorist activities. Or you may help discover changing patterns of habitat growth impacting endangered species. Do you see yourself in a team working with research tools to explore vast amounts of data and information to uncover important patterns? If so, Business Data Analytics will prepare you to work in a team setting to help fulfill information needs of your employer through application of data mining methods.

- You will learn from statisticians and information systems experts who will teach you through practical, hands-on projects using worldwide known software.
- You will find the statistics faculty willing and readily available to help you outside of the classroom.
- You will learn by working with faculty on real-world projects at our research consulting center.
- Our classrooms and research consulting center provide opportunities for collaborative state-of-the-art learning.

Career Opportunities

Employers like to hire Ferris graduates because of their practical skills, receptive attitudes and abilities to do the job from day one. The BDA job market is exploding in a range of fields.
including business, education, manufacturing, healthcare, criminal justice, government, science and others. Some BDA career options: data scientist, business data analyst, market research analyst, data analyst/data architect, business and systems analyst, analytic software sales representative, business systems consultant, research analyst or data analyst consultant.

**Admission Requirements**

**New Students SAT Scores**

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

**New Students ACT Scores**

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

**Transfer Students**

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

**More Information:**

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Business Data Analytics program at Ferris leads to a bachelor of science degree in business. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

**More Information**

Marketing Department  
119 South Street/BUS 212  
Big Rapids, MI 49307-2284  
Phone: 231-591-2426  
E-mail: MKTG@ferris.edu

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Business Education - Marketing

Required Courses

Why Choose Business Education - Marketing?

Rapid technological advances have generated growing demand for marketing education teachers. Graduates can expect excellent career opportunities in secondary and vocational education as well as in the multifaceted world of government, business and industry.

The Marketing Education program offers a balanced educational background including business professional education and general education courses combined with field and directed teaching experiences.

Career Opportunities

The Marketing Education program prepares students to teach marketing subjects at the secondary level. The Marketing Education teacher:

- Recognizes/recalls the existence of different aspects of marketing in a variety of settings.
- Applies broad, in-depth knowledge of the different aspects of marketing and related instructional and assessment strategies.
- Articulates knowledge about marketing and related instructional and assessment strategies.
- Demonstrates proficiency in using the knowledge at a fundamental level of competence acceptable for teaching.

Admission Requirements

Students seeking admission to teacher education programs must have taken the ACT exam and have a 2.50 overall GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Teacher Certification Requirements

A Marketing Education endorsement (GM) prepares a teacher to teach marketing education at
the secondary level in courses aligned with the Michigan Career Pathways. Candidates completing the academic requirements of the Marketing Education program may be recommended for the certificate endorsement after passing the Michigan Test for Teacher Certification marketing education test.

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**Graduation Requirements**

The Marketing Education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, marketing, and teacher education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

A 2.75 GPA is required for satisfactory completion of the Business Education/Marketing Education major.

**More Information**

College of Education & Human Services  
School of Education  
Bishop Hall Room 421  
Ferris State University  
1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Telephone: (231) 591-5361

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Business, Management, Marketing, and Technology Education

Required Courses

Why Choose Business, Management, Marketing, and Technical Education?

The Business, Management, Marketing, and Technology (BMMT) program prepares students to teach subjects at the secondary and vocational level. The BMMT teacher:

- Recognizes/recalls the existence of different aspects of business, management, marketing, and technology and related teaching strategies.
- Articulates knowledge about business, management, marketing, and technology and related instructional and assessment strategies.
- Demonstrates proficiency in using the knowledge at a fundamental level of competence acceptable for teaching.
- Applies broad, in-depth knowledge of the different aspects of business, management, marketing, and technology in a variety of settings.
- Offers a balanced educational background including business professional education and general education courses, field and directed teaching experiences.

Career Opportunities

The Business, Management, Marketing and Technology education program prepares students to teach business subjects at the secondary and vocational level, as well as the multifaceted world of government, business, and industry. Business education students select a major in general business or marketing and a teaching minor is required. You cannot have a general business teaching minor with this teaching major.

Admission Requirements

Students seeking admission to teacher education programs must have 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department.

Teacher Certification Requirements

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.75 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

General Education Requirements
All university General Education requirements for a Bachelor's degree are here.

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The business education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, business, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

A 2.75 GPA is required for satisfactory completion of the general business major.

**More Information**

College of Education & Human Services  
School of Education  
Bishop Hall Room 421  
Ferris State University  
1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Telephone: (231) 591-5361

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Business-to-Business Marketing

Required Courses

Why Choose a Business-to-Business Marketing Certificate?

If you choose the business-to-business marketing certificate, you will be exposed to current theory and practice in the marketing of products and services from one business to another, including:

- Integration of the principles of general marketing and professional selling with proven business-to-business marketing methods
- Understanding and application of concepts related to industrial marketing, business-to-business advertising and digital marketing
- Demonstration of mastery of class concepts through real world projects with business-to-business clients

Career Opportunities

Business-to-Business marketers work in advertising, marketing and digital marketing positions for industrial companies of all sizes. They also work in dynamic fields such as office furniture, software, and technology. Ferris State University is unique in its emphasis on Business-to-Business Marketing – certificate holders will find that their skills are much in demand.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Business-to-Business Marketing Certificate after completion of the requirements with a minimum 2.0 grade point average.
No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

**More information**

Marketing Department  
South Street/BUS 2 2  
Big Rapids, MI 49307-2284  
Phone: 231-591-2426  
E-mail: MKTG@ferris.edu

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CAD Drafting and Tool Design Technology

Required Courses

Why Choose CAD Drafting and Tool Design Technology?

The Computer Aided Design (CAD) Drafting and Tool Design program concentrates on the use of CAD in product drawing, dies (metal stamping), molds (plastic processes) and jig, fixture and gauge design. Students are involved with computers throughout the program to familiarize them with CAD software applications such as detailing, GD & T, general tolerancing, wire frame, surfacing, solid modeling with parametric technology and Rapid Prototyping. Computer-aided engineering software for mold design and mechanical applications are also used. Student solid models are processed and created on our Rapid Prototyping equipment.

Tool design is critical to the manufacturing industry. Tooling is the foundation for product design and the mechanical and manufacturing industries. Students learn to design and detail basic tooling requirements for the manufacture of products. Students also gain an understanding of the related areas of mathematics, materials and machining.

Career Opportunities

Converting an abstract idea into a working design is the job of the tool designer. Designers are a part of the manufacturing cycle from the initial stages of product development all the way through production of the finished product. The designer may be involved in drawing one of many parts of a complete assembly, then designing the tooling-jigs, fixtures, gauges, dies, injection molds and special machines-to produce one or all of those parts.

For the tool designer, creativity and attention to detail are essential in production of such diverse products as automotive and aircraft components, consumer products, medical products, electronics, food processing and special machinery. Students are given opportunities to express their creative abilities in various projects.

Graduates of the program find immediate employment as computer-aided tool detailers, product drafters, entry-level tool designers, CAD operators and other technical-related positions. Many students choose to continue into B.S. programs such as Product Design Engineering Technology, Manufacturing Engineering Technology, Plastics Engineering Technology, Business Management or Occupational (Teacher) Education.

Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical
programs, the average high school GPA is 2.75, and the average ACT composite score is 18 (Total SAT16 of 950).

Students entering the CAD Drafting and Tool Design Technology program should have a background in CAD and a desire to develop tool design skills. Admission is open to high school graduates with a 2.75 cumulative GPA along with an 18 ACT composite and a math sub-score of 19 or 950 SAT16 Total and a SAT16 math sub-score of 500. Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The CAD Drafting and Tool Design Technology program at Ferris leads to an associate in applied science degree. Graduation requires a minimum 2.0 FSU GPA. A minimum of 60 credit hours required. At least 15 credits in residency and students must complete all general education requirements as outlined on the General Education website.

**More Information**

College of Engineering Technology  
Ferris State University  
919 Campus Drive, NEC 211  
Big Rapids, MI 49307-2280  
Phone: 231-591-2640  
or visit www.ferris.edu/cdtd

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Cancer Information Management

Required Courses

Why Choose Cancer Information Management?

This certificate is designed to provide individuals with the knowledge and skills necessary to maintain a cancer data collection system that meets the requirements of local, state and national registries. Cancer registrars are data management experts who are responsible for collection, analysis and dissemination of cancer data.

Career Opportunities

This certificate provides individuals with the opportunity to work within a cancer registry in many different settings. Cancer registrars may work in a hospital or central cancer registry. They may work on site or remotely. There are a variety of different functions/positions performed by cancer registrars including abstracting health data, quality auditing, research, follow-up, cancer conference and tumor board documentation/membership. Annual earnings of cancer registrars range from $30,000-$75,000.

Admission Requirements

To be eligible for the cancer information management certificate, you must have completed an associate degree in a health related field. Students currently enrolled in a College of Health Professions program would also be able to complete the certification. A minimum GPA of 2.5 is required for admission to the program. Pre-requisites include: BIOL 109, MRIS 103, and MRIS 210.

Graduation Requirements

Students must successfully complete all courses for a total of 37 credits to be awarded the Cancer Information Management Certificate.

More Information

Department of Clinical Laboratory Science, Respiratory Care & Health Care System Administration
College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
Phone: 231-591-2266
chp@ferris.edu
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Career and Technical Education/Instructor Concentration

Required Courses

Why Choose Career and Technical Education Instructor Concentration?

Improved career and technical education competency and refined instructional or administrative skills are the goals of Ferris State University's Master of Science degree program in career and technical education.

Students eligible for admission to the graduate program must hold a bachelor's degree from an accredited college or university. When required, candidates should hold or be eligible for professional licensure, registration or certification to practice in the occupational specialty. Previous teaching experience is not a requirement. An admissions committee will review all application materials and recommend appropriate action. Upon admission to the graduate program, each student will be assigned a graduate advisor.

Career Opportunities

The program enables career and technical instructors in allied health, business, home economics and technical education at secondary and post-secondary levels, as well as industrial training and development personnel, to attain an advanced education by building on previous training and occupational experience.

Advanced Educational Opportunities

Graduate students, who successfully complete the Master of Science in Career and Technical Education, are eligible to pursue their doctorate in education through a collaborative partnership between Ferris State University and Western Michigan University. https://www.wmich.edu/leadership/academics/ed-leadership/doctor/wed

Admission Requirements

The applicant must possess a baccalaureate degree from an accredited college or university with a 2.75 or higher GPA on a 4.0 scale. Conditional entry may be granted when the 2.75 requirement has not been met. Once a student has been granted conditional entry, he/she must earn a GPA of 2.75 within the first nine (9) hours of graduate level courses. Consult individual program description for other admission requirements.

Graduation Requirements

The career and technical education program leads to a Master of Science degree through the School of Education, College of Education & Human Services. Students must complete all degree requirements within five (5) years after admission to the MSCTE program. Consult
individual program description for other graduation requirements.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Career and Technical Education/Postsecondary Administration Concentration

Required Courses

Why Choose Career and Technical Education Postsecondary Administration Concentration?

Improved career and technical education competency and refined instructional or administrative skills are the goals of the Master of Science degree program in career and technical education at Ferris State University.

Students eligible for admission to the graduate program must hold a bachelors degree from an accredited college or university. When required, candidates should hold or be eligible for professional licensure, registration or certification to practice in the occupational specialty. Previous teaching experience is not a requirement. An admissions committee will review all application materials and recommend appropriate action. Upon admission to the graduate program, each student will be assigned a graduate advisor.

Career Opportunities

The program enables career and technical instructors in allied health, business, home economics and technical education at secondary and post-secondary levels, as well as industrial training and development personnel, to attain an advanced education by building on previous training and occupational experience.

Advanced Educational Opportunities

Graduate students, who successfully complete the Master of Science in Career and Technical Education, are eligible to pursue their doctorate in education through a collaborative partnership between Ferris State University and Western Michigan University. https://www.wmich.edu/leadership/academics/ed-leadership/doctor/wed

Admission Requirements

The applicant must possess a baccalaureate degree from an accredited college or university with a 2.75 or higher GPA on a 4.0 scale. Conditional entry may be granted when the 2.75 requirement has not been met. Once a student has been granted conditional entry, he/she must earn a GPA of 2.75 within the first nine (9) hours of graduate level courses. Consult individual program description for other admission requirements.

Graduation Requirements
The career and technical education program leads to a Master of Science degree through the School of Education, College of Education & Human Services. Students must complete all degree requirements within five (5) years after admission to the MSCTE program. Consult individual program description for other graduation requirements.

**More Information**

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School of Education  
Bishop Hall Room 421  
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1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Telephone: (231) 591-5361

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Career and Technical Education/Training and Development Concentration

Required Courses

Why Choose Career and Technical Education Training and Development Concentration?

Improved career and technical education competency and refined instructional or administrative skills are the goals of Ferris State University's Master of Science degree program in career and technical education.

Students eligible for admission to the graduate program must hold a bachelor's degree from an accredited college or university. When required, candidates should hold or be eligible for professional licensure, registration or certification to practice in the occupational specialty. Previous teaching experience is not a requirement. An admissions committee will review all application materials and recommend appropriate action. Upon admission to the graduate program, each student will be assigned a graduate advisor.

Career Opportunities

The program enables career and technical instructors in allied health, business, home economics and technical education at secondary and post-secondary levels, as well as industrial training and development personnel, to attain an advanced education by building on previous training and occupational experience.

Advanced Educational Opportunities

Graduate students, who successfully complete the Master of Science in Career and Technical Education, are eligible to pursue their doctorate in education through a collaborative partnership between Ferris State University and Western Michigan University. https://www.wmich.edu/leadership/academics/ed-leadership/doctor/ed

Admission Requirements

The applicant must possess a baccalaureate degree from an accredited college or university with a 2.75 or higher GPA on a 4.0 scale. Conditional entry may be granted when the 2.75 requirement has not been met. Once a student has been granted conditional entry, he/she must earn a GPA of 2.75 within the first nine (9) hours of graduate level courses. Consult individual program description for other admission requirements.

Graduation Requirements
The career and technical education program leads to a Master of Science degree through the School of Education, College of Education & Human Services. Students must complete all degree requirements within five (5) years after admission to the MSCTE program. Consult individual program description for other graduation requirements.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Catering Management

Required Courses

Why Choose the Catering Management Certificate?

The Catering Management certificate is designed to complement any degree by providing the fundamental knowledge necessary to successfully manage a catering operation. Required courses cover basic culinary skills, financial management, purchasing, banquet operations, and guest services. The curriculum is designed to provide students with the experience essential to meeting the elevated expectations of today’s event professionals. As part of the fifteen credits needed for the Catering Management certificate, students are required to complete an internship of 400 hours minimum in a catering related position.

Undergraduate Certificate Programs' Admission Criteria

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

Graduation Requirements
- No more than 50% of the credits in a certificate may be transferred from another institution.
- If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
- A 2.00 cumulative GPA is required for completion of the Certificate.
- **A term prior to completion of the Certificate**, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

**More Information**

For more information, contact:

Hospitality Management Program  
Commons 06  
3 Mer Circle  
Big Rapids, MI 49307  
Phone: 23 -59 -2382  
mail: hospitality@ferris.edu

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Cell and Molecular Biology

Required Courses

Why Choose the Cell and Molecular Biology Minor?

This minor is designed for students who desire to expand their understanding of biology in the rapidly developing field of cell and molecular biology. It is also suitable for students who have completed substantial courses in a pre-professional degree, but who have not yet been accepted into their chosen professional school. Cell and Molecular Biology is also suitable for students who may choose to pursue a bachelor's degree in chemistry, especially one with an emphasis in biochemistry.

Admission Requirements

This Cell and Molecular Biology minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. Students must have at least a 'C' grade in all BIOL courses. This minor requires a minimum of 20 credits.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Brad Isler
PHONE: 231-591-2641
E-MAIL: BradleyIsler@ferris.edu

Department of Biological Sciences
Ferris State University
820 Campus Drive, ASC 2004
Big Rapids, MI 49307
Phone: 231-591-2550

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Chemistry

Required Courses

Why Choose Chemistry?

Chemistry is the central science and thus provides the framework for our understanding of a wide variety of natural phenomena, societal issues, and advances in technology. Students with good math backgrounds and with interest in scientific thought and reasoning will find the Chemistry BA to be a satisfying and challenging degree. Chemistry students build skills in critical thinking, problem solving, communication, and teamwork, making them marketable in a wide variety of fields. Students complete a curriculum of 34 hours of chemistry courses, including some courses chosen based on their interest. Depending on their interests and career goals, chemistry majors select a wide variety of minors including marketing/sales, English/professional writing, biology, and forensic science. Chemistry students often participate in undergraduate research projects as well.

Career Opportunities

The Chemistry major provides an excellent background for a wide variety of careers in science or in science-related fields, some involving further education. These include but are not limited to careers in chemistry, medicine, dentistry, education, environmental science, forensic science, pharmaceutical sales, and scientific writing.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here.

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

In order to graduate with a Bachelor of Arts in Chemistry, a student must complete a minimum of 120 credit hours including the Chemistry major, the BA core, an academic minor in another field of study, and all general education requirements for the Bachelor of Arts degree. No grade lower than 'C' will count toward the major.

More Information

ADVIS  RDr. Dan Adsmond
PH  NE: 231-591-5867
E  AIL: DanielAdsmond@ferris.edu

Department of Physical Sciences
Ferris State University
820 Campus Drive/ASC 3021
Big Rapids,  MI  49307-2225
Phone: 231-591-2580

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Chemistry Education Secondary

Required Courses

Why Choose Chemistry Education?

Chemistry teachers guide students in discovering the marvelous logic, efficient simplicity and design behind a myriad of complex events in nature. The technological revolution has added an infectious new excitement to the lessons of chemistry. Chemistry education today provides access to new knowledge, helping people understand how things happen in the natural and physical environment.

The employment outlook for chemistry education students is excellent. Graduates are prepared to teach in high schools and also have the necessary basic preparation to enter a career in industry or pursue an advanced degree in science. One semester of directed teaching at the secondary level is required. A teaching minor is also required.

Career Opportunities

Chemistry education is a four-year curriculum that may be selected as a major. A teaching minor is also required. You cannot have a chemistry teaching minor with this teaching major. Successful completion of the program leads to recommendation for a Michigan Secondary Provisional Certificate. The program is designed to take full advantage of the unusual, hands-on Ferris instructional capabilities in developing both teaching and subject matter competency. Students receive the broad background in classroom, laboratory and field training essential to be effective teachers.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Teacher Certification Requirements

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.75 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

Graduation Requirements

The chemistry education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, chemistry, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other admission requirements.

A 2.75 GPA is required for successful completion of this major.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Chemistry Teaching for Secondary Education

Required Courses

Why Choose Teaching Minors for Secondary Education Majors

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Admission Requirements

Secondary Education majors may choose an appropriate teaching majors from the following areas: accounting, biology, business, chemistry, English, geography, history, marketing, mathematics, political science or social studies.

You cannot have a chemistry teaching major with this minor.

Graduation Requirements

A 2.50 GPA is required for successful completion of the chemistry teaching minor.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Chemistry/Pre-Pharmacy Concentration

Required Courses

Why Choose Chemistry/Pre-Pharmacy?

The Chemistry/Pre-Pharmacy program at Ferris is designed to give you all the tools necessary to gain admission into the College of Pharmacy. A path to a career in pharmacy begins with the Pre-Pharmacy course work, which is contained within the first three years of the Chemistry/Pre-Pharmacy Program and designed to prepare students to meet the competitive admission requirements of the College of Pharmacy. Upon admission to the College of Pharmacy, you will continue your studies for four years to complete the doctor of pharmacy degree.

Because pharmacy relies so heavily on an understanding of chemistry, 24 credits of college chemistry coursework are required to prepare students for pharmacy school. Chemistry is the central science and thus provides the framework for our understanding of a wide variety of natural phenomena, societal issues, and advances in technology. Students with good math backgrounds and with interest in scientific thought and reasoning will find Chemistry/Pre-Pharmacy to be a satisfying and challenging degree. Chemistry students build skills in critical thinking, problem solving, communication, and teamwork, making them marketable in a wide variety of fields. Students complete a curriculum of 35 hours of chemistry courses. Depending on their interests and career goals, chemistry majors select a wide variety of minors including marketing/sales, English/professional writing, biology, and forensic science. Chemistry students often participate in undergraduate research projects as well.

Professional Opportunities

As a professional pharmacist, you will be the most accessible member of the health care team and the most knowledgeable about the effects of drugs on people. You will serve as an essential link between the patient and the prescribing physician, advising both about the drug interactions, dosages and possible side effects.

Your knowledge of drugs and drug functions will provide job opportunities as a community pharmacist, hospital pharmacist, or industrial pharmacist. Other opportunities include pharmaceutical journalism, advertising, public health, research, law enforcement, pharmacy education and positions with pharmaceutical associations. Ferris graduates enjoy 100 percent job placement, and the financial awards can be abundant.

In addition to preparing you for Pharmacy school, the Chemistry major provides an excellent background for a wide variety of careers in science or in science-related fields, some involving further education. These include but are not limited to careers in chemistry, medicine, dentistry, education, environmental science, polymer materials, pharmaceutical sales, and scientific writing.
Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics sub scores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

Admission to the College of Pharmacy is granted to the best qualified applicants, as space permits. It is based on your Pre-Pharmacy GPA (must be at least 2.5) and the results of your Pharmacy College Admission Test (PCAT). The PCAT is a national, standardized test you must take about the time you apply for admission to the College of Pharmacy. Successful completion of the Pre-Pharmacy program at Ferris or another university does not guarantee admission into the College of Pharmacy.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

Graduation with a Chemistry BA degree is not a requirement for admission to Pharmacy School. Students admitted to Pharmacy School upon completing the three years of Pre-Pharmacy course requirements may elect to begin pharmacy school without completing the bachelor degree. In order to graduate with a Bachelor of Arts in Chemistry/Pre-Pharmacy concentration, a student must complete a minimum of 120 credit hours including the Chemistry major, the BA core, an academic minor in another field of study, and all general education requirements for the Bachelor of Arts degree. No grade lower than 'C' will count toward the major.

More Information

ADVISOR: Dr. Dan Adsmond
PHONE: 231-591-5 67
EMAIL DanielAdsmond@ferris.edu

Department of Physical Sciences
Ferris State University
20 Campus Drive/ASC 3021
Big Rapids, MI 49307-2225
Phone: 231-591-25 0

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Civil Engineering Technology - Highway Emphasis

Required Courses

Why Choose Civil Engineering Technology with Highway Emphasis?

The Civil Engineering Technology program at Ferris emphasizes instruction in soil and material testing, highway technology, design and the construction process. A civil technician requires a background in mathematics and physical science plus a thorough knowledge of construction materials, methods and equipment.

The program includes general education courses in English, mathematics, physics, and program specific courses in plans and specifications interpretation; material testing; quantity estimating; computer applications including three-dimensional modeling; hydrology; highway design; equipment production; soils; surveying, administration; and construction practices.

Graduates of the Associate's degree program may choose employment in the heavy civil construction sector or may continue their education and obtain a Bachelor of Science degree in Construction Management through our ACCE-accredited program.

Career Opportunities

As part of a construction team, the civil engineering technician may assist the engineer in project layout, soil and material testing, cost estimating and supervision and inspection of heavy construction projects. Precision, accuracy and clarity are important qualities for the technician as Civil engineering technology work requires familiarity with materials and soils and a knowledge of surveying principles, hydrology, engineering design and the construction process.

Job opportunities for civil engineering technicians exist with consulting engineers, material testing firms, general contractors and governmental agencies. Increased funding for infrastructure at both the state and federal levels is expected to provide significant employment opportunities in the industry.

Admission Requirements

Admission to the College of Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20 (SAT 16 Total of approximately 1030). Students close to the averages are encouraged to apply and will be reviewed on an individual basis.

Students entering the Civil Engineering Technology program must have a high school diploma with a 'C' average or better and be fully prepared to enroll in all required courses including
mathematics and English. An ACT math subscore of 24 or 580 SAT is also required. Fully prepared students enter the program in the fall semester. Students not fully prepared who complete preparatory courses during the fall semester may enter the program sequence in the winter semester, following a modified course sequence.

**General Education Requirements**

All University General Education requirements for an Associate’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Civil Engineering Technology program at Ferris leads to an associate in applied science degree.

In order to graduate students must:

- maintain a 2.00 cumulative FSU GPA
- have 32 credits of the CETM and CONM courses taken at Ferris State University in order to qualify for the Associate’s degree.
- 3 out of the 4 CETM courses must be taken at Ferris State University in order to qualify for the Associate’s degree.
- complete all general education requirements as outlined on the General Education website.
- have a minimum of 60 total credits to earn an Associate's degree

**More Information**

Construction Technology & Management Programs
605 S. Warren Avenue
Big Rapids, MI 49307-2280
Phone: 231-591-3773

Email: consprog@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Club Management

Required Courses

Why Choose the Club Management Certificate?

The Club Management certificate provides students with background knowledge in the world of private and semi-private clubs such as yacht, city, athletic, tennis, and country clubs. Students learn about the unique nature of private clubs including things such as membership categories, board structure, dues, assessments, minimums, rules, and by-laws. Other topics such as event planning, facilities management, leisure activities, food & beverage operations, and financial management are covered as well. Throughout their studies students will have the opportunity to earn nationally recognized certifications, such as AHLEI Contemporary Club Management and TIPS, as part of their required courses.

Undergraduate Certificate Programs’ Admission Criteria

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.
Graduation Requirements

- No more than 50% of the credits in a certificate may be transferred from another institution.
- If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
- A 2.00 cumulative GPA is required for completion of the Certificate.
- **A term prior to completion of the Certificate**, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

**More Information**

Hospitality Management Program
West Commons 106
1319 Cramer Circle
Big Rapids, MI 49307
Phone: 231-591-2382
Email: hospitality@ferris.edu

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Club Management

Required Courses

Why Choose a Club Management Minor?

The Club Management minor provides students with a background knowledge in the world of private and semi-private clubs such as yacht, city, athletic, tennis, and country clubs. Students learn about the unique nature of private clubs including things such as membership categories, board structure, dues, assessments, minimums, rules, and by-laws. Other topics such as event planning, facilities management, leisure activities, food & beverage operations, and financial management are covered as well. Throughout their studies in this minor, students will have the opportunity to earn nationally recognized certifications such as AHLEI Contemporary Club Management and TIPS, as part of their required courses. Additionally, students are required to complete at least one 400 hour internship for which they are paid. See the Club Managers Association of America for examples of internships.

Admission Requirements

Any person who is admitted to a Ferris State University Bachelor's degree program is welcome to seek the attainment of this minor in addition to their major. Students wishing to add this minor must declare it with the Program Coordinator of the Hospitality Management Program.

Graduation Requirements

- At least one-half of the credits must be Ferris State University credits.
- A maximum of 1/3 of the credits, but no more than 7 credits, may overlap with the student’s major.
- A minimum of fifty percent (50%) of the courses in the minor must be at the 300 or above level.
- A 2.00 GPA is required for completion of the Minor.
- A term prior to completion of the Minor, the student will log into MyFSU, and complete the Apply for graduation. You will receive an email back with the next steps to take. Once this is done the graduation Secretary will notify the Registrar who will note the completion of the Minor.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information
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Communication

Required Courses

Why Choose a Communication Minor?

The communication minor at Ferris is the perfect complement to just about any course of study. Required courses help students develop skills in public presentation, interpersonal communication and group dynamics. This is supplemented by coursework in communication theory. Students build on this foundation by electing 9 credits of 300 level courses that are relevant to their interests or career goals. This, in turn, allow students to design a minor which enhances their marketability in today's competitive world while improving their personal communication skills in ways that can lead to greater success and satisfaction in their private lives.

Admission Requirements

The communication minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing a B.S. in Applied Speech Communication. The minor is designed to complement any Ferris major or program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. The communication minor requires a minimum of 21 credits of course work in communication, nine of which are at the 300 or above level, completion of COMM 299 (Theories of Human Communication), and a minimum 2.0 grade average in all communication course work comprising the minor.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Cami Sanderson
PHONE: 231-591-2995
EMAIL: CamiSanderson@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive, JOH 119
Big Rapids, MI 49307

2018-2019 Academic Year
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Community College Leadership

Required Courses

Why Choose the Doctorate in Community College Leadership?

The Doctorate in Community College Leadership program at Ferris began in Summer 2010 and is designed for students who have a master's degree. Its development was in response to the need for leaders in community colleges due to an impending shortage of qualified candidates. A group of nationally recognized leaders initiated this program and guided the development to ensure that the program would meet the needs of 21st century community college leaders. The resulting program is unique in its delivery, with a focus on application grounded in theory. Problem solving based on real institutional issues will be the focus of the courses so that students learn in an environment that mirrors their professional world.

Ferris offers this program in a three-year cohort model with the dissertation integrated into course delivery. Community College Leadership dissertation approaches include project, research and evaluation options. Writing and research support is present from the first course. A hybrid delivery model will provide students an opportunity to meet face-to-face with community college leaders and faculty while providing flexibility with the online component of each course. A practicum experience will also give students an opportunity to work directly in a community college setting in a project that adds value to both the student's learning outcomes and the institution in which the student completes his/her practicum project.

Career Opportunities

An impending shortage of community college leadership candidates is well documented in the literature. Graduates with a doctorate from the Ferris Community College Leadership program will, therefore, have great career options. The wide range of leadership positions includes dean, director, provost, vice president, and president. Graduates will be especially qualified for these positions due to the applied nature and community college focus of the program.

Admission Requirements

The goal of the Community College Leadership Program admission process is to bring together a diverse, and highly qualified cohort of learners. The admission process is designed to select applicants who demonstrate the greatest potential for both successful graduate work and, upon completion, substantive contribution to leadership of community colleges.

Attainment of the minimum requirements is not a guarantee of admission as the number of fully-qualified applicants may exceed the number of openings. Minimum requirements for admission:

1. Completion of a master's degree from a regionally accredited institution
2. A minimum of a 3.25 G.P.A. in the master’s program
3. Admission material/interview that demonstrate:
   - likely success in this doctoral program
   - an aspiration for a community college leadership career
   - likely success as community college leader
4. Classes and course activities rely on interactive technologies, including web-based meetings using video and audio (webcam, microphone, high-speed internet.)

Note: GRE scores are not required.

**Graduation Requirements**

In order to receive the doctorate in Community College Leadership students must:

- Complete all courses in the program with a grade of 3.0 or greater, including participation in a practicum
- No grade of "C" or below is acceptable for graduation
- No more than two grades of "C" or below during enrollment
- Complete and successfully defend a dissertation within the degree time limit
- Submit electronic dissertation according to university, FLITE (Ferris Library for Information, Technology, and Education), and program policy

**More Information**

Information on the doctoral degree program can be found at the Community College Leadership website:

http://www.ferris.edu/ccleadership

Contact:
Doctorate in Community College Leadership
410 Oak Street
Alumni Building, Room 115
Big Rapids, MI 49307

Phone: 800-562-9130 or 231-591-2710
Email: ccleadership@ferris.edu

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Computer Information Systems

Required Courses

Why Choose Computer Information Systems?

The Bachelor of Science degree offered through the College of Business at Ferris prepares students to be team leaders in the development and maintenance of Business Information Systems. Starting positions include application programmer/analyst, business analyst, systems analyst, networking administrators, consultants, software developers, computer support specialist, systems administrators, project leaders and web developers.

To assure relevance and enduring value, our Computer Information Systems (CIS) program has been designed to align with the national standard (IS2002) established by computing professionals. In addition, we have drawn upon our tight linkages with industry to assure that our labs and our required internships provide the level of hands-on experience that ensures our students are sought after by employers who recognize Ferris as a source of skilled, knowledgeable IS/IT graduates that can hit the ground running and grow from there.

Computers and Information Systems have become essential to all aspects of business and life. Professionals are needed to relate the problem-solving abilities of a computer system to an individual business department, corporation, or multi-national enterprise.

This program has close relationships with the IT industry through a program advisory board, and requires internships as a practical hands-on experience. The hands-on approach in the bachelor degree gives graduates a real-world look at their professional field.

Career Opportunities

The need for computing professionals and executives in the country is growing as companies become more global. Almost every major challenge facing our world is turning to computing for a solution, from conquering disease to eliminating hunger, from improving education to protecting the environment.

According to the United States Department of Labor, employment of computer and information technology occupations is projected to grow 12 percent from 2014 to 2024, faster than the average for all occupations. These occupations are expected to add about 488,500 new jobs, from about 3.9 million jobs to about 4.4 million jobs from 2014 to 2024. In part, the growth is due to a greater emphasis on cloud computing, the collection and storage of big data. More everyday items are becoming connected to the Internet in what is commonly referred to as the “Internet of things”, and the continued demand for mobile computing.

The median annual wage for computer and information technology occupations was $81,430 in
May 2015, which was higher than the median annual wage for all occupations of $36,200.

More precisely, the US-BLS predicts that each year between now and 2024, there will be nearly 20,000 new software development jobs, nearly 12,000 new systems analysts jobs, over 8,000 new computing support jobs, and over 4,000 network/system administration jobs. No other STEM area is expected to generate even 4,000 New Jobs per year.

Do you enjoy finding better ways to get things done using computers? Are you interested in understanding how information systems can improve business processes and make organizations work better? Information Systems (IS) professionals analyze, design, implement, and manage innovative technology-based solutions. They help modern enterprises in virtually any industry create value using information technology.

IS professionals integrate their computing and business skills to radically improve the ways in which all organizations collect, manage, and use data to achieve their goals. They also facilitate communication between technical and business specialists in order to identify optimal IT solutions.

Curriculum

The CIS program provides maximum flexibility for students, and easily changes with the market place. The curriculum core is aligned to a national standard (IS 2002) which was produced by the ACM, AITP, and AIS professional societies. This core was created from skills and attributes listed in thousands of job advertisements for Information Systems positions.

The CIS curriculum provides students with a broad understanding of core business functions, competency in computer programming, knowledge of information technology infrastructure, and a sound foundation in web-based systems analysis and design. Furthermore, this curriculum provides the necessary related business skills for immediate employment in Information Systems and for advancement to management positions.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.5 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Computer Information Systems program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall. Students must complete all general education requirements as outlined on the General Education website.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.) Next Accreditation Review is February 2028.
http://www.acbsp.org
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Computer Information Systems

Required Courses

Why Choose Computer Information Systems?

The Associate in Applied Science degree, offered through the College of Business at Ferris, prepares students to support computing systems by providing programming, systems analysis, network administration, and some database management skills.

Entry-level positions include jobs such as programmer/analyst, network administrator, systems analyst, computer support specialist, and other related positions in the field.

This program has close relationships with industry through a program advisory board and requires internships as a practical hands-on experience. The hands-on approach gives graduates a real-world look at their professional field.

Career Opportunities

With an AAS in CIS, typical positions include Web-based jobs such as:

- **Web architects or programmers** are responsible for the overall technical construction of the website. They create the basic framework of the site and ensure that it works as expected. Web architects also establish procedures for allowing others to add new pages to the website and meet with management to discuss major changes to the site.

- **Web designers** are responsible for how a website looks. They create the site’s layout and integrate graphics; applications, such as a retail checkout tool; and other content into the site. They also write web-design programs in a variety of computer languages, such as HTML or JavaScript.

- **Webmasters** maintain websites and keep them updated. They ensure that websites operate correctly and test for errors such as broken links. Many webmasters respond to user comments as well.

- **Web developers** design and create websites. They are responsible for the look of the site. They are also responsible for the site’s technical aspects, such as performance and capacity, which are measures of a website’s speed and how much traffic the site can handle. They also may create content for the site.

The AAS in CIS helps professionals integrate their computing and business skills to radically improve the ways in which all organizations collect, manage, and use data to achieve their goals. They also facilitate communication between technical and business specialists in order to identify optimal computing solutions.

Curriculum

2018-2019 Academic Year 158 Ferris State University
The CIS program provides maximum flexibility for students, and easily changes with the marketplace. The curriculum core is aligned to a national standard (IS 2002) produced by the ACM, AITP, and AIS professional societies. This core was created from skills and attributes listed in thousands of job advertisements for IS positions.

The Associate in Applied Science degree is aligned to easily flow into the four-year bachelor degree in CIS.

**Admission Requirements**

**New Students SAT Scores**

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

**New Students ACT Scores**

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

**Transfer Students**

- Combined college or university GPA of 2.5 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

**General Education Requirements**

All University General Education requirements for an Associate's degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Computer Information Systems program at Ferris leads to an Associate in Applied Science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major, and overall.

**More Information**

Accountancy, Finance & Info Systems  
119 South Street, BUS 212  
Big Rapids, MI 49307-2284  
231-591-2434  
AFIS@ferris.edu

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http://www.acbsp.org

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Computer Information Systems

Required Courses

Why Choose Computer Information Systems?

A CIS Minor can significantly increase the marketability of any Bachelor's degree. Proficient usage of computers in day-to-day business functions is now critical for success in any work environment. Having a CIS Minor adds skills and abilities beyond your major that employers need, and it will differentiate you from those without it.

Career Opportunities

Computers and Information Systems have become essential to all aspects of business. All professionals, regardless of their major, are needed to understand and relate the problem-solving abilities of a computer system to an individual business department, company, or a multi-national enterprise.

A CIS Minor will give you an advantage over other majors who do not have these critical skills.

Admission Requirements

Any current Ferris State University undergraduate student who is in good academic standing may enroll in this minor. Minor is not available for CIS majors.

Graduation Requirements

Minimum credit hours required for the minor is 18 credits. A CIS Minor is a collection of 2 required courses and 4 elective courses.

- Systems
- Programming
- Network Administration
- Web Development
- A Customized Plan to Fit Your Needs

A Ferris student will receive the CIS Minor upon graduation with a Baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in CIS Minor courses.

Note: No more than 50% of the credits in this minor may be transferred from another institution. A maximum of one third of the credits, but not more than 7 credits in a minor, may overlap with the student's major.
More Information

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Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

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Computer Information Technology

Required Courses

Why Choose Computer Information Technology?

To assure relevance and enduring value, our Computer Information Technology (CIT) program has been designed to align with industry standards established by computing professionals. In addition, we have drawn upon our tight linkages with industry to assure that our labs and our required internships provide the level of hands-on experience that ensures our students are sought after by employers, who recognize Ferris as a source of skilled, knowledgeable IS/IT graduates who can hit the ground running and grow from there. The CIT degree includes the expectation that students will earn several industry certifications as well, providing an additional specialized skill set to enhance the graduate's value.

The Computer Information Technology program is for students who want to work in the business world and give technical assistance to computer systems end users in businesses and organizations. Individual business departments, corporations, and multi-national enterprises need professionals who can apply their technical skills to problem-solve computer systems issues within the business environment. The CIT curriculum provides students with a broad understanding of core business functions, and provides the skill sets required for computer support specialists, help-desk support, network and computer systems administration, and computer security. This curriculum prepares you for industry certifications such as CompTIA's A+, Network+, Linux+, and Security+ certifications, and Microsoft's MCSA or MCTS. The hands-on approach in the bachelor degree gives students a real-world look at their professional field.

Career Opportunities

The need for computing professionals and executives in the country is growing as companies become more global. Job growth rates for computing professions from the United States Bureau of Labor Statistics (US-BLS) can be summarized with one word: BIG. Today’s market has big demand with big salaries for qualified professionals. Computing occupations are estimated to grow rapidly over the next decade – many between 21% and 54% (US-BLS), far outpacing overall job growth in the United States.

Employment of computer support specialists is projected to grow 17% by 2022, which is faster than the average for all occupations. More support services will be needed as organizations upgrade their computer equipment and software. Computer support staff will be needed to respond to the installation and repair requirements of increasingly complex computer equipment and software. Employment of support specialists in computer systems design and related firms is projected to grow 49 percent by 2022.

*Computer network support specialists* typically do the following:

*Configure and maintain computer networks.*

*Respond to computer system problems.*

*Install and upgrade software and hardware.*

*Test and evaluate computer systems.*

*Install and maintain computer equipment.*

*Train computer users.*
• Test and evaluate existing network systems
• Perform regular maintenance to ensure that networks operate correctly
• Troubleshoot local area networks (LANs), wide area networks (WANs), and Internet systems

Computer network support specialists, also called technical support specialists, usually work in their organization’s IT department. They help IT staff analyze, troubleshoot, and evaluate computer network problems. They play an important role in the daily upkeep of their organization’s networks by finding solutions to problems as they occur. Solving an IT problem in a timely manner is important because organizations depend on their computer systems. Technical support specialists may provide assistance to the organization’s computer users through phone, email, or in-person visits.

**Computer user support specialists** typically do the following:

• Pay attention to customers when they describe their computer problems
• Ask customers questions to properly diagnose the problem
• Walk customers through the recommended problem-solving steps
• Set up or repair computer equipment and related devices
• Train users to work with new computer hardware or software, such as printers, word-processing software, and email
• Assist users in installing software
• Provide others in the organization with information about what gives customers the most trouble and about other concerns customers have

IT professionals engage in procuring, securing, supporting, troubleshooting, and designing elements of the IT infrastructure. Their work covers a variety of contexts, from websites to databases and network applications, in organizations ranging from business and government to schools, health care, and more.

IT professionals possess the ideal combination of knowledge and practical, hands-on expertise to support both an organization’s technology infrastructure and the people who use it. They’re responsible for selecting hardware and software products appropriate for an organization. IT professionals create and manage websites and networks to provide a secure, efficient, and productive environment for everyone.

**Admission Requirements**

**New Students SAT Scores**

• 2.5 **gh School G A (on a 4. scale)**

• Two of the Three Criteria:

  1. SAT **R score of 45 higher**
  2. SAT Math score of 5 **higher. Placement in MAT 11 will be considered (SAT Math score of 48 higher).**
  3. SAT Composite of 9 **higher**
New Students ACT Scores

- 2.5 grade School G A (on a 4. scale)
- Two of the Three Criteria:
  1. ACT glish score of 1 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university G A of 2.5 (on a 4. scale) from all institutions attended. G A based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the G A requirement.
- Transfer equivalency for FSU NGL 15 or placement during the first semester at FSU which would require an ACT glish score of 1 or higher oSAT R core of 45 or higher oAccuplacer glish score of 1 or higher.
- Transfer equivalency for FSU MAT 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher SAT Math score of 5 or higher oAccuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math -49.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

General Education Requirements

All University General dation requirements for a Bachelor’s degree are here.

Please consult this link for a complete listing of General dation electives.

Consult the Required Courses above or the program advisor for program specific General dation requirements.

Graduation Requirements

The Computer Information Technology program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2. cumulative G A in all Ferris courses, a 2. G A in the Business Core, and a 2.5 G A in the CIT major courses. Students must complete all general education requirements as outlined on the General dation website. Also, students are required to show proof of passing the C M TA A+ certification and two of the following industry certifications (MCSA, MCTS, Network+, Linux+, Security+, CNA or CCNA) to graduate from the CIT program.

More Information
The College of Business is accredited by the Accreditation Council for Business Schools and programs (ACBS). Next Accreditation Review is February 28.
http://acbsp.org

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to: FSUCurriculum@ferris.edu
Computer Information Technology

Required Courses

Why Choose Computer Information Technology?

A CIT Minor can significantly increase the marketability of any bachelor’s degree. The use of computer technology in day to day operations is important to all career fields. This minor provides the tools needed to successfully integrate hardware and software into a business’s or organization’s environment. You’ll gain a broad understanding and the basic skills required for jobs such as computer support specialist, help-desk support personnel, networking administrator, system administrator, and security specialist. This minor also prepares you for industry certifications such as CompTIA’s A+ and Network+. Linux+, Project+, and Microsoft’s MCTS certifications are additional options you may choose to pursue. All courses take a hands-on approach that will assist you with successful completion of these industry certifications.

Career Opportunities

System support is essential to all fields of industry. All professionals, regardless of their major, must be able to understand and relate to the problem-solving abilities of a company’s or organization’s computer systems. Understanding computer systems will give you an advantage over other majors that may lack these critical skills.

Admission Requirements

Any current Ferris State University undergraduate student in good academic standing may enroll in this minor. This minor is not available for CIT majors.

Graduation Requirements

Minimum requirement for the minor is 18 credits. A CIT minor is a collection of 3 required courses and 3 elective courses, depending on your chosen certification. Certification courses offered include, but are not limited to:

- Linux+
- Security+
- Microsoft’s MCTS
- Project+

A Ferris student will receive the CIT minor upon graduation with a Baccalaureate degree, and after successful completion of required coursework with a minimum 2.0 grade point average.

Note: No more than 50% of the credits in this minor may be transferred from another institution. A maximum of one third of the credits, but not more than 7 credits in a minor, may overlap with
the student's major.

**More Information**

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

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Computer Networking

Required Courses

Why Choose the CNS Certificate?
This certificate prepares for the Cisco Certified Network Administrator (CCNA) exam. Those students looking to advance in their current position by gaining the CCNA certification will benefit from this program. The courses need to be taken in order from Networks 1 through Networks 4.

Admission Requirements
Any students admitted to Ferris in a Major other than Computer Networking and Systems and in good standing may enroll for this certificate.

Graduation Requirements
Students must:

- maintain a 2.00 cumulative FSU GPA.
- No more than 50% of the credits in a certificate may be transferred from another institution.
- A minimum grade of C- is required for each course in the certificate.

More Information
EET & CNS Program Office
915 Campus Drive/SWN 405
Big Rapids, MI 49307-2291
Phone: 231-591-2388

email: eecn@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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Computer Networking

Required Courses

Why Choose the Computer Networking Minor?

If you are a business, health, science or math major, the CNS minor may help expand your career opportunities. With the mix of these courses, you will understand the fundamentals of computer networking along with implementing these networks. Because of the wide spread use of networks in many careers, your major course of study coupled with this minor will open doors in a broad range of industries.

Admissions Requirements

Any student admitted to Ferris enrolled in a Bachelor degree(other than Computer Networking and Systems) and in good standing may enroll in this minor.

Graduation Requirements:

An academic minor may only be awarded upon completion of a baccalaureate or higher at Ferris State University.

Students must

- maintain a 2.00 cumulative FSU GPA
- earn a minimum grade of C- for each course in the minor
- have a minimum of 18 semester credit hours
- have a maximum of 1/3 of the credits, but no more than 7 credits in a minor, may overlap the students major
- have a minimum of 50% (9 credits) of the courses in the minor at the 200 or above level
- have at least one-half (1/2) of the credits (9 credits) from Ferris (FSU Residency requirement)

More Information

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915 Campus Drive/SWN 405
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Phone: 231-591-2388

email: eecn@ferris.edu
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Computer Networks and Systems

Required Courses

Why Choose Computer Networks and Systems?

Advancements in digital technologies such as computers, network communications, high-speed control, smart devices, and software create a constant demand for skilled professionals. The Computer Networks and Systems (CNS) graduate is prepared to take leadership roles in the application, development, and management of these technologies. Exceptional technical understanding provided by this program enables graduates to meet the challenges of an ever-evolving digital world.

Computer Networks and Systems is a dynamic Bachelor of Science program targeted to these exciting digital careers. Its strong technical emphasis meets employer's needs and allows graduates an excellent foundation to enter multiple high-paying career paths. This unique curriculum balances theory with extensive hands-on experience.

Career Opportunities

Networking is emphasized throughout. CNS students gain extensive knowledge and experience designing, constructing, analyzing, and securing networks. Topics in electronics, microprocessors, network/computer hardware, operating systems, signaling, and software are presented throughout the program. To insure that graduates are optimally prepared, courses extend into the most current and specialized technologies. CNS also offers opportunities to gain valuable experience through summer internship and senior projects.

Since CNS is a Cisco Networking Academy member, advanced placement is available for students in the Cisco Networking Academy or who have CCNA certification!

Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies.

Students entering the Computer Networks and Systems program must have a high school diploma or equivalent, a 2.75 cumulative GPA along with an 18 ACT composite and a math sub-score of 19 or 950 SAT16 Total and a SAT16 math sub-score of 500. Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

A laboratory science, preferably physics, and fundamental knowledge of personal computers are strongly recommended.
General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Computer Networks and Systems program at Ferris leads to a bachelor of science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website.

More Information

EET & CNS Program Office
Ferris State University
915 Campus Drive/SWN 405
Big Rapids, MI 49307-2291
Phone: 231-591-2388
email: eecn@ferris.edu

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Computer Science

Required Courses

Why Choose a Computer Science Certificate?

A certificate in Computer Science will significantly enhance the employability of a graduate from any program at Ferris. Computer skills are among the most important skills an employer is looking for in employees today. It can serve to enhance the expertise of the student in their major field and also serve as an excellent preparation for entry-level positions in the computing field.

Admission Requirements

This Computer Science certificate is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing the Applied Mathematics Computer Science option. The certificate is designed to compliment any Ferris major program.

Graduation Requirements

You will receive the Computer Science Certificate after completion of the requirements with a minimum 2.5 grade point in these courses. No more than 50% of the credits in this certificate may be transferred from another institution.

More Information

ADVISOR: Dr. James Nystrom
PHONE: 231-591-5864
EMAIL: JamesNystrom@ferris.edu

Department of Mathematics
Ferris State University
820 Campus Drive/ASC 2021
Big Rapids, MI 49307-2225
Phone: 231-591-2565

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Computer Science

Required Courses

Why Choose the Computer Science Minor?

A minor in Computer Science will significantly enhance the employability of a graduate from any program at Ferris. Computer skills are among the most important skills an employer is looking for in employees today. It can serve to enhance the expertise of the student in their major field and also serve as an excellent preparation for entry-level positions in the computing field.

Through the course work of the Computer Science minor, students will be provided the opportunity to learn computer science applications such as programming language, computer architecture, microprocessor-controlled equipment and local area networks.

Admission Requirements

This Computer Science minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing the Applied Mathematics Computer Science option. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 20 credits and a minimum grade average of 2.5 in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. James Nystrom
PHONE: 231-591-5864
E-MAIL: MathDepartment@ferris.edu

Mathematics Department
Ferris State University
820 Campus Drive, ASC 2021
Big Rapids, MI 49307
Phone: 231-591-2565

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Computerized Business Applications

Required Courses

Why Choose the Computerized Business Applications Certificate?

A certificate in Computerized Business Applications significantly enhances the employability of a student. Computer software skills are among the most important skills an employer is seeking in employees. This certificate provides practical, hands on preparation for students interested in setting themselves apart from their peers and is designed to complement any Ferris major program.

The certificate includes training in several major software packages used in industry today including word processing, spreadsheets, bookkeeping, and Enterprise Resource Planning (ERP). Students learn how to use these software tools to manage a business as well as provide information needed to make business decisions.

Admission Requirements

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.

- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

*This document is subject to change. Questions should be submitted to the COB Dean’s Office/Student Academic Affairs (BUS 200) in care of the Director of Student Academic Affairs (231-591-2420).

Graduation Requirements

You will receive the Computerized Business Applications Certificate after completion of the required twelve credits with a minimum 2.0 grade point in each required course.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

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119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2434
Email: AFIS@ferris.edu

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Construction Administration

Required Courses

Why Choose Construction Administration?

Construction Administration includes such classes as construction quantity estimating, construction administration, construction cost estimating, advanced construction scheduling, and prepares students for such positions as crew leader or field supervisor. It is often pursued by individuals working in the construction industry who do not have a degree in Construction Management or a closely-related field.

It is possible to enroll in individual courses without committing to completing the entire program. However, since class size is limited, enrollment preference will be given to those students who intend to finish all courses and earn the certificate. Also, some earlier certificate courses are prerequisites to later courses.

Admissions Criteria

To be admitted to the Construction Administration certificate program, you must have college trigonometry, work experience or construction practices, general plan reading and computer applications or be able to pass a proficiency exam or have successfully completed the following prerequisites: MATH 120, CONM 111, 112, and CONM 117. An academic advisor can help you determine whether you meet the prerequisites.

Graduation Requirements

A minimum of 50% of the total credits required must be earned at Ferris State University.

If a student is in an FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.

A minimum grade of C- is required for each course in the certificate.

Cumulative GPA must be a 2.0 or higher.

More Information

Construction Technology & Management Programs
605 S. Warren Avenue, GRN 227
Big Rapids, MI 49307-2280
Phone: 231-591-3773
email: Consprog@ferris.edu
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ADA compliant checksheet before the 19-20 catalog is published, please send your request
to: FSUCurriculum@ferris.edu
Construction Management

Required Courses

Why Choose Construction Management?

The Bachelor of Science in Construction Management curriculum produces graduates who are prepared to manage the entire construction process. This industry-driven degree blends technical instruction in construction and engineering with a strong business education. It builds on a foundation strong in basic construction technology, mathematics, science and general education with program courses covering project costs, estimating, economics, scheduling, contracts, safety, engineering fundamentals, technical communication, advanced computer software and technology, and business management.

Career Opportunities

The construction industry has more than 650,000 employers with over 6 million employees and creates nearly $1 trillion worth of structure each year. It accounts for 4% of the US GDP. The United States is the second largest construction market in the world.

The ACCE accredited Construction management program at Ferris fills a vital need for time, cost and quality control in construction projects through the application of proper management tools in the many construction industry sectors - commercial, industrial, civil, and residential.

With proper education and training, Construction Management graduates can anticipate obtaining leadership positions in general contracting, construction management, project coordination, field supervision, quality assurance/control, estimating, marketing, field inspection and subcontracting. There are also opportunities as estimators, schedulers, developers, and owner's representatives.

Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20. Students coming from high school will be directed to the appropriate Associate's degree to be completed first. Transfer students should meet with the Program Coordinator to determine where they will fit into the program.

Students may enter the Construction Management program after meeting the following requirements:


• Passed MATH 120/116 with a C- or better (or transfer equivalent with C or better)
• Credit for PHYS 211
• Completion of the AAS-BCTM, AAS-CETH, or AAS-ARCH degree or equivalent courses prior to entry into the 300 and 400 level CONM courses
• 2.0 GPA in Associate Degree major courses
• 2.5 cumulative college GPA to be eligible to start the 300+ level Construction Management courses.

General Education Requirements

All University General Education requirements for a Bachelor's degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Construction Management program at Ferris leads to a bachelor of science degree.

Students must

• maintain a 2.00 cumulative FSU GPA
• have 40 credits at the 300/400 level
• have 30 credits of Ferris classes (FSU Residency requirement)
• have a minimum 120 total credits to earn a bachelor degree
• 22 of the 29 credits earned with the 300 and 400 level CONM courses must be taken at Ferris State University.
• complete all general education requirements as outlined on the General Education website.

More Information

Construction Technology & Management Programs
605 Warren Ave. GRN 227
Big Rapids, MI 49307-2280
Phone: 231-591-3773

Email: consprog@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

The College of Engineering Technology Construction Management, BS program is accredited by the American Council for Construction Education (ACCE)
http://www.acce-hq.org/
The next accreditation review is scheduled for 2018-2019.

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Creative Writing

Required Courses

Why Choose the Creative Writing Minor?

With its dual emphasis on writing and reading creative works, the Creative Writing Minor encourages students to improve communicative and language skills while developing creative and critical texts; allows students to develop analytical skills and problem-solving skills; fosters an appreciation for language as both an expressive and a communicative medium; and encourages students to develop a deeper understanding of human nature, contemporary society, and the role of the individual in today's world.

Admission Requirements

This Creative Writing minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses. At least 50 percent of the credits of the minor must be Ferris State University credits.

More Information

ADVISOR: Dr. Deirdre Fagan
PHONE: 231-591-3031
EMAIL: DeirdreFagan@ferris.edu

Department of English, Literature, and World Languages
Ferris State University
820 Campus Drive/ASC 3080
Big Rapids, MI 49307-2225
Phone: 231-591-3988

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Creative Writing

Required Courses

Why Choose the Creative Writing Certificate?

With its dual emphasis on writing and reading creative works, a Creative Writing certificate encourages students to improve communicative and language skills while developing creative and critical faculties. Producing, as well as reading and responding to creative texts, allows students to develop analytical skills and problem-solving skills; fosters an appreciation for language as both an expressive and a communicative medium; and encourages students to develop a deeper understanding of human nature, contemporary society, and the role of the individual in today's world.

Admission Requirements

This Creative Writing certificate is open to any student admitted to Ferris State University. The certificate is designed to complement any Ferris major program, or to provide additional post-baccalaureate skills and training.

Graduation Requirements

Completion of this certificate requires a minimum of 9 credits and a minimum GPA of 2.0 or higher in these courses. At least 50% of the credits for the certificate must be Ferris State University credits.

More Information

Advisor: Dr. Deirdre Fagan
Phone: 591-3031
email: DeirdreFagan@ferris.edu

Department of English, Literature, and World Languages
Ferris State University
820 Campus Drive / ASC 3080
Big Rapids, 9307
Phone: 591-3988

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Criminal Justice

Required Courses

Why Choose Criminal Justice?

All students must complete the associate degree in Criminal Justice and will receive an Associate in Arts degree. After students have completed the associate degree requirements, they will apply to the criminal justice B.S. degree program and choose from either the law enforcement concentration, corrections concentration or criminal justice generalist concentration. Admission into the B.S. degree program is granted on a competitive basis, as space permits.

Admission Requirements

Students must possess a 2.5 grade point average (GPA) from high school and a 17 ACT or 900 SAT score. Students transferring from another college must have a 2.0 GPA. Ferris students wishing to make a curriculum change into the College of Education and Human Services must have a 2.0 GPA.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

In order to graduate from the College of Education and Human Services, the following requirements must be met. Some curriculums may have additional requirements.

- Complete a specified minimum number of semester hours in required and elective courses as approved by the faculty.
- Attain a 2.0 GPA or above in all work taken while registered at Ferris (consult program descriptions for specific program GPA requirements).
- Complete all general education requirements as outlined on the "General Education" website and have an ACT math subscore of 24, or complete MATH 115, or pass the proficiency exam.
- Satisfy the University's residency requirements.
- Formally apply for graduation with the appropriate administrator.

More Information
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Criminal Justice

Required Courses

Why Choose the Criminal Justice Minor?

The Criminal Justice minor was designed to increase the options available for Ferris State University students looking to supplement their education in a field outside of their major. The minor will allow students to obtain either a general overview of the criminal justice system or to obtain a certification in corrections as required by the Michigan Department of Corrections for employment. There are many majors currently offered at Ferris State University that are employable in the field of criminal justice with an appropriate background in criminal justice. The minor is designed to provide this educational background.

Admission Requirements

The Criminal Justice minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. An average GPA of 2.0 or higher must be achieved for the courses to count towards the minor. The minor requires a minimum of 18 semester hours, 9 of which must consist of upper division courses. Required core courses include CRIM 110, CRIM 260 CRIM 310 or 370 and CRIM 311. If the student wishes to select corrections, CRIM 111 can be substituted for CRIM 260 and CRIM 319 can be substituted for CRIM 311.*

More Information

Ferris State University
School of Criminal Justice
1349 Cramer Circle, BIS 509
Big Rapids, MI 49307-2737
Phone: 231-591-3652 or 231-591-5080

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Criminal Justice - Corrections Option

Required Courses

Why Choose the Criminal Justice Corrections Option?

This option emphasizes areas of criminal justice other than law enforcement including adult institutions, probation, parole, and the prevention, treatment, and control of both youthful and adult offenders. Coursework is designed to introduce various components that make up the structure of institutional corrections, community corrections, and human service agencies working with deviant populations. Further emphasis is placed on interpersonal communication, crisis intervention, and working with special deviant populations.

This option includes certification of the minimum educational requirements for the position of state corrections officer as established by the Michigan Correctional Officers' Training Council. Similarly, the School of Criminal Justice offers a local Corrections Officer Training Academy that is designed to provide certification training for students wishing to work as a county jail corrections officer in Michigan.

Career Opportunities

The corrections track graduates are well positioned to work with the deviant populations at the federal, state, and local level. They are also prepared to work with juveniles and adults. Opportunities are available for detention/correctional officers; probation agents, parole agents, working within the court system, youth programs, residential treatment facilities, community corrections, and a wide array of human services agencies.

Admission Requirements

A minimum GPA of 2.0 is required for admission into the corrections option.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here.

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

A 2.0 GPA is required for graduation.

More Information
For further information, please contact the School of Criminal Justice.

1349 Cramer Circle, BIS 509

Big Rapids, MI 49307

231-591-5080 or 231-591-3652

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Criminal Justice - Generalist Option

Required Courses

Why Choose the Criminal Justice Generalist Option?

The generalist option will help prepare students to be successful in law school and graduate school, specifically in the fields of criminal justice and criminology. This option will provide students with the knowledge and skills needed to succeed in an ever-changing field. Employment opportunities include probation officer, parole officer, asset protection, court reporter and crime analyst. Please note that graduate or law degrees, as well as academy certifications may be needed for some employment opportunities. Please see one of our advisors or professors for more details.

Career Opportunities

The criminal justice curriculum at Ferris State University is designed to familiarize students with the complex nature of the American criminal justice system. The study of criminal justice focuses on the structure and roles of law enforcement, the courts, and corrections. We strive to provide students with the invaluable ability to think critically and act independently in their career. The generalist option is designed to prepare students for a variety of career paths following graduation, including law school, graduate-level work in criminology and criminal justice, and for careers at the local, state, and federal levels in law enforcement, corrections, and court related agencies. This path will provide you with the knowledge and tools to be the next leaders in the criminal justice field.

Admission Requirements

A minimum GPA of 2.0 is required for admission into the Generalist concentration.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

A 2.0 GPA is required for graduation.

More Information
Ferris State University
School of Criminal Justice
1349 Cramer Circle, BIS 509
Big Rapids, MI 49307-2737
Phone: 231-591-3652 or 231-591-5080

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Criminal Justice Administration

Required Courses

Why Choose Criminal Justice Administration?

The Master of Science degree in Criminal Justice Administration is designed to offer post-baccalaureate education to criminal justice professionals, administrators and traditional students seeking criminal justice graduate education. The curriculum offers coursework and skills necessary for successful administration in police, corrections and court agencies, as well as private criminal justice agencies; such as residential treatment centers, halfway houses and private security firms. Students seeking admission to law school and doctoral studies in criminal justice will find this program appealing.

For full-time students, the degree will take one academic year (fall, winter and summer semesters). If the student elects to take two classes per semester, the degree can be completed in two years, or if the student attends one class per semester, the degree can be completed in four years.

Career Opportunities

The program is designed to prepare students for the demand of administrative or managerial positions within public or private criminal justice agencies. The degree emphasizes four core areas:

- Administrative and Leadership Skills
- Personnel and Budgeting Management
- Research and Evaluation
- Crime and Violence

Admission Requirements

Baccalaureate degree (preferably in criminal justice or a related field) from an accredited institution with an earned cumulative GPA of 3.00 or higher is required for this program. Students who do not meet this requirement may be admitted provisionally, but must have a 3.00 GPA at the end of their first 12 semester hours. Also necessary are three professional letters of recommendation from faculty or agency employers and a personal statement indicating why the individual is interested in pursuing the Master of Science degree. The applicant must submit an official transcript (if not a Ferris State University graduate), along with an application fee of $30.00.

Graduation Requirements:
• Complete 30 semester hours with a 3.0 GPA or higher.
• Up to six (6) credit hours may be transferred from another accredited graduate program in criminal justice. These credits are awarded at the discretion of the School of Criminal Justice.
• No grade under a C is permitted. All work below a C must be repeated to fulfill graduation requirements. Upon any second grade below C, the student may be removed from enrollment at the discretion of the School of Criminal Justice.
• Students must complete all degree requirements within five (5) years of starting classes at Ferris State University. An extension may be granted for extenuating circumstances, upon recommendation of the student's major program advisor and written approval of the director of the School of Criminal Justice.

More Information

Ferris State University
School of Criminal Justice
1349 Cramer Circle
Bishop Hall 506
Big Rapids, MI 49307-2737
Phone 231-591-3652 or 231-591-5080
Or 1-800-4FERRIS (from MI, IL, IN, OH, WI)

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Criminal Justice-Law Enforcement Specialist Option

Required Courses

Why Choose the Law Enforcement Specialist Option?

The Law Enforcement option’s main goal is to provide a quality education to students which will improve the students’ analytical, cognitive skills, and to prepare them for a career as a law enforcement officer at all levels of government. This option strives to provide students with outstanding problem solving abilities, critical thinking and decision making skills, as well as strong communication capabilities. These skills are highly sought in the field of criminal justice. This option leads the student to our nationally recognized and state certified Law Enforcement Academy where the primary faculty use Problem-Based Learning methodologies as the foundation of all instruction. This enables the student to be best prepared for any entry-level position in the field of law enforcement.

A well rounded general education is required for students in the program. Besides the general education requirements, students are required to take additional upper level courses in multiple areas outside of their academic major. This is done to ensure a well-educated graduate who possesses cognitive skills and knowledge not only within their discipline, but also across a wide array of areas of life that they will frequently encounter. Academic and technical knowledge, skills and abilities are provided to students in the program. Students are provided analytical reasoning skills that will allow them to learn and excel in law enforcement.

Career Opportunities

The Law Enforcement education track provides technical education and training that provides students with marketable policing skills. The Law Enforcement Academy is scheduled as the last year of the student's bachelor degree program and is formally approved by the Michigan Commission on Law Enforcement Standards. Upon academy completion and graduation, the student is eligible for a license to be a Michigan police officer. This allows employment in any Michigan police agency. In addition, the Law Enforcement option provides for a solid educational foundation for any law enforcement positions within the United States, including the federal government. Our academy has reciprocity with 48 other states allowing movement to other regions of our country after graduation.

Admission Requirements

Admission into the Law Enforcement option is granted on a competitive basis, as space permits, and a minimum GPA of 2.5 is required.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here.
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

A 2.5 GPA is required for graduation.

**More Information**

Ferris State University
School of Criminal Justice
1349 Cramer Circle, BIS 509
Big Rapids, MI 49307-2737
Phone: 231-591-3652 or 231-591-5080

*ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu*
Culinary Management

Required Courses

Why Choose the Culinary Management Certificate?

The Culinary Management certificate is designed to complement any degree by providing fundamental “back of the house” skills and knowledge in knife handling, sanitation, safety, nutrition, menu planning, food preparation techniques, and culinary terms. In addition to the required courses, students may select between several food labs that reflect their particular interests, such as food science, cooking & baking, and international cuisine. Throughout their studies, students will have the opportunity to earn nationally recognized certifications, such as ServSafe and First Aid/CPR, as part of their required courses.

Admission Requirements

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

Graduation Requirements

2018-2019 Academic Year
• No more than 50% of the credits in a certificate may be transferred from another institution.
• If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
• A 2.00 cumulative GPA is required for completion of the Certificate.
• **A term prior to completion of the Certificate**, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

**More Information**

Hospitality Managment Program  
West Commons 106  
1319 Cramer Circle  
Big Rapids, MI 49307  
Phone: 231-591-2382  
Email: hospitality@ferris.edu

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Curriculum and Instruction/Special Education Concentration

Required Courses

Why Choose the Master of Education in Curriculum and Instruction?

The Master of Education in Curriculum and Instruction gives professional educators the advanced professional development necessary to open several career options as well as providing a foundation to improve their instructional practice. Students eligible for admission to the graduate program must hold a bachelor’s degree from an accredited college or university. When required, candidates should hold or be eligible for professional licensure, registration or certification to practice in the occupational specialty. Previous teaching experience is not a requirement. An admissions committee will review all application materials and recommend appropriate action. Upon admission to the graduate program, each student will be assigned a graduate advisor.

Career Opportunities

The program enables secondary and elementary educators to advance in their district salary schedules and become educational leaders either as administrators, curriculum directors, or department heads.

Admission Requirements

The applicant must possess a baccalaureate degree from an accredited college or university with a 2.75 or higher GPA on a 4.0 scale. Conditional entry may be granted when the 2.75 requirement has not been met. Once a student has been granted conditional entry, he/she must earn a GPA of 2.75 within the first nine (9) hours of graduate level courses. Consult individual program description for other admission requirements.

Teacher Certification Requirements (for Certification Concentrations only)

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Professional Readiness Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

Graduation Requirements

The Master of Education in Curriculum and Instruction requires that all students must complete all degree requirements within five (5) years after admission into the program. Consult individual program descriptions for other graduation requirements.
More Information

College of Education & Human Services
School of Education
   ishp Hall Room 421
Ferris State University
1349 Cramer Circle
   g Rapids, MI 49307 2737
Telephone: (231) 591-5361

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to: FSUCurriculum@ferris.edu
Curriculum and Instruction/Subject Area Concentration

Required Courses

Why Choose the M.Ed. in Curriculum and Instruction?

The Master of Education in Curriculum and Instruction gives professional educators the advanced professional development necessary to open several career options as well as providing a foundation to improve their instructional practice. Students eligible for admission to the graduate program must hold a bachelor's degree from an accredited college or university. When required, candidates should hold or be eligible for professional licensure, registration or certification to practice in the occupational specialty. Previous teaching experience is not a requirement. An admissions committee will review all application materials and recommend appropriate action. Upon admission to the graduate program, each student will be assigned a graduate advisor.

Career Opportunities

The program enables secondary and elementary educators to advance in their district salary schedules and become educational leaders either as administrators, curriculum directors, or department heads.

Advanced Educational Opportunities

Graduate students, who successfully complete the Master of Education in Curriculum and Instruction, are eligible to pursue their doctorate in education through a collaborative partnership between Ferris State University and Western Michigan University https://www.wmich.edu/leadership/academics/ed-leadership/doctor/wed.

Admission Requirements

The applicant must possess a baccalaureate degree from an accredited college or university with a 2.75 or higher GPA on a 4.0 scale. Conditional entry may be granted when the 2.75 requirement has not been met. Once a student has been granted conditional entry, he/she must earn a GPA of 2.75 within the first nine (9) hours of graduate level courses. Consult individual program description for other admission requirements.

Graduation Requirements

The Master of Education in Curriculum and Instruction through the School of Education, College of Education and Human Services requires that all students must complete all degree requirements within five (5) years after admission to the M.Ed. Consult individual program descriptions for other graduation requirements.
ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Cybersecurity

Required Courses

Why Choose the Cybersecurity Certificate?

Responding to industry demands for knowledge workers in Cybersecurity, the Cybersecurity Certificate is a certificate that was created to increase the options available for Ferris State University students and professionals seeking to supplement their education in Cybersecurity, Digital Forensics, and Incident Response. In addition to earning the certificate, students may earn Industry certifications such as Cellebrite Mobile Forensics, AccessData ACE, EC Council's Certified Network Defender(CND), and CompTia's Security+. By supplementing their education with the Cybersecurity Certificate, it is believed that Ferris State University students will increase their employment opportunities. Courses are taught by faculty in the Information Security and Intelligence program.

- The National Security Agency and the Department of Homeland Security have designated Ferris State University as a National Center of Academic Excellence in Cyber Defense Education.

- The Department of Defense Cyber Crime Center (DC3) and the Air Force Office of Special Investigations has named Ferris State University as the first university to obtain designation as a National Center of Digital Forensics Academic Excellence.

- Ferris State University is a host site for the Michigan Cyber Range. This provides students with a unique opportunity to develop skills in detecting, preventing, and responding to cyber-attacks in a controlled setting that approximates the real world. The Cyber Range allows for actual performance of cyber security techniques such as penetration testing, digital forensics, malware analysis, and other information technology pursuits in a logically isolated system that has connectivity potential nationwide.

Career Opportunities

This certificate prepares you for careers such as a Security Analyst, Digital Forensics Examiner, Network Security Analyst, and Incident Response. The certificate may compliment and augment knowledge and skills in many other majors and careers such as Systems Administration, Systems Analysis, and Criminal Justice. Opportunities exist in government, business, health care, Insurance, finance, and education fields.

Admission Requirements

New Students SAT Scores

- 3.0 High School GPA (on a 4.0 scale)
• SAT Math Score of 550 or higher
• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

New Students ACT Scores

• 3.0 High School GPA (on a 4.0 scale)
• ACT Math Score of 22 or higher
• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

Transfer Students

• Combined college or university GPA of 3.0 (on a 4.0 scale) from all institutions attended. GPA based on completion of 24 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
• Completion of the transfer equivalency for FSU’s MATH 114/115 with a grade of “C” or higher (this does not include FSU’s equivalent of MATH 117) or a ACT Math score of 22 or higher or SAT Math score of 550 or higher.
• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

Graduation Requirements

You will receive the Cybersecurity Certificate after completion of the required twelve credits with a minimum 2.0 grade point in each required course.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student’s major.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2434
Email: AFIS@ferris.edu

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request.
ADA compliant checklist before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Cybersecurity: Ethical Hacking

Required Courses

Why Choose the Cybersecurity: Ethical Hacking Certificate?

Responding to industry demands for knowledge workers in Cybersecurity, the Cybersecurity - Ethical Hacking Certificate is a certificate that was created to increase the options available for Ferris State University students and professionals seeking to supplement their education with ethical hacking and penetration testing skills. In addition to earning the certificate, students may earn industry certifications such as EC Council's Certified Ethical Hacker (CEH) and CompTia's Security+ by leveraging our industry partnerships such as EC Council's Accredited Training Center designation. Students may also become proficient with Python. By supplementing their education with the Cybersecurity - Ethical Hacking Certificate, it is believed that Ferris State University students majoring in computing related majors will increase their employment opportunities. Courses are taught by faculty in the Information Security and Intelligence program.

• The National Security Agency and the Department of Homeland Security have designated Ferris State University as a National Center of Academic Excellence in Cyber Defense Education.

• The Department of Defense Cyber Crime Center (DC3) and the Air Force Office of Special Investigations has named Ferris State University as the first university to obtain designation as a National Center of Digital Forensics Academic Excellence.

• Ferris State University is a host site for the Michigan Cyber Range. This provides students with a unique opportunity to develop skills in detecting, preventing, and responding to cyber-attacks in a controlled setting that approximates the real world. The Cyber Range allows for actual performance of cyber security techniques such as penetration testing, digital forensics, malware analysis, and other information technology pursuits in a logically isolated system that has connectivity potential nationwide.

Career Opportunities

This certificate prepares you for careers such as a Security Analyst, Ethical Hacker, Red Team Member, and Penetration Tester. The certificate also augments knowledge and skills in careers such as Software Engineering, Software Development, Systems Administration, and Systems Analysis. Information Security, Data Security, Web Application Security, and Mobile Security are a few of the possible focus areas. Opportunities exist in government, business, health care, insurance, finance, and education fields.

Admission Requirements

New Students SAT Scores

2018-2019 Academic Year

Ferris State University
• 3.0 High School GPA (on a 4.0 scale)
• SAT Math Score of 550 or higher
• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

New Students ACT Scores

• 3.0 High School GPA (on a 4.0 scale)
• ACT Math Score of 22 or higher
• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

Transfer Students

• Combined college or university GPA of 3.0 (on a 4.0 scale) from all institutions attended. GPA based on completion of 24 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
• Completion of the transfer equivalency for FSU’s MATH 114 5 with a grade of C or higher (this does not include FSU’s equivalent of MATH 117) or a ACT Math score of 22 or higher or SAT Math score of 550 or higher.
• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

Graduation Requirements

You will receive the Cybersecurity - Ethical Hacking Certificate after completion of the required twelve credits with a minimum 2.0 grade point In each required course.

No more than 50 of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50 of the certificate credits are specifically required In the student's major.

More Information

Accountancy, Finance   Info Systems
11 South Street, BUS 212
Big Rapids, MI  49305-2284
Phone: 231-5  -2434, Email: AFIS@ferris.edu

Ferris State University
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Data Analytics

Required Courses

Why Choose a Data Analytics Certificate?

Data Analytics is a growing field that uses data to gather intelligence in business, marketing, finance, accounting, human resources, insurance, homeland security, criminal justice, education, government, healthcare and manufacturing. Data mining turns raw data into information. This information creates knowledge used by leaders and managers to establish and achieve organizational goals and sustain a competitive advantage. For example, it assists businesses in spotting customer trends, creating customer loyalty, enhancing supplier relationships, reducing financial risk and uncovering new sales opportunities.

Organizations today face tough competitive challenges. Some challenges can be met with the competitive advantage of better knowledge. Your future employer may assign you to help create that knowledge by using sound research methods to discover knowledge hidden within vast databases. For example, you may be asked to help a team discover customer buying patterns that signal new niche markets. Or you may help discover a pattern of credit card use that points to fraud. Or you may help discover patterns of cell growth helpful in diagnosing cancer. Or you may assist a team searching for patterns of terrorist activities. Or you may help discover changing patterns of habitat growth impacting endangered species. Do you see yourself in a team working with research tools to explore vast amounts of data and information to uncover important patterns? If so, a data mining certificate will prepare you to work in a team setting to help fulfill information needs of your employer through application of data mining methods.

Career Opportunities

Some career options for those who have a Data Analytics Certificate would be a predictive modeler, data analyst or a data scientist.

Admissions Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change
Form” request is processed through the COB Dean’s Office/SAA.

More Information:
Additional guidance can be found on the College of Business Webpage under the Admissions tab.

**Graduation Requirements**

You will receive the Data Analytics Certificate after completion of the requirements with a minimum 2.0 grade point average.

No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

**More Information**

Marketing Department
South Street/BUS 2 2
Big Rapids, MI 4930 2284
Phone: 23 52426
mail: MKTG@ferris.edu

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Dental Hygiene

Required Courses

Why Choose Dental Hygiene?

The Dental Hygiene program has been at Ferris since 1967 and is the largest in the State of Michigan. The program enjoys a reputation of educational excellence, with expert faculty who are recognized at the state, national and international levels within the discipline of dental hygiene for the delivery of innovative academic and continuing education.

Dental hygiene is a practice area that continues to grow with the increased consumer awareness of the importance of good oral hygiene in the prevention and detection of systemic disease processes. Dental hygiene will continue to grow based on the increasing focus on preventive dental care needs of the public.

Completion of the three-year associate in applied science degree, and final written and clinical exams enables the graduate to sit for the state licensure exam. Student clinical experiences occur within the college as the students work with patients from the University, community, and local schools in the College's on campus Dental Hygiene Clinic.

Career Opportunities

Dental hygienists are professionals, licensed by the state in which they practice, who complete extensive educational and clinical preparation in preventive oral health care. A dental hygienist is a clinician, oral health care educator, health promoter, consumer advocate, administrator, and researcher.

The responsibilities of a dental hygienist include the development, implementation, and evaluation of a dental hygiene plan of care that is based on the needs of the patient. Clinical services can include:

- the evaluation and monitoring of medical and dental health histories
- examining, assessing, and documenting oral conditions
- exposing, processing and interpreting x-rays
- removal of calculus and stain that form on the teeth
- application of caries-preventive agents such as fluorides and pit and fissure sealants
- delivery of dietary education and counseling
- design and implementation of community or school oral health programs
- delivery of local anesthesia and nitrous oxide

Accelerated employment growth is expected for several years in response to increasing demand for dental care. Earnings of dental hygienists are affected by geographic location,
employment setting, education, and experience. The average hourly wage in Michigan is $26 - $30 per hour in private practice employment settings. Dental hygienists who work for school systems, public health agencies, the federal government, or state agencies often have substantial benefits.

**Admission Requirements**

Students must be admitted to the university. To be qualified to enter the professional sequence of the program, a student must have earned at least a 2.5 GPA with a minimum grade of a "C" in the following courses or their equivalent: MATH 110 (alternate MATH ACT subscore of 19 or above); BIOL 108; MRIS 102; ENGL 150; SOCY 121; CHEM 114, BIOL 205, COMM 105 or COMM 221, CCHS 102, PSYC 150, and cultural enrichment elective with a grade of C or better.

To assure students of a quality technical education in classroom/lab and clinical practice, enrollment is limited. Students who meet or will have met the program's qualification criteria by the end of Spring semester are required to apply to the program's professional sequence between January 15 and January 30 of the year prior to the August professional sequence entry. Admission will be based upon date of qualification.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The six-semester program leads to an associate in applied science degree. Students must earn a grade of C or better in major and core courses and meet all the general education requirements as outlined on the General Education website.

If a student interrupts progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations.

**More Information**

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
Phone: 231-591-2270
email: chp@ferris.edu

For information about accredited programs and educational requirements contact:

Commission on Dental Accreditation
American Dental Association
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Dental Hygiene AAS to BS Completion

Required Courses

Why Choose the Dental Hygiene AAS to BS Completion Degree?

The baccalaureate program in dental hygiene is designed for dental hygienists with an associate degree in dental hygiene who want to earn a Bachelor of Science degree in Dental Hygiene in a student-centered learning environment. Students engage in self-directed learning activities, advance their knowledge in the areas of critical thinking, exhibit values for lifelong learning, synthesize evidence based information and develop leadership skills. Graduates from the program will be prepared with advanced research, communication, educational leadership, practice management and dental hygiene knowledge.

Career Opportunities

The degree will expand the knowledge of dental hygienists and prepare graduates for more extensive roles in the profession. This degree program will guide students in developing the knowledge, skills, attitudes and values necessary for positions of responsibility in a variety of healthcare, educational, research and community settings. The curriculum will consist of general education courses, research courses and specialized career courses for entry into government, education, public health or advanced dental hygiene practice.

According to the American Dental Hygienists' Association (ADHA), the hygienist can work in a variety of settings which may include: health maintenance organization or long-term care facility, military base, school system, dental supply company, insurance company, university or research center, veterinary center, government agency or another country. There is a growing need for hygienists to fulfill the roles of educators, advocates, administrators, and behavioral scientists for the profession to continue to be successful. For dental hygienists, the baccalaureate degree is important for adapting and advancing professionally.

Admission Requirements

To be eligible for the RDH to BS Dental Hygiene degree completion program:

- Apply and be accepted to Ferris State University.
- You must have a previously earned, or be in the final academic year of an associate degree in an accredited dental hygiene program from an accredited college or university.
- Have a cumulative GPA of 2.5.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

Student progression in the baccalaureate dental hygiene program is determined academically by maintaining a grade point average (GPA) of 2.5 and by achieving a minimum grade of "C" (2.0) in all courses on the DHYG checksheet. Students must enroll fall and spring continuously to be considered an active student in the program. A practicum field work experience must be completed in DHYG 491 and an approved scholarly project must be completed during DHYG 499. Progression includes graduation. A dental hygiene student may not graduate if he/she receives less than a "C" grade in the specified courses or less than a 2.5 cumulative grade point average.

**More Information**

Department of Dental Hygiene and Medical Imaging
College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
Phone: 800.462.8553, ext. 2261

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Diagnostic Medical Sonography

Required Courses

Why Choose Diagnostic Medical Sonography?

Diagnostic Medical Sonographers use high frequency sound waves to produce images and data that assist health care professionals diagnose various disease and disease processes. Sonographers are taught to work independently and to operate highly technical ultrasound equipment to acquire sonographic images. Physicians depend on the sonographer’s assistance with interpretation of the images to evaluate many body parts and structures, especially of the abdomen and pelvis.

Students enter the professional sequence of the program in the fall semester and spend the first three semesters on the Big Rapids campus. Studies during this period include general education and technical courses. Laboratory periods provide an opportunity to apply the theory and principles learned in the lecture sessions. During the final three semesters students work with patients in an off-campus clinical center. These sites are located throughout the state in hospitals affiliated with the University to provide clinical experience and continued academic instruction.

Graduates of the program are eligible to write the American Registry of Diagnostic Medical Sonographers (ARDMS) Sonography Principles and Instrumentation Examination as well as the Abdomen, and Obstetrics and Gynecology specialty exams.

Career Opportunities

Diagnostic Medical Sonography is a newly designated occupational category by the US Bureau of Labor Statistics within the imaging sciences field as of 2001. According to the US Department of Labor, almost 53 percent of sonographers are between the ages of 41 and 65, which means that they are at or near retirement. According to the US Bureau of labor statistics in May 2012, the median annual wage for diagnostic medical sonographers was $65,860. Employment of diagnostic medical sonographers and cardiovascular technologists and technicians, including vascular technologists is projected to grow 39% from 2012 to 2022, much faster than the average for all occupations.

Sonography, an ever-evolving profession, offers its practitioners many opportunities to enhance and advance careers. Sonographers can specialize in such diverse areas as the abdomen, obstetrics and gynecology, echocardiography, vascular technology, neurosonology and ophthalmology. They can work in clinics, hospitals, private practice, public health facilities, labs and other medical settings or branch out into education, administration, research or sales.

Admission Requirements
Students must first be admitted to the university as a Pre-DMS student. To be qualified to enter the professional sequence of the program a student must have earned a minimum grade of "B-" in the following courses or their equivalent: BIOL 109, MATH 115 and PHYS 130, a "C" or better in COHP 100 and a "C-" or better in ENGL 150 within two attempts including W grades.

To assure students of a quality technical education in classroom/lab and clinical practice, enrollment is limited. Students who meet or will have met the program's qualification criteria by the end of Fall semester are required to apply to the program's professional sequence between January 15 and January 30 of the year prior to the August professional sequence entry. Admission will be based upon date of qualification.

**General Education Requirements**

All University General Education requirements for an Associate’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The six-semester sequential course of study at Ferris leads to an associate in applied science degree. Ferris provides you an internship in the last three semesters of the program, although due to limited space, specific clinical site locations cannot be guaranteed. If a student elects to interrupt progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations in laboratory and clinical placement sites. Graduation requires a minimum 2.0 GPA overall and students must earn a "C" or better in major and core courses and meet all general education requirements as outlined on the General Education website.

**More Information**

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2270
231-591-2270 or 800.462.8553 ext. 2261
chp@ferris.edu

For Career information, enclose a stamped, self-addressed business size envelope with your request to:

ARDMS
1401 Rockville Pike, Suite 600
Rockville, MD 20852-1402
(301) 738-8401 or (800) 541-9754
FAX (301) 738-0312/0313
The Ferris State University Diagnostic Medical Sonography program is accredited by the Commission on Accreditation of Allied Health Education Programs (www.caahep.org) upon the recommendation of the Joint Review Committee on Education in Diagnostic Medical Sonography.

Commission on Accreditation of Allied Health Education Programs
25400 US Highway 19 North, Suite 158
Clearwater, FL 33763
727-210-2350

www.caahep.org

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Digital Animation and Game Design

Required Courses

Why Choose Digital Animation & Game Design?

The Digital Animation and Game Design program is focused on educating students in the latest tools and technology used to create digital and interactive content to offer a multitude of futures for its graduates, from 3D animation to simulation to game design. The required general education classes are targeted to future employees in digital technology as well as providing general knowledge and skills that will be useful in many aspects of life. The foundation classes provide depth of knowledge applicable to any digital technology field with classes in design, business, 3D animation, and programming. Students can further focus their studies by concentrating in areas of Game Development, 3D animation, or a general concentration that combines the strongest elements of digital media. Before graduating, all students will also complete an internship to give them the real-world experience and the people connections necessary to succeed in their chosen profession.

Career Opportunities

The DAGD program offers students the opportunity to actively compete in many growing industries such as:

- Game Design and Asset Creation
- Film
- Television
- Medical Visualization
- Architectural Flythroughs
- Legal Simulation
- Web Development
- Educational Software
- Product Design
- Independent Content Creation - Create your own!

Admission Requirements

Recent high school graduates need an ACT composite score of 17 or 900 on the SAT and a high school grade point average of 2.50 (on a 4.0 scale). Students transferring from another college should refer to www.ferris.edu and choose Transfer Student from the "Quick Links" pull-down menu to review Ferris' policy regarding admissions criteria for transfer students. All courses transferred into Ferris must be "C" or higher including courses used in the DAGD required core and recommended electives.
General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Digital Animation and Game Design program at Ferris leads to a bachelor of applied science degree. Graduation requires a minimum 2.0 CUMULATIVE GPA in all courses and a 2.50 CUMULATIVE GPA in REQUIRED DAGD classes. A minimum of 121 credit hours must be completed for graduation.

More Information

School of Digital Media
Ferris State University
1349 Cramer Circle, Bishop Hall 303
Big Rapids, MI 49307
phone: 231-591-2712
fax: 231-591-2060
http://www.ferris.edu/dagd/

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Digital Forensic/Cybersecurity

Required Courses

Why Choose the Digital Forensics/Cybersecurity (DFOR) Minor?

The minor in Digital Forensics/Cybersecurity was created to increase the options available for Ferris State University students seeking to supplement their education in the field of security. By having a solid education in both the field of Criminal Justice and Digital Forensics, it is believed that all other Ferris State University students majoring in other areas will increase their employment opportunities. The minor is based upon combining two criminal justice courses with four courses in security, forensics, and fraud. The course is designed for students to explore the concepts of information security from both historical and emerging perspectives. Topics include the capabilities and threats of technology to information security, computer crime, computer and mobile device forensics, as well as legal, ethical and professional issues. Also, the history, nature and extent of computer crime and the roles and responsibilities of the legal system will be investigated.

Admission Requirements

Any current Ferris State University undergraduate student who is in good academic standing may enroll in this minor.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. An average GPA of 2.0 or higher must be achieved for the courses to count towards the minor. The minor requires 18 credit hours of criminal justice, security, forensics, and fraud courses.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2434
AFIS@ferris.edu

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Digital Forensics/Cybersecurity

Required Courses

Why Choose the Digital Forensics/Cybersecurity (DFOR) Certificate?

Responding to industry trends, the Digital Forensics/Cybersecurity Certificate is a cooperative venture of the College of Business and the College of Education Criminal Justice Program. This certificate was created to increase the options available for Ferris State University students seeking to supplement their education in the field of digital forensics and cybersecurity. By supplementing their education with computer and mobile forensics and cybersecurity, it is believed that Ferris State University students majoring in all areas will increase their employment opportunities. The certificate consists of four security sources (one in information security, two in digital forensics, and one in fraud examination). The courses are designed specifically to make the student a more thorough investigator in cyber crime scenes and mobile device technologies.

Admission Requirements

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Unless it is determined by the COB Dean’s Office that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, applicants need only show proof of a 2.35 high school GPA. An advisor will be assigned by the College of Business in the certificate program.

- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office.

More Information:
Additional guidance can be found on the College of Business Webpage under the Admissions tab.
Graduation Requirements

You will receive the Digital Forensics/Cybersecurity Certificate after completion of the required twelve credits with a minimum 2.0 grade point.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2434
Email: AFIS@ferris.edu

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Digital Marketing

Required Courses

Why Choose a Digital Marketing Certificate?

If you have a strong interest in Internet-based marketing activity, you'll find that Digital Marketing is the newest and most innovative marketing methodology used by business executives. The Digital Marketing certificate will enhance your skills in:

- Multi-channel marketing - integrating online and offline marketing with profitable results
- Selling online, and saving money and time for your company and your customers
- Managing databases in a digital world
- Mastering best practices in both business-to-customer and business-to-business digital marketing
- Creation and execution of Internet marketing/advertising and social media plans and campaigns

You will be provided with the latest cutting edge internet-based marketing skills that will help you, not only in digital marketing, but in careers such as direct marketing, advertising and professional selling.

This certificate is structured to complement the knowledge and career-readiness of students earning advertising, marketing, computer information systems, communication and public relations degrees.

Career Opportunities

Students with a digital marketing background are in demand at advertising agencies, digital marketing agencies, and companies of all sizes. Entry-level job opportunities include positions in Search Engine Optimization (SEO), sponsored search (Google AdWords), social media management, and content marketing.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide
transcript) before the certificate will be granted from FSU.  
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Digital Marketing certificate after completion of the requirements with a minimum 2.0 grade point average.

No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

More Information

Marketing Department  
119 South Street/BUS 212  
Big Rapids, MI 49307-2284  
Phone: 231-591-2426  
E-mail: MKTG@ferris.edu

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Digital Marketing

Required Courses

**Why Choose a Digital Marketing Minor?**

If you have a strong interest in Internet-based marketing activity, and want to be able to hit the ground running in both Web marketing and Web design, the Digital Marketing Minor may be ideal for you. You will learn both the theory and practice of Digital Marketing, and the Digital Marketing Minor will enhance your skills in:

- Multi-channel marketing
- Integrating online and offline marketing with profitable results
- Selling online, and saving money and time for your company and your customers
- Managing databases in a digital world
- Mastering best practices in business-to-consumer digital marketing, business-to-business digital marketing, and direct marketing
- Creation and execution of Internet marketing/advertising and social media plans and campaigns including the basics of Web site design and implementation

You will be provided with the latest cutting edge Internet-based marketing skills that will help you, not only in Digital Marketing, but also in careers such as direct marketing, advertising and professional selling.

This minor is structured to complement the knowledge and career-readiness of students earning advertising/IMC, marketing, computer information systems, communications and public relations degrees.

**Career Opportunities**

Digital Marketing is a field that is growing at astonishing speed, and it offers a great number and variety of specialized career opportunities. It encompasses all the facets of online marketing, including digital marketing sales, social media, online advertising, business-to-business digital marketing, web design, and more. You will find yourself in a very competitive, challenging and rewarding career in this field such as search engine marketer, digital marketing marketer, online advertising manager, social media manager, online media planner or buyer, sales person, or marketing/advertising manager with digital marketing responsibilities. Your career ladder will often lead to high-paying senior management, executive and/or leadership positions.

**Admission Requirements**

Any person who is admitted to a Ferris State University Bachelor’s degree program is welcome to obtain this minor.
Graduation Requirements

You will receive the Digital Marketing minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the Digital Marketing minor courses.

No more than 50% of the credits in this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Marketing Department
119 South Street, BUS 212
Big Rapids, MI 49307-2284
  hone: 231-592-2426
    mail: MKT ferris.edu

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Digital Media

Required Courses

Why Choose Digital Media?

With the advent of digital technology there is an ever increasing amount of exciting career opportunities available. The Associate degree combines existing courses within the Digital Animation and Game Design (DAGD), Digital Media Software Engineering (DMSE), and Television and Digital Media Production (TDMP) programs into an introductory and exploratory degree within the School of Digital media. It allows students to complete their general education requirements while enrolling in courses from across the digital media curriculum. A portfolio of previous work is not required for acceptance into the program. Students will also have the opportunity to use state of the art digital equipment and software that are used by professional production facilities in the industry today. By gaining practical experience and a foundation to a variety of media, students will be better prepared to choose the path that serves their individual needs and goals.

Career Opportunities

This degree can be used as the foundation for bachelor's degrees in DAGD, DMSE, and TDMP. Graduates with the Digital Media associate degree will be qualified for design assistant and technical support positions in staging, professional conferences, and some sporting and entertainment venues.

Admission Requirements

New students: 2.5 high school GPA (on a 4.0 scale) and two of the three criteria below:

- English ACT score of 16 or higher, or SAT writing score of 370 or higher
- Math ACT score of 19 or higher, or SAT math score of 460 or higher
- Reading ACT score of 19 or higher, or SAT reading score of 430 or higher

Transfer students: Combined college or university GPA of 2.35 (one a 4.0 scale) from all institutions attended. GPA is based on completion of 12 credits or more.

- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; Compass score 70 - 100.
- Transfer equivalency for FSU MATH 115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; Compass Algebra score 46 - 74 and high school algebra with a 2.0.

Exceptions for new and transfer students: Applicants not meeting the above criteria but having a 2.35 high school GPA and at least a 16 ACT in Math or Reading (2.00 overall gpa for transfer
students) can be considered for conditional admission. Any mitigating circumstances will be considered on an individual basis by the College of Education and Human Services Dean's Office.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Digital Media associate degree leads to an Associate in Science degree. Graduation requires a 2.5 gpa in core requirements and a 2.25 gpa overall. Students must complete all general education requirements as outlined on the General Education website.

**More Information**

College of Education and Human Services
School of Digital Media
1349 Cramer Circle
Bishop 303
Big Rapids, MI 49307-2748
Phone: 231-591-2712

http://www.ferris.edu/predm/

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Digital Media Software Engineering

Required Courses

Why Choose Digital Media Software Engineering?

The Bachelor of Science in Digital Media Software Engineering is designed as an engineering degree focused on the technologies, procedures, and methodologies involved in the software development process. The degree focuses on fundamental and proven computer science processes employed to produce quality software. Engineering theory, principles, and mathematical rigor form the foundation of the degree.

Graduates will have experience successfully designing, developing, and delivering quality software applications. Critically important topics such as: requirements management, configuration management, testing, and quality assurance are covered in depth.

This approach to software engineering is designed to allow graduates to seamlessly transition into the workforce, integrating and employing their knowledge.

Career Opportunities

The Digital Media Software Engineering program offers students the opportunity to actively compete in many growing industries such as:

- Health Care
- Government Applications
- Video Game Development
- Business Applications
- Automotive Industry
- Information Technologies
- Consulting/Contracting
- Research and Development
- Information Security
- Finance/Banking
- Entertainment Industry
- Education

Admission Requirements

Recent high school graduates need an ACT composite score of 19 and a high school grade point average of 2.70 (on a 4.0 scale). Students transferring from another college should refer to www.ferris.edu and choose "Transfer Student" from the "Quick Links" pull-down menu to review Ferris' policy regarding admission criteria for transfer students. All courses transferred into Ferris
must be "C" or higher including courses used in the SENG required core and recommended electives.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Digital Media Software Engineering program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.0 CUMULATIVE GPA in all courses and a 2.70 CUMULATIVE GPA in REQUIRED SENG classes. A minimum of 128 credit hours must be completed for graduation.

**More Information**

School of Digital Media
Ferris State University
1349 Cramer Circle, Bishop Hall 303
Big Rapids, MI 49307
ph: 231-591-2712
fax: 231-591-2060

http://www.ferris.edu/dmse/

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Direct Marketing

Required Courses

Why Choose a Direct Marketing Certificate?

If you choose the direct marketing certificate, you will learn the concept and application of database-driven marketing methods including the following areas:

- Direct marketing as an overall business model and as an element of Integrated Marketing Communications
- Direct marketing planning, merchandising, promotion, fulfillment and customer service as executed in a wide range of integrated media
- Direct marketing creative strategy and execution
- Hands-on direct marketing techniques

You will learn about one of the fastest growing career fields in the nation and the world and will build your abilities for application in advertising agencies and companies in the business-to-consumer and business-to-business realms.

Career Opportunities

Students with a direct marketing background are in demand at advertising agencies, marketing agencies, and companies of all sizes. Entry-level job opportunities include positions in creative, media placement, direct and interactive marketing, project management, and account work.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Direct Marketing Certificate after completion of the requirements with a minimum 2.0 grade point average.
No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

**More Information**

Marketing Department  
119 South Street/BUS 212  
Big Rapids, MI 49307-2284  
Phone: 231-591-2426  
Email: M TG ferris.edu

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Early Childhood Education

Required Courses

Why Choose Early Childhood Education?

For those people who like to be around young children, a career in Early Childhood Education can be a labor of love. FSU's two-year program offers instruction in the growth, activities and teaching of children.

The Early Childhood Education program at Ferris teaches a broad spectrum of courses and includes extensive hands-on experiences. Students learn about the education of children and study early childhood development, nutrition, first aid, children's literature and child psychology. They also receive a broad educational background by completing general education courses in English, mathematics, humanities and sociology.

Practical experience is another significant part of the program. Majors have the opportunity in the child development laboratory to observe and work with infants, toddlers and pre-schoolers, applying theories and techniques taught in the classroom. Early Learning Center is a Ferris-owned and operated childcare service that serves as a training and observation laboratory for students. The center also offers quality care for children of students, faculty and staff of the University and members of the community.

During the final semester of the program students complete a faculty-supervised internship in a child-care setting. Job placement sites include FSU approved childcare centers.

Ferris offers the Early Childhood Endorsement (ZS) through the Center for Occupational Education. This program is designed for teachers holding Michigan teacher certification who wish to teach in public and pre-school programs. Ferris also offers the Child Development Associate certificate (C.D.A).

Career Opportunities

Graduates of this program often find responsible positions in Headstart programs, day care centers or family day care homes, elementary schools, hospitals, recreation centers or other child-oriented businesses. Job opportunities are increasing as parents rely more and more upon childcare outside the home.

Other graduates use their training in child development to supplement studies in nursing, dental hygiene, optometry, education, small business management and other business programs. Many students become interested in the Early Childhood Education curriculum simply because they want to become better parents.
Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

Teacher Certification

If an early childhood education student wishes to continue in teacher education to complete a preliminary education teaching degree and obtain elementary certification, the State of Michigan requires that all candidates: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The early childhood education program leads to an associate in applied science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education and early childhood education requirements. Consult individual program description for other graduation requirements.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Early Childhood Education

Required Courses

Why Choose Early Childhood Education?

For those people who like to be around children, a career in Early Childhood Education can be a labor of love.

The Early Childhood Education program at Ferris teaches a broad spectrum of courses. Students learn about the education of children and study early childhood development, nutrition, first aid, children's literature and child psychology. They also receive a broad educational background by completing general education courses in English, mathematics, humanities and sociology.

Practical experience is another significant part of the program. Majors have the opportunity in the child development laboratory to observe and work with infants, toddlers and pre-schoolers, applying theories and techniques taught in the classroom. Early Learning Center is a Ferris-owned and operated childcare center that serves as a training and observation laboratory for students. The center also offers quality care for children of students, faculty and staff of the University and members of the community.

Career Opportunities

Students completing the Bachelor of Science program can seek positions as lead/head teacher, headstart positions and other preschool positions. Those completing the management track are able to seek positions as program directors. They may also be more successful in running a home day care program. Students completing the Child Life Specialist track are eligible to work in hospitals with children.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The early childhood education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, and Early Childhood Education requirements. Consult individual program description for other admission requirements.

A 2.5 GPA is required for successful completion of this major.

**More Information**

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Early Childhood for Elementary Education

Required Courses

Why Choose Teaching Majors and Minors for Elementary Education Majors

The Elementary Education program requires the completion of two elementary education teaching minors in addition to a planned program to fulfill the subject area requirements of the program. Students may choose from the subject areas of mathematics, social studies, and language arts.

Admission Requirements

The early childhood minor is an optional minor and is in addition to the subject area minors required.
See Elementary Education, Bachelor of Science for additional program details.

Graduation Requirements

A 2.50 GPA is required to successfully complete the early childhood minor.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Economics

Required Courses

Why Choose an Economics Minor?

This minor is designed for students who wish to gain a deeper understanding of how economics impacts our daily lives and shapes the world around us. Economics proves to be an invaluable addition to the study of any discipline, from anthropology to zoology and everything in-between. Each of us makes many decisions on a daily basis that ultimately determine the course of our lives and affect the lives of the people around us. Economics students learn to look at this constellation of decisions and understand it based on the individual incentives that people face.

The Economics minor helps to prepare students for the world in which they are entering by providing them with a framework that they can use to understand the world around them, the analytic tools to figure out emerging trends in consumer data, and the ability to understand the trade-offs necessary when making difficult decisions. This helps students function better in any job but also as members of society.

Admission Requirements

The Economics Minor is open to any student admitted to Ferris State University and pursuing a Baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of one-third of the credits, but no more than 7 credits, in a minor may overlap with the students’ major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. This minor requires a minimum of 18 credit hours with a minimum 2.0 grade average in these courses.

More Information

ADVISOR: Dr. Mark Brandly
PHONE: (231) 591-2433 OFFICE: BUS 370
EMAIL: MarkBrandly@ferris.edu

ADVISOR: Dr. Jennifer Dirmeyer
PHONE: (231) 591-3147 OFFICE: BUS 335
EMAIL: JenniferDirmeyer@ferris.edu

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Educational Leadership

Required Courses

Why Choose Educational Leadership?

Students will complete a core of theoretical and experiential courses that will build the foundation for their administrative experiences. These courses combine the convenience of online learning with face-to-face class time to practice and enhance skills. Of prime importance is the two-semester structured internship wherein local districts will be required to sponsor and mentor administrative candidates. During this internship, students will apply theoretical concepts and build administrative skills; they will also be expected to develop and complete a comprehensive project that will benefit their sponsor district. This cooperative effort of local districts is intended to help alleviate the shortage of prospective administrators, especially in rural schools.

Career Opportunities

The program enables secondary and elementary educators to advance in their district salary schedules and become educational leaders as building administrators. Successful completers of the program are eligible to apply to Michigan Department of Education for School Administrator Certificate.

Admission Requirements

Students eligible for admission to the graduate program must hold a bachelor's degree from an accredited college or university. When required, candidates should hold or be eligible for professional licensure, registration or certification to practice in the occupational specialty.

Michigan K-12 Certification

The applicant must possess a baccalaureate degree from an accredited college or university with a 2.75 or higher GPA on a 4.0 scale. Conditional entry may be granted when the 2.75 requirement has not been met. Once a student has been granted conditional entry, the student must earn a GPA of 2.75 within the first nine (9) hours of graduate level courses. Consult individual program description for other admission requirements.

Graduation Requirements

The Master of Science in Educational Leadership through the School of Education, College of Education and Human Services requires that all students must complete all degree requirements within five (5) years after admission to the M.Ed. Consult individual program descriptions for other graduation requirements.

More Information

2018-2019 Academic Year
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Electrical Power Generation

Required Courses

Why Choose Electrical Power Generation Certificate?

On-Site Power Generation is the production of electrical energy at, or close to, the location where it is to be used.

The vast majority of On-Site power is produced with generator sets with internal combustion (IC) engines as the prime mover.

This certificate is designed to enhance the knowledge and marketability of students with majors in areas such as automotive, heavy equipment, construction, as well as technology, business and communications.

Career Opportunities

Career opportunities are widely available through heavy equipment dealers, distributors & manufacturers nationwide.

Admission Requirements

Any students admitted to Ferris and in good standing may enroll for this certificate.

Must have successfully completed MATH 110.

Graduation Requirements:

50% of the total credit hours must be earned at Ferris State University.

Grade of C- or higher in each course.

Cumulative GPA must be a 2.0 or higher.

More Information

Automotive Management and Heavy Equipment Technology Programs
220 Sports Drive, HEC 203
Big Rapids, MI 49307-2280
Phone: 231-591-2810

College of Engineering Technology
Ferris State University
1009 Campus Drive
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Electrical/Electronics Engineering Technology

Required Courses

Why Choose Electrical/Electronics Engineering Technology?

Electronics, automation, and computers are the lifeblood of today’s high tech societies. The Bachelor of Science in Electrical/Electronics Engineering Technology (BS EET) program graduates professionals that develop, design, apply, manage and direct the future of these technologies.

Graduates are prepared for careers in Industrial Automation and Controls, Digital and Embedded Systems Design, Instrumentation, Programming, or Control Networks. Our graduates often obtain positions with titles such as Control System Integrator, Product Designer, Embedded Systems Developer, Control and Network Specialist, Technical Sales Specialist, Electrical/Electronics Product Specialist, etc.

The BS in Electrical/Electronics Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET (ETAC-ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; Phone 410-374-7700.

Career Opportunities

The BS EET program is known for quality and responsiveness to industry. In addition to a solid foundation in electronic concepts, students learn the most current and relevant topics for today’s advanced technologies. Real world theory and applications are emphasized throughout the program and theory is balanced with extensive hands-on experience. Program courses include topics in digital/microprocessors, control automation, industrial networking and motion control. Recognizing the diverse career paths our graduates may enter, course selection can be customized by each student. Opportunities are also provided to gain valuable experience through summer internships, senior design projects and professional organizations.

Students who have successfully completed an Associates degree in Industrial Electronics Technology from Ferris or an equivalent from another institution can usually complete the Bachelor of Science degree in Electrical/Electronics Engineering Technology in just two years.

The Bachelor of Science in Electronics Engineering Technology boasts a history of excellent placement, high starting salaries, and graduates enjoying very successful careers. The program has strong support from several corporations influential in these fields and is accredited through ETAC-ABET.

Admission Requirements
Students entering the program must have completed an associate degree (or equivalent) in a related program and have transferable courses in mathematics through pre-calculus with a minimum 2.35 GPA in the associate degree work. (MATH 220 placement)

If you do not meet these requirements when you apply, you may be referred to General Studies. Upon completion of all prerequisites, a program change to the degree may be approved. Admission counselors should be consulted for an evaluation of transferability.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Electrical/Electronics Engineering Technology program at Ferris leads to a Bachelor of Science degree.

Students must

- maintain a 2.00 cumulative Ferris State University GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- have a minimum grade of C- in any EEET or ECNS course to qualify as a prerequisite for another EEET or ECNS course
- complete all general education requirements as outlined in the General Education section of the University Catalog.

**More Information**

EET & CNS Department  
915 Campus Drive/SWN 405  
Big Rapids, MI 49307-2291  
Phone: 231-591-2388  
Email: eecn@ferris.edu

College of Engineering Technology  
Ferris State University  
1009 Campus Drive  
Big Rapids, MI 49307-2280  
Phone: 231-591-2890
The College of Engineering Technology, Electrical/Electronics Engineering Technology, BS program is accredited by the Engineering Technology Accreditation Commission of ABET (ETAC-ABET)
http://www.abet.org/
Next accreditation review is 2021.

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Elementary Education

Required Courses

Why Choose Elementary Education?

The School of Education offers an exemplary program in Elementary Education designed to provide a balanced blend of theory and practice. Throughout the program students will complete at least 570 hours in a variety of hands-on, field-based experiences in the K-8 classroom. Our class sizes of 20-25 students guarantee that all students receive the attention they deserve. A background in state-of-the-art educational technology prepares students to integrate computer technology into instruction.

The Elementary Education Program requires the completion of two elementary education minors or one elementary education teaching major in addition to a planned program minor, giving students a broad academic base in language arts, math, social studies and science. Students also receive an excellent foundation in physical education and the fine arts. The professional education courses include field-based experiences supervised by instructional teams comprised of teacher educators, professors from the content area disciplines, and expert K-8 teachers.

Points of Pride

- Fully integrated methods courses
- An emphasis on academic content
- A breadth of offerings for elementary educators
- Over 570 hours in teaching field experiences
- Technology applications across all program aspects
- Focus on classroom and hands-on application
- Small class sizes
- Individual attention
- Semester-by-semester advising
- 'Best-Practices' research-based curriculum
- Collaborative/Team teaching with K-12 educators

Career Opportunities

Every student will graduate with the knowledge and skills needed to begin an elementary teaching career.

Admission Requirements

Students seeking admission to teacher education programs must have a 2.5 overall GPA and a 17 ACT or 900 SAT. Students transferring into the program with completed majors or minors
must have the appropriate GPA as established by each department.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Teacher Certification Requirements**

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**Graduation Requirements**

Students interested in pursuing Elementary Education certification will complete approximately 47 credit hours in the professional education sequence, 20-37 credit hours in the planned program, and approximately 44 credit hours in two academic minors of choice. Consult individual program description for other graduation requirements.

**More Information**

College of Education & Human Services  
School of Education  
Bishop Hall Room 421  
Ferris State University  
1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Telephone: (231) 591-5361

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English

Required Courses

Why Choose English?

FSU's English major provides students with in-depth opportunities to develop and refine their communication skills, to develop critical thinking and analytic skills, and to write in different styles for different purposes and audiences. The English major also leads students to explore a wide variety of cultures, perspectives, and human dynamics through the study of literature.

The English major is taught by a large and outstanding group of faculty. They include award-winning 'master teachers,' published and award-winning authors, and faculty who bring experience in writing for business and industry. Some of the faculty are recipients of the coveted Fulbright Fellowship and have taught in universities abroad. Many faculty work closely with students throughout their undergraduate careers, and they mentor students in undergraduate research, or special projects.

Career Opportunities

The English major prepares students for a wide array of career opportunities. Many English majors enter the workplace immediately after graduation, working in business, publications, industry, public service, government, teaching, or the communication field. Their strong communication and analytical skills allow them to be flexible, adaptable, prepared to perform, and (once they have learned their employer's particular culture and business) able to advance into management and leadership positions. Other students go on to advanced study, and an English major is excellent preparation for graduate or professional study in such fields as law, business, education, or a variety of liberal arts disciplines.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Freshmen must have at least an ACT subscore of 18 in English. Transfer students must have at least 12 credits at the time of application with a minimum 2.5 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

In order to graduate with a Bachelor of Arts in English, students in the program must have a 2.5 overall GPA and must earn at least a "C" in program course work, and minimum B- in English 150 and English 250. Students must complete a minimum of 120 credit hours including the English major, the B.A. core, an academic minor in another field of study, and all general education requirements for the Bachelor of Arts degree. Seniors are required to assemble and submit a portfolio of writing and orally present one paper to the English B.A. Committee.

**More Information**

ADVISOR: Dr. Heather Pavletic  
PHONE: 231-591-3033  
EMAIL: HeatherPavletic@ferris.edu

Department of English, Literature, and World Languages  
Ferris State University  
820 Campus Drive/ASC 3080  
Big Rapids, MI 49307-2225  
Phone: 231-591-3988

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English Education

Required Courses

Why Choose English Education?

The English Education program prepares its students to become outstanding English language arts teachers at the middle and high school levels. We offer a program of study for those who have a love of language, literature, and composition as well as a desire to share their passion with high school and middle school students. An array of courses offers English Education students a blend of classical and modern literature, written and oral skills, and critical and creative approaches to language studies. Students also may participate in a variety of co-curricular opportunities including Sigma Tau Delta English honor society, The Ferris State English Society, The Torch newspaper, the Annual Shakespeare Festival, student-led professional development events, and English language arts community outreach and services.

In addition, the English education program prepares prospective teachers for the challenges of teaching students from a broad range of cultural backgrounds in such diverse educational settings as traditional high and middle schools, vocational-technical centers, alternative and magnet schools and tech-prep programs.

Current vocational studies predict growing opportunities for teachers at all levels, both to replace retiring teachers and to provide lower student-teacher ratios in classrooms.

High school graduates, whether they plan to attend college or not, need language and writing instruction that qualifies them to meet the demands of their future careers. The FSU program prepares prospective teachers with the knowledge and skills essential to provide effective English instruction for students in Michigan and throughout the nation.

Career Opportunities

The English education program prepares students to teach in high school, as well as in vocational-technical centers, alternative and magnet schools, tech-prep programs and other non-traditional educational settings. With additional study, students may also teach in post-secondary schools. The program focuses on preparing prospective teachers for the challenges of teaching students from a broad range of educational and cultural backgrounds. English teachers are in high demand and the employment outlook is excellent. A teaching minor is required. You cannot have an English teaching minor with this teaching major.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT.
Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here. Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Teacher Certification Requirements**

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**Graduation Requirements**

The English education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, English, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

A 3.0 GPA must be obtained in all required courses of the English teaching major, a minimum of C in any individual course (or transfer equivalent) within the major and a minimum of a B in ENGL 150 and ENGL 250 (general education requirements or their transfer equivalents).

**More Information**

College of Education & Human Services  
School of Education  
Bishop Hall Room 421  
Ferris State University  
1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Telephone: (231) 591-5361

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English Education

Required Courses

Why Choose Teaching Minors for Secondary Education Majors

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Admission Requirements

Secondary Education majors may choose an appropriate teaching majors from the following areas: biology, business, chemistry, English, geography, history, marketing, mathematics, political science or social studies.

You cannot have an English teaching major with this minor.

Graduation Requirements

A 3.0 GPA must be obtained in all required courses, a minimum of C in any individual course (or transfer equivalent) within the minor, and a minimum of B in ENGL 150 and ENGL 250 (general education requirements or their transfer equivalents).

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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English Literature

Required Courses

Why Choose the English Literature Minor?
A minor in English Literature enhances any degree. Students who minor in English Literature are perceived by employers as having the needed communication and critical thinking abilities that are a premium in today's workplace. The English minor allows students to explore a variety of cultures, perspectives, and human dynamics through the study of literature. The majority of courses are also writing intensive further adding to the graduate's marketability in a workplace where the ability to write clearly and expressively is an asset.

Admission Requirements
This English Literature minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing a Bachelor of Arts in English or a Bachelor of Science in English Education. The minor is designed to complement any Ferris major program. Students transferring into the English Literature Minor must have a cumulative 2.5 grade point average for admission to the program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements
An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 21 credits with a minimum 2.5 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information
Advisor: Dr. Heather Pavletic
Phone: 231-591-3033
e-mail: HeatherPavletic@ferris.edu

Department of English, Literature, and World Languages
Ferris State University
820 Campus Drive, ASC 3080
Big Rapids, MI 49307
Phone: 231-591-3988

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English/Professional Writing

Required Courses

Why Choose the English/Professional Writing Minor?

This minor develops students' skills in writing, critical reading, and analytical thinking - precisely the skills needed for advancement in nearly any career. The Professional Writing minor includes course work in linguistics, rhetoric, and a number of courses having to do with different forms of professional writing (e.g., grant proposals, publications, technical communication, opinion writing). Students in this minor may select the courses that apply most closely to their future career and employment goals. This minor enhances the employability of students for careers requiring intensive technical and professional reports, interpretive and critical thinking skills, formal proposals for funding, advanced writing abilities and methods of research, analysis, and interpretations.

While all careers are enhanced by communication skills, specific academic programs at Ferris especially lend themselves to the English/Professional Writing minor including:


Admission Requirements

This English/Professional Writing minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing the Technical and Professional Communication, B.S. or Journalism and Technical Communication, B.S. degrees. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits hours, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 22 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

Advisor: Dr. Sandra Balkema
Phone: 231-591-5631
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Event Management

Required Courses

Why Choose Event Management Certificate?

The Event Management certificate is designed to provide meeting and event planning professionals, as well as those entering the hospitality field, with the skills and foundation of knowledge needed to excel in this multi-billion dollar industry. This certificate offers specialization in the areas of meeting and event planning, special event management, budgets and finance, event protocol, fundraising standards and non-profit restrictions, site selection, contracts, vendors, negotiations, marketing and promotions, food & beverage management, and meeting technology.

The event management certificate can complement virtually any degree program and lead to a multitude of career opportunities. Samples of employment include:

- Conference Coordinator
- Wedding Planning Professional
- Non-profit Event Coordinator
- Event Manager

Undergraduate Certificate Programs' Admission Criteria

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
• Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

Graduation Requirements

• No more than 50% of the credits in a certificate may be transferred from another institution.
• If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
• A 2.00 cumulative GPA is required for completion of the Certificate.
• A term prior to completion of the Certificate, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

For more information, contact:

Hospitality Management Program
West Commons 106
1319 Cramer Circle
Big Rapids, MI 49307
Phone: 231-591-2382
Email: hospitality@ferris.edu

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Event Management

Required Courses

Why Choose the Event Management Minor?

The Event Management minor is designed to provide students with a combination of hands-on skills and knowledge needed to be successful in the multi-billion dollar event management industry. Courses in this minor are designed to cover topics within the three most widely recognized event industry certification exams.

Certified Special Event Professional (CSEP)

Certified Meeting Professional (CMP)

Certified Professional Catering Executive (CPCE)

This minor requires a 400-hour internship, and offers specialization in the areas of meeting and event planning; special event management; budgets and finance; event protocol, fundraising standards and non-profit restrictions, site selection; contracts, vendors, negotiations; marketing and promotions; food & beverage management; and meeting technology.

The event management minor can complement virtually any bachelor degree program and lead to a multitude of career opportunities. Samples of employment include:

- Conference Manager
- Wedding Planning Professional
- Event Design Coordinator
- Non-profit Event Coordinator
- Special Events Director
- Director of Exhibits

Admission Requirements

Any person who is admitted to a Ferris State University Bachelor's degree program is welcome to seek the attainment of this minor in addition to their major. Students wishing to add this minor must declare it with the Program Coordinator of the Hospitality Management Program.

Graduation Requirements

- At least one-half of the credits must be Ferris State University credits.
- A maximum of 1/3 of the credits, but no more than 7 credits, may overlap with the student’s major.
- A minimum of fifty percent (50%) of the courses in the minor must be at the 200 or above level.
A 3.00 GPA is required for completion of the Minor.

A term prior to completion of the Minor, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done the Graduation Secretary will notify the Registrar who will note the completion of the Minor.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

Hospitality Management Program
1319 Cramer Circle/WCO 106
Big Rapids, MI 49307
Phone: (231)591-2382
Email: hospitality@ferris.edu

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Facility Management

Required Courses

Why Choose Facility Management?

Facility Management is the practice of coordinating the physical work place with the people and work of a particular organization. Specifically, it is the management of facilities to maintain a safe, healthy, and well-designed work environment. Facility Management integrates principles of business administration, architecture and the behavioral and engineering sciences.

The Facility Management bachelor's degree program is a two-year, upper-division program designed for students who have already earned an associate degree in Architectural Technology or a related program.

Ferris' Facility Management curriculum combines a core of general education and business studies with building technology and facility coursework. The mission of the program is to provide students with the educational concepts, skills and values necessary to successfully enter the employment market in facility management or related built environment professions.

This innovative Baccalaureate degree program is one of a select group in North America accredited by the International Facility Management Association as meeting the highest academic standards for professional education in facility management.

Between their junior and senior years, students complete an internship, for a minimum of 10 weeks. This experience is an integral part of the student's formal FM education by providing 'real-life' learning for the student.

In addition to the Bachelor of Science degree in Facility Management, other options are available to students. These include:

- an online certificate in facility management, designed for the working professional
- a minor in facility planning management
- a minor in facility operations management

The minors are designed for students pursuing degrees in other Ferris baccalaureate programs.

Of students entering the Facility Management program as juniors, approximately 95% graduate with the majority completing the program within two years. Job placement rate for graduates of the facility management program ranges from 94 - 98% each year.

Career Opportunities
The demand for facility management graduates is high and a career in facility management offers many opportunities. The responsibilities of facility management are varied and numerous. A facility manager may supervise numerous aspects of a company's facilities, including architecture, interior design, computer systems, telecommunications, real estate acquisition, security and more. As such facility managers wear many professional hats and must be knowledgeable and skilled as follows: communicators, environmentalists, designers & space planners, strategic planners, financial planners, "tekkies" and team leaders (International Facility Management Association - IFMA).

In compliance with standards set by the IFMA Foundation, the accrediting body for this degree, the Facility Management program is designed to meet the following objectives:

- Provide a foundation in mathematics and physical science, behavioral science, written and verbal communication, and computer skills.
- Provide a solid foundation in business and management and its application to Facility Management.
- Develop an ability to use the tools and techniques of the facility manager.
- Develop an understanding of facility analysis, planning and design.
- Develop knowledge of the architectural and construction process.
- Develop knowledge of contemporary office technology and philosophy.
- Develop knowledge of building systems technology and the proper operation and care of those systems.

Entry-level positions offer competitive salaries ranging from $48,000-$78,000 depending on geographic location, company size and position. With five years of experience average salaries range between $60,000 and $95,000. Academically prepared graduates of Ferris' Facility Management program have successfully transferred to Master of Architecture programs. The technology emphasized at Ferris complements the theory and design emphasis at architectural schools to provide a well-rounded professional education. Some graduates pursue other degrees such as an MBA (Master of Business Administration.) This degree complements the technical aspects of the Facility Management degree providing opportunities to assume leadership roles.

**Admission Requirements**

To be admitted to the upper-division sequence of Facility Management, students must have completed the Architectural Technology program at Ferris or a similar program at a recognized, regionally accredited institution. A 2.75 GPA is required for admission into the program. Applications should be submitted by February 1 prior to fall semester requested.

Students who don't meet the above criteria still may be accepted into the Facility Management program. Their academic background will be reviewed by the program faculty committee, and if deficiencies are noted, students may enter the program on a conditional basis. Upon completion of courses to remedy the deficiencies, students will be accepted into the program.

**General Education Requirements**

For all University General Education requirements for a Bachelor’s degree click here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Facility Management program at Ferris leads to a Bachelor of Science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website.

**More Information**

Facility Management Program  
School of Built Environment  
Ferris State University  
915 Campus Drive/SWN 101  
Big Rapids, MI 49307  
Phone: 231-591-3100  
email: atfm@ferris.edu

The College of Engineering Technology Facility Management program is an accredited program of the International Facility Management Association (IFMA) The next accreditation review is scheduled for 2019.  
http://www.ifma.org/

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Facility Management

Required Courses

Why Choose Facility Management?

This online program consists of four courses and is designed for individuals who currently work within the Facility Management profession and desire to broaden their understanding of Facility Management. Individuals with job titles and responsibilities such as facility manager, building manager/supervisor, building owner, facility planner and support staff, architect, architectural technician, designer, engineer, furniture industry designer, and facility management service consultant will benefit from these courses. You will learn concepts and procedures of facility planning, programming, budgeting, project management, operations management, along with life cycle cost analysis and value engineering to identify the most appropriate course of action for the care of buildings.

Courses within the FM Certificate program help prepare students for successful completion of the International Facility Management Association's (IFMA) Certified Facility Management exam. This credential sets the industry standard ensuring professional excellence and recognition. In addition all courses qualify for IFMA CFM maintenance points.

Admission Requirements

Individuals intending to enroll in the program must have background experience in a facility management related area or are currently working towards a degree in a related area of study. A minimum of two years of college course work, including courses in communication and basic mathematics is required.

Graduation Requirements:

A minimum of 50% of the total credits required must be earned at Ferris State University.

A minimum grade of C- is required for each course in certificate.

Cumulative GPA must be a 2.0 or higher.

More Information

Contact the Architecture and Facility Management Department at 231-591-3100 or visit our Web Site

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Facility Operations Management

Required Courses

Facility Operations Management Minor

This minor helps prepare non-technically oriented students to effectively participate in the facility operation process where they may be employed. In addition this degree helps prepare technically oriented students who are entering professions that require management of facilities. This minor degree is most appropriate for students in the Hotel Management, Music Industry Management, Resort Management, Recreation and Leisure Management, HVACR, Construction Management and Allied Health programs.

This minor is open to all students enrolled in a Baccalaureate or higher degree at Ferris State University other than Facility Management.

Admissions Requirements

Any students admitted to Ferris in good standing and enrolled in a bachelor degree or higher (other than Facility Management) may enroll for this minor.

Graduation Requirements:

An academic minor may only be awarded upon completion of a baccalaureate or higher at Ferris State University.

Students must

- maintain a 2.00 cumulative FSU GPA
- earn a minimum grade of C- for each course in the minor
- have a minimum of 18 semester credit hours
- have a maximum of 1/3 of the credits, but no more than 7 credits in a minor, may overlap the students major
- have a minimum of 50% (9 credits) of the courses in the minor at the 300 or above level
- have at least one-half (1/2) of the credits (9 credits) from Ferris (FSU Residency requirement)

More Information

Architecture and Facility Management
School of Built Environment
Ferris State University
915 Campus Drive/SWN 314
Big Rapids, MI 49307
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Facility Planning Management

Required Courses

Why Choose the Facility Planning Management Minor?

This degree helps prepare non-technically oriented students to effectively participate in the facility planning process of the physical aspects of where they may be employed. In addition, this degree helps prepare technically oriented students who are entering professions that require management of facilities. This minor degree is most appropriate for students in the Architecture and Sustainability, Hotel Management, Music Industry Management, Resort Management, Recreation and Leisure Management, HVACR, Construction Management and Allied Health programs.

This minor is open to all students enrolled in a Baccalaureate or higher degree at Ferris State University other than Facility Management.

Admissions Requirements

Any students admitted to Ferris in good standing and enrolled in a bachelor degree or higher (other than Facility Management) may enroll for this minor.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate or higher at Ferris State University.

Students must

- maintain a 2.00 cumulative FSU GPA
- earn a minimum grade of C- for each course in the minor
- have a minimum of 18 semester credit hours
- have a maximum of 1/3 of the credits, but no more than 7 credits in a minor, may overlap the students major
- have a minimum of 50% (9 credits) of the courses in the minor at the 300 or above level
- have at least one-half (1/2) of the credits (9 credits) from Ferris (FSU Residency requirement)

More Information

Architecture and Facility Management
School of Built Environment
Ferris State University
915 Campus Drive/SWN 314
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to: FSUCurriculum@ferris.edu
Film Studies

Required Courses

Why Choose the Film Studies Minor?

Film is one of the most important art forms and entertainment forms in U.S. culture. The production and distribution of images in film and television parallels many areas of study in areas like Marketing, Business, Printing Technology and Visual Communication. Furthermore, the interpretation and analysis required in Film Studies compliment the study of Literature and Communication and involve theories relevant to Psychology and Sociology. This is why Film Studies would be a good compliment to many programs.

Admission Requirements

This Film Studies minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to compliment any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor ay overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State.

More Information

ADVISOR: Dr. Susan Morris
PHONE: 231-591-2774
EMAIL: SusanMorris@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive/JOH 119
Big Rapids, MI 49307-2280
Phone: 231-591-3675

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Finance

Required Courses

Why Choose Finance?

The Finance major is designed for students who are interested in the stewardship of the financial resources of individuals, corporations, or financial institutions. As future managers, students learn the principles and applications of financial analysis, management, and strategy. The program equips students with the theoretical understanding and practical skills necessary to evaluate and direct decisions regarding the allocation of financial resources among a variety of competing opportunities with the goal of maximizing the value of the resources being managed.

Career Opportunities

Money and finance touch almost every aspect of business and life. That’s why finance is a wise career choice for anyone with broad business interests. The function of finance involves decisions on how to best use money. Financial planning binds together all functions of an organization, and it takes special skills to deal with the complexities of keeping a firm profitable.

Graduates with Finance degrees find positions in a variety of companies and agencies with duties including analysis, planning and control, capital management, short-term and long-term financing, investment, security analysis and portfolio management. These occupations generally offer attractive starting salaries and working conditions. The need for finance graduates is expected to continue to rise in the next decade.

According to the recent edition of the Bureau of Labor Statistics Occupations Outlook Handbook, in the decade from 2014-2024, the employment of financial analysts, financial examiners, and personal financial advisors is expected to grow much faster than the average for all occupations. In addition, employment of financial managers, securities, commodities, and financial services agents is expected to grow about as fast as the average for all occupations. The areas you can work for:

- Commercial Banking
- Corporate Finance
- Financial Planning
- Government
- Hedge Funds
- Insurance
- Investment Banking
- Money Management
- Private Equity
- Real Estate
- and others.

Helpful links:

http://www.monster.com/finance-careers

Admission Requirements

2018-2019 Academic Year
New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Finance program at Ferris leads to a Bachelor of Science degree in business. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

**More Information**

Accountancy, Finance & Info Systems  
119 South Street, BUS 212  
Big Rapids, MI 49307-2284  
231-591-2434  
AFIS@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP). Next Accreditation Review is February 2028.  
http://www.acbsp.org

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Finance

Required Courses

Why Choose a Finance Minor?

This minor will prepare students for careers in financial institutions and business. Many students with other business majors are strongly encouraged to take additional courses in finance to prepare them for either finance related jobs or to strengthen their training and expertise in accounting, marketing, management, or computer information systems. By combining one of these majors with a minor in finance, the student is prepared for a greater number of career opportunities and greater flexibility. The designation of a Finance Minor provides such students with additional evidence of subject matter expertise.

Admission Requirements

Any current Ferris State University undergraduate student who is in good academic standing may enroll in this minor.

Graduation Requirements

A Ferris student will receive the Finance Minor upon graduation with a Baccalaureate degree, and after successful completion of the requirements for the minor with a minimum 2.0 grade point average in Finance Minor courses.

Note: No more than 50% of the credits in this minor may be transferred from another institution. A maximum of one third of the credits, but not more than 7 credits in a minor, may overlap with the student's major.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

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Fleet Management

Required Courses

Why Choose the Fleet Management Certificate?

If you pursue the nation's only Fleet Management Certificate, you will be exposed to current theory and practice in the management of people, processes, and equipment.

This certificate is designed to enhance the knowledge and marketability of students with majors in areas such as automotive, heavy equipment, construction, as well as technology, business, and communications.

Employees in this field manage fleets of vehicles or equipment for corporations (covering a wide range of manufacturing, construction, and service organizations), governments (whether local, state, and federal), or public service entities (law enforcement, educational institutions, utilities, etc.).

Career Opportunities

Possible Fleet Management positions include working with commercial motor vehicles such as cars, aircraft (planes, helicopters etc.), ships, vans and trucks, as well as rail cars. Fleet (vehicle) management can include a range of functions, such as vehicle financing, vehicle maintenance, vehicle telematics (tracking and diagnostics), driver management, speed management, fuel management and health and safety management. Significant opportunities exist with commercial, construction, and governmental fleets.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate's degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements
A Ferris student will receive this certificate after completion of the requirements for this certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307 2284
Phone: 231 591 2427
Email: MGMT@ferris.edu

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Fleet Management

Required Courses

Why Choose the Fleet Management Minor?

Receiving the nations only Fleet Management Minor gives you knowledge and skills that are highly sought after by numerous organizations. The Fleet Management Minor is designed to complement the student's existing major and expand their career opportunities.

Students' enrolled in this minor will learn current risk, financial, legal, and managerial concepts as well as gain awareness of fleet specification, acquisition, and maintenance issues. The course requirements reflect collaboration between the College of Business and the College of Engineering Technology to design a program that meets valued industry needs.

Employees in this field manage fleets of vehicles or equipment for corporations (covering a wide range of manufacturing, construction, and service organizations), governments (whether local, state, and federal), or public service entities (law enforcement, educational institutions, utilities, etc.).

The Fleet Management Minor is designed to enhance the knowledge and marketability of students with majors in areas such as automotive, heavy equipment, construction, as well technology, business, and communications.

Career Opportunities

Possible Fleet Management positions include working with commercial motor vehicles such as cars, aircraft (planes, helicopters etc.), ships, vans and trucks, as well as rail cars. Fleet (vehicle) management can include a range of functions, such as vehicle financing, vehicle maintenance, vehicle telematics (tracking and diagnostics), driver management, speed management, fuel management and health and safety management. Significant opportunities exist with commercial, construction, and governmental fleets.

Admission Requirement

This Fleet Management minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree is welcome to seek the attainment of this minor in addition to their major.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade point average in
these courses.

No more than 50% of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

**More Information**

Management Department  
119 South Street/BUS 212  
Big Rapids, MI 49307-2284  
Phone: 231-591-2427  
Email: MGMT@ferris.edu

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Forensic Accounting

Required Courses

Why Choose Forensic Accounting Certificate

Whether you are primarily interested in accounting or a discipline such as computer information systems, criminal justice or risk management, the Forensic Accounting Certificate was created to broaden your skills and knowledge base in the areas of financial fraud, data analysis and business disputes. There is growing demand for professionals who can assist businesses, government entities and not-for-profit organizations with issues arising from financial fraud, white-collar crime, business disputes, money laundering and many other related activities. Earning this certificate would advance your capabilities in areas such as:

- Prevention and detection of fraud.
- Using visual data analysis techniques to interpret information.
- Identifying the common fraud motives and rationalizations.
- Quantification of the financial damage caused by fraud and other illegal acts.
- Understanding the role of forensic experts in the legal system.

Career Opportunities

This certificate can increase your opportunities in accounting and finance related careers such as Fraud Examination, Auditing, and Financial Analysis. This certificate program also may compliment knowledge and skills in many other majors and careers such as Risk Management, Cybersecurity, Digital Forensics, Insurance and Criminal Justice. Opportunities exist across the business industry spectrum in accounting, auditing, and computer information systems, with banking, insurance, finance, technology, construction and entertainment being very prominent. There are also opportunities in law enforcement agencies such as the Internal Revenue Service, Department of Defense, Government Accountability Office, and Federal Bureau of Investigation.

Admission Requirements

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may...
also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.

- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.

- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA

*This document is subject to change. Questions should be submitted to the COB Dean’s Office/Student Academic Affairs (BUS 200) in care of the Director of Student Academic Affairs (231-591-2420).

Radiation Requirements

You will receive the Forensic Accounting Certificate after completion of the required twelve credits with a minimum 2.0 grade point in each required course.

No more than 50% of the credits in this certificate may be transferred from another institution, nor, will this certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2434
AFIS@ferris.edu

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Forensic Psychology

Required Courses

Why Choose the Forensic Psychology minor?

This minor builds upon the already stellar criminal justice and psychology programs at Ferris State University. Our criminal justice program and its graduates are by far preferred in Michigan's law enforcement agencies. The psychology program at Ferris is well known. There has been tremendous interest in the addition of forensic psychology and Ferris will be one of the first to implement it in the state of Michigan.

Not only will law enforcement benefit but areas such as human services, victim advocacy groups, courts, government agencies, consulting firms, community mental health and many more would also see the benefit of those with this minor.

Admission Requirements

The forensic psychology minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing a B.S. in Psychology. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student’s major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. An average This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits of a minor must be taught by Ferris State University.

More Information

ADVISOR:  Dr. Jim Van Treese
PHONE:  231-591-5871
MAIL:  JimVanTreese@ferris.edu

Social and Behavioral Sciences Department
Ferris State University
820 Campus Drive, ASC 2108
Big Rapids, MI 49307
Phone: 231-591-2735

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mathematics course, or they must provide their high school records and ACT/SAT scores for admission review.

**General Education Requirements**

All University General Education requirements for an Associate's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Liberal Arts program at Ferris leads to an associate in arts degree. Graduation requires a minimum 2.0 GPA overall. Students must complete a minimum of 60 college credits including all general education requirements as outlined on the General Education website and complete a 20-credit concentration of Cultural and Self and Society coursework.

**More Information**

PROFESSIONAL ADVISOR: Dave Schrock  
PHONE: 231-591-3705  
EMAIL: DaveSchrock@ferris.edu

College of Arts & Sciences  
Ferris State University  
820 Campus Drive/ASC 3052  
Big Rapids, MI 49307-2225  
Phone: 231-591-3660

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Forensic Science

Required Courses

Why Choose the Forensic Science Minor?

The minor in forensic science was created to increase the options available for Ferris State University students seeking to supplement their education in the field of forensic science. By having a solid education in both the field of criminal justice and forensics, it is believed that all other Ferris State University students majoring in other areas will increase their employment opportunities. The minor is based upon combining three criminal justice courses with four natural science courses (two in biology and two in chemistry). The minor is designed specifically to make the student a more thorough investigator at various crime scenes. Individuals who have the knowledge may be employable as crime scene technicians.

Admission Requirements

The Forensic Science minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. An average GPA of 2.0 or higher must be achieved for the courses to count towards the minor. The minor requires 24 hours of criminal justice, biology and chemistry courses. An approved criminal justice internship is required during the summer semester.

More Information

Ferris State University
School of Criminal Justice
1349 Cramer Circle, BIS 509
Big Rapids, MI 49307-2737
Phone: 231-591-3652 or 231-591-5080

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French

Required Courses

Why Choose the French Minor?

A demonstrated fluency in a second language is sure to be an asset in any career, whether it is education, health care, business, governmental service, technology, or other fields. The French minor allows students to develop their skills in written and conversational French and also to study the cultures of France and other countries around the world where French is spoken. Summer study abroad programs allow students to engage in firsthand experience in study in France, Martinique, Quebec and francophone Africa.

The study of French has already inspired many students to action, enhancing and changing lives in very positive ways. Students from Ferris have gained experience teaching English in France, living with French families while earning a salary. Others have taken appointments with the Peace Corp while others have set up internships for their majors in French speaking countries, giving them international exposure as they enter the work force.

While all careers are enhanced by knowledge of a second or third language, specific majors at Ferris lend themselves to this intercultural awareness including: International Business, Hospitality Management, Criminal Justice, Social Work, Plastics Engineering, Teacher Education, Public Relations, Public Administration, Health Care, HVAC, and building trades.

Admission Requirements

This French minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major.

Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 19 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Daniel Noren
PHONE: 231-591-5881
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General Business

Required Courses

Why Choose General Business?

Enrolling in the General Business program rapidly introduces you to the world of business. In a short two-year period of time, you will learn basic information for all the areas of business: accounting, management, marketing, finance, and information systems are introduced with directed electives allowing for a more in depth study of the student's area of interest.

Career Opportunities

After completion of the two-year General Business degree, students are prepared for entry level professional positions in many industries. Students often find that the program ignites an interest in further study and are pleased to see that the general business program has been designed to easily transfer into almost any four-year degree program in business at Ferris State University.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses
will not be considered in computing the GPA requirement.

- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The General Business program at Ferris leads to an associate in applied science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: (231) 591-2427
Email: MGMT@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.)
http://www.acbsp.org

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General Studies

Required Courses

Why Choose General Studies?

The General Studies Program provides admitted university students who are still deciding or not yet eligible for admission into their preferred program of study the opportunity to (a) enroll in courses needed for degree completion, (b) explore majors, minors and program concentrations, and (c) qualify for entry into a preferred area of study. Admitted students receive structured support in demonstrating successful academic performance, exploring educational options, and refining career aspirations. The program also provides assistance to students with a probationary enrollment status. Students must meet the General Studies Program requirements to be eligible for transfer into another academic area of study.

FSUS and Advising Support

All first-year students in the General Studies Program enroll in the Ferris State University Seminar course - FSUS 100. The instructor of this weekly seminar is also the student's academic advisor allowing for weekly advising interactions.

General Education Requirements

Students may complete general education courses available through the College of Arts and Sciences. Students are advised to enroll in courses that fulfill the University’s General Education requirements as well as program requirements for their chosen program of study.

Students should review General Education Electives, the General Education requirements for an Associate’s degree (as applicable) and consult with their academic advisor to help ensure good academic progress toward timely graduation.

All University General Education requirements for an Associate’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

More Information

Developmental Curriculum
Retention and Student Success
Ferris State University
820 Campus Drive, ASC 1017
Big Rapids, MI 49307
Shelly VandePanne
Director of Student Academic Affairs
Phone: 231-591-2360
Email: ShellyVandePanne@ferris.edu

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Geographic Information Systems

Required Courses

Why Choose Geographic Information Systems Certificate?

A Geographic Information System uses computers and software to leverage the fundamental principle of spatial data and information management. It is a tool used for managing information according to where it is located. There is currently a shortage of qualified professionals to fill GIS related positions in diverse disciplines ranging from different levels of government to various private companies to large corporations. GIS is one of the most important components in approaching global problem solving. It helps us look for patterns in both the man-made and natural worlds. People in business, government, education, and natural resources are using GIS to analyze markets, manage parcels of land, conduct research, and protect natural resources.

What is GIS?

Geographic Information Systems (GIS) is a computerized method for displaying spatial data. This means that information about the world is stored in a database and can be viewed on a map. The information can be just about anything. Take your house as an example. There are a lot of different kinds of information you can collect about your house - price, size, number of bedrooms, the year it was built. All of this information can be stored in a table created in a program like MS Excel. This database is the beginning of an Information System. Your house also has an address. The address is a type of geographic information. You put the two kinds of data together - information + geographic and you have GIS. You can see where the house is located and you can see information about the house.

Why should I take a GIS class?

GIS is a multidisciplinary discipline that relates to applications in various other fields. GIS can help deal with complex issues by modeling the earth and developing generalizations about how it functions. It can also be used in a variety of ways for any endeavor linking information to features on the ground.

What is the employment outlook for the GIS industry?

The growth of GIS applications in desktop computing is expanding exponentially, creating new and exciting developments. GIS technology represents a billion dollar industry worldwide, growing 25% per year and serving 50,000 to 100,000 users in more than 100 countries. At this time, job opportunities outnumber qualified graduates. There will continue to be a need for GIS professionals to deal with newer and tougher air and water regulations, as well as civil engineers to rebuild the nation's infrastructure. Look at this site to see the type of jobs offered and qualifications desired by employers.
Admission Requirements:
Must meet general admission criteria to University or permission of department.

Graduation Requirements
A minimum of 50% of the total credits required must be earned at Ferris State University.
A minimum grade of C- is required for each course in certificate.
Cumulative GPA must be a 2.0 or higher.

More Information
Surveying Engineering Program
College of Engineering Technology
Ferris State University
915 Campus Drive, SWN 312
Big Rapids, MI 49307-2291
Phone: 231-591-2633
email: surveying@ferris.edu

www.ferris.edu/surveying

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Geography Education

Required Courses

Why Choose Geography Education?

The employment outlook for geography education students is excellent. Graduates are prepared to teach in high schools and also have the necessary basic preparation to enter a career in industry or pursue an advanced degree in geography. One semester of directed teaching at the secondary level is required. A teaching minor is also required.

Career Opportunities

Geography Education is a four-year curriculum that may be selected as a major. A teaching minor is also required. Successful completion of the program leads to recommendation for a Michigan secondary provisional certificate. The program is designed to take full advantage of the unusual, hands-on Ferris instructional capabilities in developing both teaching and subject matter competency. Students receive the broad background in classroom, laboratory and field training essential to be effective teachers.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Teacher Certification Requirements

As required by the State of Michigan to receive teacher certification all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the Ferris graduation requirements of your individual program.
Graduation Requirements

The geography education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of Ferris' general education, geography, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

A 2.75 GPA is required for successful completion of the Geography major.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Geography Teaching

Required Courses

Why Choose Teaching Minors for Secondary Education Majors

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Admission Requirements

Secondary Education majors may choose an appropriate teaching minors from the following areas: biology, chemistry, English, geography, history, mathematics, political science, spanish, or speech communication.

You cannot have a geography teaching major with this minor.

Graduation Requirements

A 2.75 GPA is required for successful completion of this minor.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Gerontology

Required Courses

Why Choose the Gerontology Certificate?

This certificate is designed to provide health care program students or health care providers with the opportunity to gain valuable knowledge and skills that are needed to meet the unique needs of the elderly population.

Career Opportunities

This certificate provides an additional skill set for individuals who will be working in areas that focus on elder care. These areas include long term care, home care, hospice, public health, retirement villages and adult foster care settings.

Admission Requirements

To be eligible for the gerontology certificate, you must be a student in the College of Health Professions or a current health care provider. Pre-requisites for each course include: COHP 101 or ENGL 250 or permission of the instructor.

Graduation Requirements

Students must successfully complete all four courses for a total of 12 credits to be awarded the Gerontology Certificate.

More Information

Department of Dental Hygiene and Medical Imaging
College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
Phone: 231-591-2261
chp@ferris.edu

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Graphic Communications

Required Courses

Why Choose Graphic Communications?

The printing and graphic communications industry is the third largest industry in the United States, employing more than three quarters of a million people. It is estimated that nearly one third of those employed by the print media industry are over age 55. In addition to the aging workforce, nearly 5,000 new jobs are created each year due to the rapidly changing methods of graphic image transfer and distribution.

Graphic Communications processes are used in the manufacturing, marketing, and communications industries on just about every item that we use. Whether it is the label on an item that you purchase or the dashboard of your car, it was printed. The way we communicate through the internet and mobile devices has increased the demand for graduates with the knowledge and skills to choose the correct communications method for the desired outcome. The internet has actually caused a major increase in printed products as much as 20 percent.

Career Opportunities

Graphic Communications is a lot more than putting ink on paper. The creation and generation of high-resolution digital graphic files and the distribution of those images via Local Area Networks, the Internet, and mobile devices are all part of the job. There is a job for just about everyone with an interest in working with their hands, mind, deadlines, computers and an interest in creative problem solving.

While the AAS degree in Graphic Communications sets the stage for obtaining a BS degree in Graphic Media Management in just 2 more years, those who choose not to pursue a bachelor degree may find many great job opportunities in the print media industry with an average starting hourly wage of $14.00.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher
New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher or SAT ERW score of 450 or higher or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher or SAT Math score of 500 or higher or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The Graphic Communications program at Ferris terminates with an associate in applied science degree but leads to a Bachelor of Science degree in Graphic Media Management. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall. Students must complete all general education requirements as outlined on the General Education website.

More Information

Marketing Department
College of Business
119 South Street, BUS 212
Big Rapids, MI 49307 - 2284
Graphic Design

Required Courses

Why Choose Graphic Design?

Are you curious about the creation of the logos you see, apps you use, brands you wear, and messages you receive? If you are, this program might be for you. Due to increased recognition of design as a strategic business tool, the graphic design field offers graduates long-term career opportunities in a wide variety of industries.

What is Graphic Design?

Graphic designers are creative problem solvers who apply a disciplined process, and master tools and technologies, to develop solutions to both social and business problems. Designers harness strategic, conceptual, and technical skills to create user-centered experiences that inform, educate, and persuade.

The Graphic Design program at Ferris State University

Graphic Design is a unique program situated in the College of Business that offers a focused design education integrating business and marketing courses within a comprehensive design curriculum. The program provides its graduates with a range of skills applicable to today's dynamic innovation economy. Each student can develop in a particular area of interest such as brand design, experience design, interactive design and more. Students in the program progress over the course of four years from developing fundamental visual communication skills, and appreciation for user-centered design in a variety of media, to working collaboratively in teams to develop complete communication solutions for real clients. In addition to applied creativity, students in the program develop appreciation of the design process, professionalism, presentation, and project management skills that facilitate tangible organizational objectives for a broad range of clients. Graduating students present their portfolios to elite members of the design industry in a renowned annual Portfolio Review event.

Career Opportunities

Graduates of the Graphic Design Bachelor degree program develop careers as Designers, Art Directors, Interaction Designers, User Experience Designers, User Interface Designers, Product Designers, Front-end Developers, Design Directors, Creative Directors, Freelance Designers, Corporate Designers, Production Designers, and Production Managers. Ferris Graphic Design graduates are consistently in demand at leading design firms, corporations, and agencies in the country, including Herman Miller, Amazon, IBM, Carnevale Interactive, Steelcase, and Microsoft.

Admission Requirements
New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109 110 will be considered (SAT Math score of 400 or higher).
  3. SAT Composite of 900 or higher
  4. Students must successfully pass a portfolio review after completion of sophomore level program courses.

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher
  4. Students must successfully pass a portfolio review after completion of sophomore level program courses.

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

- Transfer equivalency for FSU ENG 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

- Transfer equivalency for FSU MATH 114 115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Algebra Math 0-49.

- Applicants will be referred to the Program Coordinator for portfolio review to determine acceptance and placement within the program.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

Graduation requires a minimum 2.7 GPA in the major courses and a minimum 2.0 GPA overall.

More Information

Graphic Design
119 South Street BUS 212
Big Rapids, MI 49307-22 4
Phone: 231-591-2426
Email: GRDE@ferris.edu

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Graphic Media Management

Required Courses

Why Choose Graphic Media Management?

Offered through the Marketing Department, the Graphic Media Management program addresses operations management, IT, project planning and estimating, marketing, and embracing the rapidly changing media business environment. Today's print media industry is really a global communication industry using every type of technology available to help customers communicate their message. Graphic Media Management is just that, the cutting edge of all the latest and greatest imaging and digital communications technology. Leaders in the print media industry must be knowledgeable in all traditional printing methods as well as know how to best use leading-edge technology to remain competitive.

Career Opportunities

Nearly one-third of the three-quarters of a million people employed by the print media industry are over age 55. That means excellent opportunities for individuals who love to solve problems and work in a fast-paced environment on some of the most technologically advanced systems in the world. Graduates from the Graphic Media Management program are not only trained in traditional print operations, G7 color management and digital print pre-press workflow, they bring another level of skills to the workforce. This foundation of print media technology and processes combine with a solid core of business, marketing, management and financial courses make graduates from the Graphic Media Management program highly desirable employees for the future of the print media industry. There are career opportunities in sales, technical sales and marketing, information systems, project management, customer service and production management in the print media industry and throughout the supply chain.

More than 80 percent of the print media companies in the United States employ less than 50 employees. This allows graduates of Ferris State University's Graphic Media Management program excellent opportunities to stay close to the technology, people and business operations. Average starting salaries range from $40,000 to $55,000 a year.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered
(SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Graphic Media Management program at Ferris leads to a Bachelor of Science degree. Students must complete a 400-hour internship prior to graduation and maintain a minimum 2.0 GPA in core classes, in the major and overall. Students must complete all general education requirements as outlined on the General Education website.

More Information

Marketing Department
College of Business
119 South Street, US 212
Grand Rapids, MI 49307-2284
Phone: 231-591-2426
Email: MKTG@ferris.edu

Graphic Media Management is accredited by the Accrediting Council for Collegiate Graphic Communication, Inc.

http://accgc.org/programs.html

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Graphic Production Solutions

Required Courses

Why Choose a Graphic Production Solutions Certificate?

The flagship applications of Adobe Creative Suite (InDesign, Photoshop, Illustrator, Acrobat) have become so popular that they can be found on the computers of most homes and businesses worldwide. The Graphic Production Solutions certificate will develop skills in creating digital documents that can be used to market products in print production or multimedia workflows. The Graphic Production Solutions certificate will build working knowledge in areas, such as:

- Building a working knowledge of digital photography, illustration and document layout
- Learning various uses and application of portable document files
- Understanding how to market products with various print and digital media
- Constructing production ready one-to-one marketing materials
- Building an understanding of packaging and brand identity through the design of packaging materials

You will receive hands-on instruction in our state-of-the-art computer and print production labs. You may choose an elective in Media Production, Packaging, Variable Data Publishing or Color Management.

Career Opportunities

Graduates with a Graphic Production Solutions certificate will have the skills to successfully build digital documents at home or in the office for print production and multimedia workflows. They will understand how to market products using various graphic media techniques. Job titles include work in marketing, media production, creative, and print procurement.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean's Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission
criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

**Graduation Requirements**

You will receive the Graphic Production Solutions certificate after completion of the requirements with a minimum 2.0 grade point average.

No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the students major or

**More Information**

Marketing Department  
119 South Street/BUS 212  
Big Rapids, MI 49307-2284  
Phone: 231-591-2426  
E-mail: M T G@ferris.edu

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Health Care Systems Administration

Required Courses

Why Choose Health Care Systems Administration?

As the health care industry continues to grow and expand, the demand for skilled health care managers also increases. Employment is expected to grow faster than average with the fastest growth in home health agencies, residential care facilities and practitioners' offices and clinics. This program has been designed in two formats, one for students who enter the program either as freshmen or who transfer into the program after having completed an associate degree and the second for students who wish to complete a bachelor's degree while enrolled in a clinical associate degree program.

The course work, which includes courses in management, marketing, accounting, quality assurance, health care finance, health care planning and long-term care management prepares you to work in many areas in health-care. Graduates are able to apply for an entry level administration position or enter graduate school to earn a master's degree.

In addition, the Health Care Systems Administration program also offers the option of a Long Term Care concentration which prepares students for leadership and administrative roles within the Long Term Care area of healthcare. As the healthcare system adjusts to providing care and services to a large aging population, this field affords many opportunities for graduates. See the program page for course information.

General education requirements may be taken at a local college or university and transferred to fulfill Ferris graduation requirements. A minimum of 30 semester credit hours must be earned at Ferris in order for the degree to be granted.

Career Opportunities

The term 'health services manager' encompasses individuals in many different positions who plan, organize, coordinate, and supervise the delivery of health care. Health services managers include both generalists (administrators who manage or help to manage an entire facility or system), and health specialists (managers in charge of specific departments or services found only in the health care industry).

Earnings of health services managers vary by type and size of facility, level of responsibility and geographic region. The May 2017 Occupational Employment and Wages Report distributed by the U.S. Bureau of Labor Statistics provides the following:

Medical and Health Services Managers 2017 median pay is $93,360 per year.
Job outlook: 20% (much faster than average)

**Admission Requirements**

Applicants for admission to the Health Care Systems Administration program must have a 2.5 GPA in high school or college work and one year of high school algebra with a 'C-' or better. Students can enter the program from any associate degree program or directly from high school.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Health Care Systems Administration program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.25 GPA overall. Students must earn a 'C' or better in professional (HCSA) courses, many of the professional support, and core courses.

Please refer to the Progression Policy for Health Care Systems Administration Program at the following link:
http://www.ferris.edu/HTMLS/colleges/alliedhe/csrchca/Health-Care-System-Admin/HCSA-Progression-Policy-Fall-2010.htm

Students must meet all general education requirements as outlined on the General Education website. Also, students must either have an ACT math subscore of 24 or better, complete MATH 115 or pass a proficiency exam.

**More Information**

College of Health Professions  
Ferris State University  
200 Ferris Drive  
Big Rapids, MI 49307-2740  
or call 1-800-462-8553, ext. 2266

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Health Care Systems Administration/Long Term Care Administration Concentration

Required Courses

Why Choose Health Care Systems Administration?

As the health care industry continues to grow and expand, the demand for skilled health care managers also increases. Employment is expected to grow faster than average with the fastest growth in home health agencies, residential care facilities and practitioners' offices and clinics. This program has been designed in two formats, one for students who enter the program either as freshmen or who transfer into the program after having completed an associate degree and the second for students who wish to complete a bachelor's degree while enrolled in a clinical associate degree program.

The course work, which includes courses in management, marketing, accounting, quality assurance, health care finance, health care planning and long-term care management prepares you to work in many areas in health-care. Graduates are able to apply for an entry level administration position or enter graduate school to earn a master's degree.

In addition, the Health Care Systems Administration program also offers the option of a Long Term Care concentration which prepares students for leadership and administrative roles within the Long Term Care area of healthcare. As the healthcare system adjusts to providing care and services to a large aging population, this field affords many opportunities for graduates. See the program page for course information.

General education requirements may be taken at a local college or university and transferred to fulfill Ferris graduation requirements. A minimum of 30 semester credit hours must be earned at Ferris in order for the degree to be granted.

Career Opportunities

The term 'health services manager' encompasses individuals in many different positions who plan, organize, coordinate, and supervise the delivery of health care. Health services managers include both generalists (administrators who manage or help to manage an entire facility or system), and health specialists (managers in charge of specific departments or services found only in the health care industry).

Earnings of health services managers vary by type and size of facility, level of responsibility and geographic region. The May 2017 Occupational Employment and Wages Report distributed by the U.S. Bureau of Labor Statistics provides the following:

Medical and Health Services Managers 2017 median pay is $98,350 per year.
Admission Requirements

Applicants for admission to the Health Care Systems Administration program must have a 2.5 GPA in high school or college work and one year of high school algebra with a 'C-' or better. Students can enter the program from any associate degree program or directly from high school.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Health Care Systems Administration program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.25 GPA overall. Students must earn a 'C' or better in professional (HCSA) courses, many of the professional support, and core courses.

Please refer to the Progression Policy for Health Care Systems Administration Program at the following link:
http://www.ferris.edu/HTMLS/colleges/alliedhe/csrchca/Health-Care-System-Admin/HCSA-Progression-Policy-Fall-2010.htm

Students must meet all general education requirements as outlined on the General Education website. Also, students must either have an ACT math subscore of 24 or better, complete MATH 115 or pass a proficiency exam.

More Information

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2740
or call 1-800-462-8553, ext. 2266

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Health Information Management

Required Courses

Why Choose Health Information Management?

As the health care industry continues to grow and expand, the demand for health information managers also increases. Employment is expected to grow much faster than average through the year 2026 (Bureau of Labor Statistics 2018) because of rapid changes in health care regulations that require individuals skilled in the interpretation of health data. Individuals with an interest in computers, health care and business will find that health information management is a challenging and fulfilling career option. Many graduates are employed in hospitals, but job growth is projected to be greatest in physicians' offices and clinics, nursing homes and home health agencies.

General education and support courses can be taken at another college or university and transferred to Ferris in fulfillment of graduation requirements. A minimum of 30 semester credit hours must be earned at Ferris in order for the degree to be granted.

At the end of the program, the student is eligible to apply to write the national certification examination to earn the designation of Registered Health Information Administrator (RHIA). The Health Information Management program is accredited by the Commission on Accreditation Health Informatics and Information Management Education (CAHIIM)

Career Opportunities

Health Information Managers have the skills and abilities to accept supervisory positions in health care facilities. They may decide to do the same kind of work as the health information technician or supervise the daily routine of the medical record department, working with the employees to make sure that procedures are carried out correctly. They may be responsible for training employees or evaluating their performance. Other health information managers work as private consultants, or work with various individuals in the health care setting to plan, assure that the facility meets accreditation requirements or serve as coordinators between other departments that deal with health information.

Earnings of health information managers vary by type and size of facility, level of responsibility and geographic region. The 2017 median pay for health information managers was $98,350. (Bureau of Labor Statistics 2018) Graduates of the program are immediately employable in a variety of health care settings.

Admission Requirements

Applicants for admission to the Health Information Management program must have a 2.5 GPA
in high school or college work.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Health Information Management program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.25 GPA overall. Students must earn a 'C' grade or better in major and core courses and meet all general education requirements as outlined on the General Education website. MATH 115 proficiency or ACT math subscore of 24 or higher is required for graduation. Graduates may decide to enroll in graduate school.

**More Information**

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
Phone: 231-591-2270 or
800-462-8553, ext. 2266
chp@ferris.edu

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Health Information Technology

Required Courses

Why Choose Health Information Technology?

As the health care industry continues to grow and expand, the demand for health information technicians also increases. Employment is expected to grow much faster than average through the year 2026 (Bureau of Labor Statistics 2018) because of the rapid growth in tests, treatments and procedures available. Technicians will be needed to work with computer databases and other tasks related to electronic health records. Many graduates are employed in hospitals, but job growth is projected to be greatest in physicians' offices and clinics, nursing homes and home health agencies.

At the end of the program, the student is eligible to apply to write the national certification examination to earn the designation of Registered Health Information Technician (RHIT).

General education courses may be completed either through Ferris State University or at a local college or university and transferred to fulfill graduation requirements. A minimum of 15 credit hours must be earned at Ferris in order for the degree to be granted.

This program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education in collaboration with the American Health Information Management Association.

Career Opportunities

Technicians are trained to handle the important tasks of maintaining and safeguarding the information contained in the health record. Their work, however, involves much more than dealing with files. It involves contact with physicians, nurses, therapists and other medical professionals as well as customer relations dealing with patients about their health information.

Earnings of health information technicians vary by type and size of facility, level of responsibility and geographic region. The 2016 annual average wage for RHITs employed in hospitals is $49,560 compared to an annual median wage of $42,000 for those employed in physician's offices. (AHIMA Salary Survey June 2016)

Graduates of this program are immediately employable in a variety of health care settings.

Admission Requirements

Applicants for admission to the Health Information Technology program must have a 2.5 GPA in high school or college work. One semester of high school biology and computer science are
strongly advised.

**General Education Requirements**

All University General Education requirements for an Associate's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Health Information Technology program at Ferris leads to an associate in applied science degree. Graduation requires a minimum 2.25 GPA overall. Students must earn a 'C' or better in major and core courses and meet all general education requirements as outlined on the General Education website. Graduates may enter either the Health Information Management program or the Health Care Systems Administration program to earn a bachelor's degree.

**More Information**

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2740
Phone: 231-591-2270 or
800-462-8553, ext. 2266

chp@ferris.edu

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Healthcare Administration Accelerated Track

Required Courses

Why Choose Master of Healthcare Administration - Accelerated Track?

As the health care industry continues to grow and expand, the demand for skilled health care managers and executives also increases. Employment is expected to grow faster than average with the fastest growth in home health agencies, residential care facilities and practitioners' offices and clinics. The Master of Healthcare Administration (MHA) degree is designed to meet the needs of today’s healthcare leadership and beyond. In the expanding, ever-changing healthcare delivery system, extensive expertise and understanding of healthcare industry business is essential, especially for those in leadership roles. This program prepares graduates with the necessary skill and knowledge to lead the healthcare organizations through the use of evidence-based decision making in the areas of economics, financial management, organizational behavior and human resource management, strategic planning, and marketing, with a keen focus on quality improvement, resource efficiency, and interprofessional collaboration.

A fully online program, designed for the early or mid-careerist, the MHA degree may be completed in 2 years full-time, or up to a maximum of 5 years part-time. Each course includes 8-10 hours of synchronous learning, in which students are required to participate in collaborative web-based sessions. To engage students in real-world healthcare leadership experiences, the program requires active service learning opportunities including a capstone research project conducted within the healthcare setting of the student’s choice.

The program is designed in three formats:

*Traditional Format* – 46 credits of study including six related elective graduate credits

- Intended for the student with less than 2 years of management and/or supervisory experience.

*Executive Format* – 40 credits of study

- Intended for the student with two or more years of management and/or supervisory experience, excluding hours accumulated during an internship experience.

*Accelerated Format* – 46 credits of study including 6 related elective graduate credits

- Intended for the student consecutively seeking the FSU undergraduate Health Care Systems Administration degree and the Master of Healthcare Administration degree, this format allows the student to complete both degrees in a 5-year timeline.
Career Opportunities

The term 'health services manager' encompasses individuals in many different positions, including healthcare executives and administrators, who plan, organize, coordinate, and supervise the delivery of health care. These individuals lead change that aligns with current healthcare laws and regulations, as well as current trends in technology and services models to meet the needs of the community(s) they serve. Health services managers include both generalists (administrators who manage or help to manage an entire facility or system), and health specialists (managers in charge of specific departments or services found only in the health care industry), and executives (administrators responsible for healthcare delivery systems, or the divisions within healthcare delivery healthcare systems).

Earnings of health services managers vary by type and size of facility, level of responsibility and geographic region. The May 2016 Occupational Employment and Wages Report distributed by the U.S. Department of Labor provides the following:

Medical and Health Services Managers 2017 median pay is $98,350 per year.

Job outlook: 20% (much faster than average)

Admission Requirements

Applicants for admission to the Master of Healthcare Administration program must have:

- An earned bachelor’s degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or higher on a 4-point scale. (Provisional admission may be considered for a GPA below 3.0.)
- International applicants only: A minimum TOEFL score of 550
- Completion of courses in the areas of mathematics, biology, chemistry, social sciences, and statistics with minimal grades of “C.” (These may be included in the undergraduate degree or taken prior to the MHA program.)
- Personal statement of interest in healthcare administration.
- Three professional references.
- Current resume.

Graduation Requirements

The Master of Healthcare Administration program at Ferris leads to a Master of Healthcare Administration graduate degree. Graduation requires a minimum 3.0 GPA overall. Students must earn a ‘B’ or better in all courses; no grade below a ‘B’ is acceptable for graduation. Two unsuccessful attempts (grades less than ‘B’) in any MOHA course will result in dismissal from the program.

More Information

Gail Bullard, Program Coordinator

Ferris State University

College of Health Professions
ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Healthcare Administration Executive Track

Required Courses

Why Choose Master of Healthcare Administration - Executive Track?

As the health care industry continues to grow and expand, the demand for skilled health care managers and executives also increases. Employment is expected to grow faster than average with the fastest growth in home health agencies, residential care facilities and practitioners' offices and clinics. The Master of Healthcare Administration (MHA) degree is designed to meet the needs of today’s healthcare leadership and beyond. In the expanding, ever-changing healthcare delivery system, extensive expertise and understanding of healthcare industry business is essential, especially for those in leadership roles. This program prepares graduates with the necessary skill and knowledge to lead the healthcare organizations through the use of evidence-based decision making in the areas of economics, financial management, organizational behavior and human resource management, strategic planning, and marketing, with a keen focus on quality improvement, resource efficiency, and interprofessional collaboration.

A fully online program, designed for the early to mid-careerist, the MHA degree may be completed in 2 years full-time, or up to a maximum of 5 years part-time. Each course includes 8-10 hours of synchronous learning, in which students are required to participate in collaborative web-based sessions. To engage students in real-world healthcare leadership experiences, the program requires active service learning opportunities including a capstone research project conducted within the healthcare setting of the student’s choice.

The program is designed in three formats:

**Traditional Format** – 46 credits of study including six related elective graduate credits

- Intended for the student with less than 2 years of management and/or supervisory experience.

**Executive Format** – 40 credits of study

- Intended for the student with two or more years of management and/or supervisory experience, excluding hours accumulated during an internship experience.

**Accelerated Format** – 46 credits of study including 6 related elective graduate credits

- Intended for the student consecutively seeking the FSU undergraduate Health Care Systems Administration degree and the Master of Healthcare Administration degree, this format allows the student to complete both degrees in a 5-year timeline.
Career Opportunities

The term 'health services manager' encompasses individuals in many different positions including healthcare executives and administrators, who plan, organize, coordinate, and supervise the delivery of health care. These individuals lead change that aligns with current healthcare laws and regulations, as well as current trends in technology and service models to meet the needs of the community(s) they serve. Health services managers include both generalists (administrators who manage or help to manage an entire facility or system), and health specialists (managers in charge of specific departments or services found only in the health care industry), and executives (administrators responsible for healthcare delivery systems, or the divisions within healthcare delivery systems).

Earnings of health services managers vary by type and size of facility, level of responsibility and geographic region. The May 2016 Occupational Employment and Wages Report distributed by the U.S. Department of Labor provides the following:

Medical and Health Services Managers 2017 median pay is $98,350 per year.

Job outlook: 20% (much faster than average)

Admission Requirements

Applicants for admission to the Master of Healthcare Administration program must have:

- An earned bachelor’s degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or higher on a 4-point scale. (Provisional admission may be considered for a GPA below 3.0.)
- International applicants only: A minimum TOEFL score of 550
- Completion of courses in the areas of mathematics, biology, chemistry, social sciences, and statistics with minimal grades of “C.” (These may be included in the undergraduate degree or taken prior to the MHA program.)
- Personal statement of interest in healthcare administration.
- Three professional references.
- Current resume.

Graduation Requirements

The Master of Healthcare Administration program at Ferris leads to a Master of Healthcare Administration graduate degree. Graduation requires a minimum 3.0 GPA overall. Students must earn a 'B' or better in all courses; no grade below a ‘B’ is acceptable for graduation. Two unsuccessful attempts (grades less than ‘B’) in any MOHA course will result in dismissal from the program.

More Information

Gail Bullard, Program Coordinator

Ferris State University
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Healthcare Administration Traditional Track

Required Courses

Why Choose Master of Healthcare Administration - Traditional Track?

As the health care industry continues to grow and expand, the demand for skilled health care managers and executives also increases. Employment is expected to grow faster than average with the fastest growth in home health agencies, residential care facilities and practitioners' offices and clinics. The Master of Healthcare Administration (MHA) degree is designed to meet the needs of today’s healthcare leadership and beyond. In the expanding, ever-changing healthcare delivery system, extensive expertise and understanding of healthcare industry business is essential, especially for those in leadership roles. This program prepares graduates with the necessary skill and knowledge to lead the healthcare organizations through the use of evidence-based decision making in the areas of economics, financial management, organizational behavior and human resource management, strategic planning, and marketing, with a keen focus on quality improvement, resource efficiency, and interprofessional collaboration.

A fully online program, designed for the early or mid-careerist, the MHA degree may be completed in 2 years full-time, or up to a maximum of 5 years part-time. Each course includes 8-10 hours of synchronous learning, in which students are required to participate in collaborative web-based sessions. To engage students in real-world healthcare leadership experiences, the program requires active service learning opportunities including a capstone research project conducted within the healthcare setting of the student’s choice.

The program is designed in three formats:

**Traditional Format** – 46 credits of study including six related elective graduate credits

- Intended for the student with less than 2 years of management and/or supervisory experience.

**Executive Format** – 40 credits of study

- Intended for the student with two or more years of management and/or supervisory experience, excluding hours accumulated during an internship experience.

**Accelerated Format** – 46 credits of study including 6 related elective graduate credits

- Intended for the student consecutively seeking the FSU undergraduate Health Care Systems Administration degree and the Master of Healthcare Administration degree, this format allows the student to complete both degrees in a 5-year timeline.
Career Opportunities

The term 'health services manager' encompasses individuals in many different positions including healthcare executive and administrators, who plan, organize, coordinate, and supervise the delivery of health care. These individuals lead change that aligns with current healthcare laws and regulations, as well as current trends in technology and service model to meet the needs of the community(s) they serve. Health services managers include both generalists (administrators who manage or help to manage an entire facility or system), and health specialists (managers in charge of specific departments or services found only in the health care industry), and executives (administrators responsible for healthcare delivery systems, or the division within healthcare delivery systems.)

Earnings of health services managers vary by type and size of facility, level of responsibility and geographic region. The May 2064 Occupational Employment and Wages Report distributed by the U.S. Department of Labor provides the following:

Medical and Health Services Managers 2017 median pay is $98,350 per year.

Job outlook: 20% (much faster than average)

Admission Requirements

Applicants for admission to the Master of Healthcare Administration program must have:

- An earned bachelor's degree from a regionally accredited university with an overall grade point average (GPA) of 3.0 or higher on a 4-point scale. (Provisional admission may be considered for a GPA below 3.0.)
- International applicants only: A minimum TOEFL score of 550
- Completion of courses in the areas of mathematics, biology, chemistry, social sciences, and statistics with minimal grades of “C.” (These may be included in the undergraduate degree or taken prior to the MHA program.)
- Personal statement of interest in healthcare administration.
- Three professional references.
- Current resume.

Graduation Requirements

The Master of Healthcare Administration program at Ferris leads to a Master of Healthcare Administration graduate degree. Graduation requires a minimum 3.0 GPA overall. Students must earn a 'B' or better in all courses; no grade below a 'B' is acceptable for graduation. Two unsuccessful attempts (grades less than ‘B’) in any MOHA course will result in dismissal from the program.

More Information

Gail Bullard, Program Coordinator
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Healthcare Marketing

Required Courses

Why Choose Healthcare Marketing?

Want a career in healthcare but working from a medical aspect is not for you? Want a career in business but the boardroom bores you? Well, now you can combine the medical world with the business world with a BS in Healthcare Marketing. This program is designed to develop graduates capable of marketing within the healthcare industry across the supply chain - including hospitals and hospital systems, physician practices, specialized clinics; manufacturers of pharmaceuticals, medical devices and medical furniture; social service providers and change-behavior specialists.

The job market for students with competence in healthcare marketing is currently very strong. However, healthcare systems and organizations are generally reluctant to hire undergraduates for entry-level positions if those undergraduates do not have healthcare or healthcare related competencies and experience. The BS Healthcare Marketing program at Ferris State University was designed with input from both industry and academia to teach you those marketing competencies valued by the healthcare industry.

Career Opportunities

Healthcare spending is 4.3 times the amount spent on national defense. A survey of nearly 300 hospitals by the Society for Healthcare Strategy and Market Development (SHSMD) found that hospital marketing departments averaged 6 (six) staff members with budgets of 1.2 million. Marketing departments are incorporated into the structure of healthcare organizations and marketers are being promoted to manager’s directors, and ultimately vice presidents. Some careers in Healthcare Marketing you may start at are: jobs in sales and marketing for healthcare providers and their suppliers, including medical device and furniture sales and marketing, customer service, and social marketing.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT Critical Reading score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109 110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher
New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU G 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT Reading score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114 115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Read Math 0-49.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education lectures.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Health Care Marketing program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

More Information

Marketing Department
College of Business
119 South Street, BUS 212
Big Rapids, M 49307-2284
Phone: 231-591-2426
ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Heavy Equipment Technology

Required Courses

Why Choose Heavy Equipment Technology?

Heavy equipment technicians keep diesel and gasoline-powered equipment moving freight, earth and people; pumping water for irrigation; drilling for oil; powering farm tractors; and generating electrical power. They not only diagnose malfunctions and repair engines, they repair and service fuel injection systems, electrical and electronic systems, hydraulic systems, brakes, steering systems and power transmission systems.

Students in the Heavy Equipment Technology program learn to use shop manuals, reference charts, diagnostic instruments and special tools to diagnose equipment malfunctions. They identify problems through measurement and observation, interpret data collected and decide on a course of action. In hands-on labs, students repair, replace or adjust components and perform preventive maintenance tasks. Knowledge and skill-development concentrations include inspection, diagnostics, repair/rebuild of all types of heavy-duty equipment and mechanical and electronic components.

Career Opportunities

Increased use of heavy equipment in the agriculture, trucking, construction and auxiliary power industries has created a widespread need for qualified heavy equipment technicians. Estimates suggest less than half of the current demand for technicians in this industry is being met, so skilled graduates are already in high demand.

Fleet maintenance, farm equipment, truck rental and construction equipment repair industries as well as independent repair shops are only some of the employers. Heavy equipment technicians also work at stationary power plants, marine engine companies and manufacturers of heavy equipment.

Graduates of the Heavy Equipment Technology program at Ferris are immediately employable by the heavy equipment industry. This program also serves as the major preparatory program for the B.S. degree in Heavy Equipment Service Engineering Technology.

General Education Requirements

All University General Education requirements for an Associate's degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.
Graduation Requirements

The Heavy Equipment Technology program at Ferris leads to an associate in applied science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 15 credits of Ferris classes (FSU Residency requirement)
- have a minimum 60 total credits to earn an associate degree
- complete all general education requirements as outlined on the General Education website.

More Information

Heavy Equipment Technology Program
Ferris State University
220 Sports Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2810
Email: Heavy_Equipment@ferris.edu

The College of Engineering Technology, Heavy Equipment Technology, AAS program is accredited by the National Automotive Technicians Education Foundation (NATEF)
http://www.natef.org/
The next accreditation review is scheduled for 2020.

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Heavy Equipment Service Engineering Technology

Required Courses

Why Choose Heavy Equipment Service Engineering Technology (HSET)?

HSET provides the skills and knowledge required to test, diagnose, service and repair multiple, interfacing and technically sophisticated systems used on equipment in the agricultural, construction, forestry, stationary power and trucking industries. Mechanical, electrical, electronic and hydraulic technology are addressed, along with failure analysis, troubleshooting procedures and techniques, metrology, product design for manufacturing and fleet management.

Career Opportunities

Increased use of heavy equipment in the agriculture, trucking, construction and auxiliary power industries has created a widespread need for qualified heavy equipment technicians. Estimates suggest less than half of the current demand for technicians in this industry is being met, so skilled graduates are already in high demand.

Employment opportunities exist throughout the various heavy equipment industries. Job titles include diagnostic technician, technician, service engineer, field engineer, service manager, shop foreman, trainer, engineering technician and maintenance team leader.

Admission Requirements

To enroll in the HSET program at Ferris, students must have successfully completed an associate degree in Heavy Equipment Technology or equivalent.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Heavy Equipment Service Engineering Technology program at Ferris leads to a Bachelor of Science degree. G

Students must

- maintain a 2.00 cumulative FSU GPA
• have 40 credits at the 300/400 level
• have 30 credits of Ferris classes (FSU Residency requirement)
• have a minimum 120 total credits to earn a bachelor degree
• complete all general education requirements as outlined on the General Education website.

More Information

Heavy Equipment Service Technology Program
Ferris State University
220 Sports Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2810

heavyequipment@ferris.edu

The College of Engineering Technology Heavy Equipment Service Engineering Technology B.S. program is an accredited program of the Associated Equipment Distributors Foundation (AED) http://aednet.org/

The next accreditation review is scheduled for 2020.

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
History

Required Courses

Why Choose History?

Historians are like 'social detectives.' They try to understand the men and women, groups and events of earlier times by studying the 'clues' left behind such as visual documents and artifacts, diaries, official documents and records, economic data and newspapers. Historians use these 'clues' to determine which events were most important, why things turned out the way they did, or what lessons we can learn from the past.

The history major prepares students to see 'the big picture' and to focus on our most important societal issues, decisions, and trends. The history major prepares students to gather, assimilate, and interpret a wide variety of information from many different sources and to view issues from different perspectives. Students entering the History major should have strong reading skills and be interested in learning about the experiences of others. Students in the History major study the history of the United States, the history of other regions of the world, and the methods of historical research. They also have the opportunity to select courses of special interest to them, such as African American history or the history of science and technology. Advanced students may participate in undergraduate research projects or internships.

Career Opportunities

The History major also gives students a broad and in-depth understanding of the diverse political, economic, and cultural factors affecting American life and the global marketplace today. For this reason, the History major is excellent preparation for a wide variety of career paths, including the law, education, journalism, government, public policy analysis, business, or executive-level management.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate appropriate academic preparedness, maturity and seriousness of purpose. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 Mathematics and Reading sub scores will be considered in the admission and course placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course or they will be considered as first year students.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

In order to graduate with a Bachelor of Arts in History, a student must complete a minimum of 120 credit hours including the History major, the BA core, an academic minor in another field of study, and all general education requirements for Bachelor of Arts degree. No grade lower than 'C' will count toward the History major.

**More Information**

ADVISOR: Dr. Gary Huey  
PHONE: 231-591-2758  
EMAIL: GaryHuey@ferris.edu

Department of Humanities  
Ferris State University  
1009 Campus Drive/JOH 119  
Big Rapids, MI 49307-2280  
Phone: 231-591-3675

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History

Required Courses

**Why Choose the History Minor?**

In this age of 'informational overload,' the history minor helps students to deal with information from many different sources, to sort out the 'big picture' from the short-term details, and to recognize the decisions and events that will have lasting impact on their business and community. The history minor allows students to study traditional topics in history (e.g., military history) as well as topics that may have particular interest to them personally or professionally (e.g., history of technology, business, health care, or sport; women's history; African-American history).

**Admission Requirements**

This History minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing a history major in the Bachelor of Arts degree. The minor is designed to complement any other Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

**Graduation Requirements**

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 24 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University and must be numbered 300 level or higher.

**More Information**

ADVISOR: Dr. Kimn Carlton-Smith
PHONE: 231-591-5850
EMAIL: KimnCarlton-Smith@ferris.edu

Humanities Department
Ferris State University
1009 Campus Drive, JOH 119
Big Rapids, MI 49307-2280
Phone: 231-591-3675
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History Education

Required Courses

Why Choose Teaching Minors for Secondary Education Majors

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Admission Requirements

Secondary Education majors may choose an appropriate teaching minors from the following areas: biology, chemistry, English, geography, history, mathematics, physical education, political science, spanish or speech communication.

You cannot have a history teaching major with this minor.

Graduation Requirements

A 2.75 GPA is required for successful completion of this minor. No grade less than a "C".

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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History Education Secondary Education

Required Courses

Why Choose History Education?

History is more than the study of the past, it also involves the study of change and continuity over time. According to historian and educator Peter Stearns, "Only through studying history can we grasp how things change; only through history can we begin to comprehend the factors that cause change; and only through history can we understand what elements of an institution or a society persist despite change." History education is an ideal choice for any student who finds they are always asking "why?" and then, once learning the answer, wants to share that knowledge and insight with others. In today's society, history education is especially relevant. Trained history educators will play an important role in helping future generations understand the world around them - whether in terms of understanding the root causes of social or political conflict or better appreciating diverse cultural values or valuing democratic institutions and ideals.

Career Opportunities

Current employment opportunities in the field of history education are based on two key factors. Both on a national and state level there is a common theme of the extreme need for teachers and adequately prepared history teachers. Concerns at the beginning of the decade focused primarily on the issue of the retirement for a significant number of educators, in the Michigan Education Report of 2001. Teacher shortages in Michigan are predicted to be most severe at the secondary education level. The issue of teacher shortage due to retirement has been compounded by the impact of the new federal law No Child Left Behind (2003). NCLB seeks to redress a major issue - teachers who teach in content areas where they have little or no formal training. This issue is especially relevant to the field of history. Currently a large number of educators employed to teach history have neither a major or minor in the content area of history.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credits hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Teacher Certification Requirements**

As required by the State of Michigan to receive teacher certification, all teacher candidates must (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the SU graduation requirements of your individual program.

**Graduation Requirements**

The history education program leads to a Bachelor of Science degree through the School of Education, College of Education and Human Services. Students must complete all of SU's general education, history and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

**More Information**

College of Education   Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone (231) 591-531

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Hospitality Management

Required Courses

Why Choose Hospitality Management?

The Bachelor of Science (BS) in Business degree in Hospitality Management provides a highly diverse range of career opportunities within the exciting, fast-paced and dynamic environment of the hospitality industry. As one of the few programs in the country housed within a College of Business, our students gain skills and aptitude in operational and financial management highly valued by industry employers.

The Hospitality Management curriculum combines theory with practice by incorporating hands-on experience through numerous industry site visits, service learning projects, and curriculum focused internships. The degree consists of a core of classes relevant to all facets of hospitality including Guest Service Management, Sanitation & Safety, and Hospitality Law. Students then specialize their study by selecting a focus in one of four concentrations: Lodging, Food & Beverage, Event, or Specialized Management. These offerings combined with a comprehensive business core provide our graduates with the practical knowledge, leadership skills, and service-oriented philosophy to be successful in today’s industry.

Students gain insight in their area of study through interactions with professionals across the spectrum of hospitality by means of program partnerships with national associations and industry leaders. Whether attending a campus presentation on company-wide opportunities with corporate recruiters or traveling to attend state and national conferences, our students spend time learning with professionals and building their industry network.

To maintain the highest level of quality curriculum, our program is guided by an active advisory board consisting of over 30 industry leaders from across the country. Combined with dedicated faculty, well-connected in the industry, students find relevant knowledge and active learning to be a daily component of their classroom experience.

Graduates are well prepared to enter the hospitality industry with advanced professional skills and their own industry connections. With strategic preparation and an interwoven approach to service, our alumni are leading their organizations across the country.

Joining us with current college credit? Transfer students will find the Hospitality Management Program articulates well with numerous community colleges. Transfer guides are readily available on the Ferris website. Students may complete the degree at the main campus or at our Grand Rapids locations. Students completing a culinary arts program at any career center can earn up to nine credit hours of articulated credit. Three minors and several certificates are available as well.
Graduates of the Hospitality Management degree are prepared to pursue careers in a variety of hospitality related businesses. Positions in hospitality management are abundant and employers are actively seeking quality graduates. A small sample of positions include:

**Lodging**
- Front Office Manager
- Guest Services Manager
- Revenue Manager
- Executive Housekeeper

**Food & Beverage Operations**
- Dining Room Manager
- Bar Manager
- Banquet Manager
- Food and Beverage Director

**Event Management**
- Convention Sales Manager
- Associate Destination Manager
- Event Operations Manager
- Special Event Design Producer

Hospitality Management also expands into country club management, spa management, ski management, and guest service specialist positions.

**Admission Requirements**

**New Students SAT Scores:**
- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT MATH score of 480 or higher).
  3. SAT Composite of 900 or higher

**New Students ACT Scores:**
- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

**Transfer Students:**
Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT MATH score of 19 or higher; SAT MATH of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

Exceptions for New and Transfer Students:

Applicants not meeting the above criteria MAY be considered for an approved Associates Degree if:

- High School GPA of 2.35 or higher
- Math ACT score of 16/SAT Math 430 and additional high school algebra
- ACT Reading score of 16 and ACT English score of 14 or a comparable SAT ERW score to be determined.
- SAT Composite score of 860 or ACT composite score of 15.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

- Maintain a 2.00 cumulative GPA in all FSU courses.
- Maintain a 2.00 in major and business core courses.
- Have 40 credits at the 300/400 level.
- 30 credits FSU Residency.
- Have a minimum 120 total credits.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.
More Information

Hospitality Management Program
West Commons 106
1319 Cramer Circle
Big Rapids, MI 49307
Phone: 231-591-2382
Email: hospitality@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.)
http://www.acbsp.org

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Hotel Management

Required Courses

Why Choose the Hotel Management Certificate?

The Hotel Management certificate is designed for professionals seeking to enhance their career opportunities, as well as students in other degree programs, wishing to expand their job prospects. The required courses provide students with a background in the three essential areas of front office operations, group sales, and facilities management. Additional electives offer students the chance to broaden their knowledge in the areas of hospitality law, human resource management, or revenue management & market analysis. Throughout their studies students will have the opportunity to earn several nationally recognized certifications such as AHLEI Convention Management and Service, AHLEI Front Office Management, AHLEI Facilities Management, AHLEI Hotel Industry Analytics or AHLEI Revenue Management.

Undergraduate Certificate Programs' Admission Criteria

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.
Graduation Requirements

- No more than 50% of the credits in a certificate may be transferred from another institution.
- If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
- A 2.00 cumulative GPA is required for completion of the Certificate.
- A term prior to completion of the Certificate, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

For more information, contact:

Hospitality Management Program
West Commons 106
1319 Cramer Circle
Big Rapids, MI 49307
Phone: 231-591-2382
Email: hospitality@ferris.edu

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Hotel/Restaurant and Food Industry Management

Required Courses

Why Choose the Hotel/Restaurant and Food Industry Management Minor?

The Hotel/Restaurant and Food Industry Management minor is designed to complement any major by preparing students with a fundamental knowledge of hotel and restaurant operations. Required courses provide an essential understanding of the food handling practices and cost control measures necessary to run a safe and profitable hospitality business. Additional electives allow students the opportunity to select courses that fit their particular career objectives and interests. Throughout their studies, students will have the opportunity to earn nationally recognized certifications, such as ServSafe, CPR/AED, and TIPS as part of their courses.

Admission Requirements

Any person who is admitted to a Ferris State University Bachelor's degree program is welcome to seek the attainment of this minor in addition to their major. Students wishing to add this minor must declare it with the Program Coordinator of the Hospitality Management Program.

Graduation Requirements

- At least one-half of the credits must be Ferris State University credits.
- A maximum of 1/3 of the credits, but no more than 7 credits, may overlap with the student’s major.
- A minimum of fifty percent (50%) of the courses in the minor must be at the 200 or above level.
- A 2.00 GPA is required for completion of the Minor.
- A term prior to completion of the Minor, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done the Graduation Secretary will notify the Registrar who will note the completion of the Minor.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

Hospitality Management Program
1319 Cramer Circle/WCO 106
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Human Resource Management

Required Courses

Why Choose Human Resource Management?

As a student, you have the opportunity to develop expertise in human resource management through courses in employment law, compensation, negotiations, and employee benefits. You also receive a well-rounded education in business through courses in accounting, computer information systems, finance, international business, management and marketing.

In addition, the required internship allows you to earn university credit while gaining valuable experience. Internships often lead to permanent employment.

Career Opportunities

Do you enjoy working with people? Helping people? Are you looking for a job that will make use of your 'people skills' in a business setting? You might find the right career for you in human resource management, a field that depends upon people skills and talents.

Professionals in the human resource management field work each day with a variety of people, including employees and job applicants, managers and union representatives. They also work in a variety of roles. They may, for example, be responsible for recruiting and selecting the best employees available for a job. They also counsel employees, conduct training and career development programs and perform job evaluations. They work in compensation and benefits administration and participate in negotiations. They also engage in personnel research and job analysis.

The education you receive is also beneficial for gaining employment in various management positions.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher
New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Human Resource Management program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

More Information

Management Department
119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: (231) 591-2427
Email: MGMT@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.)
http://www.acbsp.org

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Human Resource Management

Required Courses

Why Choose the Certificate in Human Resource Management

The Advanced Studies Certificate in Human Resource Management provides an opportunity for students in any major to gain the basic knowledge and skills in the field of Human Resources required of supervisors and managers in all areas of an organization.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive this certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student’s major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu
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Human Resource Management

Required Courses

Why Choose the Human Resource Management Minor?

A minor in Human Resource Management helps to position students in other majors to become supervisors/managers in their chosen field. It is a popular minor for students pursuing majors in health care (e.g., Health Care Systems Administration, Radiography, Sonography, Nuclear Medical Technology, and Nursing), Communications, Engineering Technology, and Psychology. Students will take courses in Human Resources, Employment Law, Compensation, and Negotiations and have a choice of electives depending on their interests.

Admission Requirements:

Any person who is admitted to a Ferris State University Bachelor's degree program is welcome to pursue this minor in addition to their major.

Graduation Requirements

You will receive the Human Resources Management Minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average.

No more than 50% of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

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HVACR Engineering Technology and Energy Management

Required Courses

Why Choose HVACR Engineering Technology?

The Heating, Ventilation, Air Conditioning and Refrigeration (HVACR) Engineering Technology curriculum is a two-year, upper-division sequence leading to a Bachelor of Science degree. Instruction is aimed at developing expertise in system and controls design, retrofitting, testing and adjusting, system balancing and building operations with microcomputer controls.

Students learn up-to-date methods of identifying and performing efficiency evaluations on different types of heating, ventilation and air conditioning systems found in commercial and industrial buildings. They also learn methods of adjusting and balancing equipment for maximum performance.

In addition to classroom study, students perform energy and HVACR systems analysis for West Michigan businesses and industries. An energy systems laboratory includes equipment, computers and instrumentation found in commercial or industrial buildings. The lab includes a ten-ton variable air volume, four-zone system that controls cooling, heating and ventilation with computerized energy management. There also is a paid internship in the summer semester between the junior and senior year.

Career Opportunities

The HVACR Engineering Technology program addresses designing, retrofitting, testing and balancing on a problem-solving level to prepare technologists to fill the wide technological gap between service technicians and engineers.

Challenging careers abound in manufacturing, contracting, building operations and in the engineering of commercial, institutional and industrial building systems.

These industries look for trained HVACR engineering technicians for a variety of positions, including applications engineer, project engineer, systems control, estimator, field technician, systems representative, control systems trainer and in-plant engineer. There also are many opportunities to be found with architectural and engineering firms.

Graduate placement rate has been near 100% since the program was founded in 1984, with starting salaries currently averaging $58,000 per year.

Admission Requirements

Students entering the HVACR Engineering Technology program must have completed the
HVACR Technology program at Ferris or an equivalent A.A.S. program at another institution (or equivalent) with a minimum college GPA of a 2.5. In addition, students should possess computer literacy skills and have completed college intermediate algebra and a scientific understanding course.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The HVACR Engineering Technology program at Ferris leads to a Bachelor of Science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- earn a “C-” or better in all HVAC coursework
- complete all general education requirements as outlined on the General Education website

**More Information**

HVACR Engineering Technology

School of Built Environment

Ferris State University
605 S. Warren Avenue, GRN 227
Big Rapids, MI 49307-2280
Phone 231-591-3773

hvacrprogram@ferris.edu

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HVACR Technology

Required Courses

Why Choose HVACR Technology?

The Heating, Ventilation, Air Conditioning and Refrigeration (HVACR) Technology program provides a balance of theory and application, in keeping with the philosophy of Ferris State University. This includes a solid foundation of the principles of heating, ventilation, air conditioning and refrigeration combined with extensive laboratory experience.

While in the lab, students learn to test, systematically troubleshoot, repair and maintain electrical and mechanical HVACR systems and components. Residential and light commercial heating, ventilating and air conditioning along with food preservation refrigeration are the main focus of the program.

Career Opportunities

Because of the continuing demand for technicians, an HVACR graduate can easily find employment in any state or country. In fact, a Ferris HVACR graduate statistically has multiple jobs to choose from at graduation with starting salaries averaging $39,000 per year (although most students have already found employment prior to graduation).

Career opportunities for technicians are multiplying with technological advances in the use of microcomputers for data processing and system control. The demand also is spurred by expansion in the production, storage and marketing of food and other perishables.

The growing emphasis on energy cost and utilization also is creating a need for technicians to renovate, convert and service existing heating and air conditioning systems. Graduates may work as service technicians, manufacturers, laboratory technicians, sales representatives or designers.

Admission Requirements

Admission to the College of Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20.

Students entering the HVACR Technology program must be high school graduates with a minimum 2.5 GPA along with an 18 ACT composite and a math sub-score of 19 or 950 SAT16 Total and a SAT16 math sub-score of 500.
Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The HVACR Technology program at Ferris leads to an associate in applied science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 15 credits of Ferris classes (FSU Residency requirement)
- have a minimum 60 total credits to earn an associate degree
- complete all general education requirements as outlined on the General Education website.

**More Information**

HVACR Engineering Technology

School of Built Environment

Ferris State University
605 S. Warren Avenue, GRN 227
Big Rapids, MI 49307-2280
Phone: 231-591-3773

hvacrprogram@ferris.edu

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Industrial Chemistry - Fermentation Science Concentration

Required Courses

Why Choose Industrial Chemistry Fermentation Science Concentration?

Students in the Industrial Chemistry program are trained in organic, analytical, physical, and biological chemistry. In addition, coursework and experience provide skills and practical application in the areas of safety issues, instrumental analysis, and fermentation.

This program is designed to prepare students with the lab experience necessary to build a career in chemistry along with the theoretical underpinnings and supporting knowledge needed to advance in such a career.

All classes are taught with an emphasis on practical application and problem solving, culminating in an internship experience. This allows each student to apply the skills and knowledge they have gained in a real-world, commercial setting.

Career Opportunities

Industries in Michigan, the Midwest, and throughout the entire country are using increasingly sophisticated chemical procedures, processes, and instrumentation. Consequently, industrial leaders are becoming more concerned about health hazards and safety factors. These companies need chemists and chemical professionals that are experienced and ready to work. Many managers seek Ferris graduates to fill the demand.

Graduates find jobs in a variety of industries, including chemical, plastics, pharmaceutical, environmental, paint, food, automotive, petroleum and personal care products.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity, and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 Reading and Mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here.
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Industrial Chemistry - Fermentation Science program leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 120 credits including completion of all general education requirements. No grade lower than a ‘C’ is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Minimum of 40 credits at the 300+ level. Students may earn only one degree in Chemistry (either Chemistry BA, Biochemistry BA or Industrial Chemistry BS).

**More Information**

MAJOR ADVISOR: Dr. Mark Thomson  
PHONE: 231-591-2590  
EMAIL: thomsom@ferris.edu

Department of Physical Sciences  
Ferris State University  
820 Campus Drive/ASC 3021  
Big Rapids, MI 49307-2225  
Phone: 231-591-2580

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Industrial Chemistry - Manufacturing Concentration

Required Courses

Why Choose Industrial Chemistry Manufacturing Concentration?

Students in the Industrial Chemistry program are trained in organic, analytical, physical, and biological chemistry. In addition, coursework and experience provide skills and practical application in the areas of safety issues, instrumental analysis, and fermentation.

This program is designed to prepare students with the lab experience necessary to build a career in chemistry along with the theoretical underpinnings and supporting knowledge needed to advance in such a career.

All classes are taught with an emphasis on practical application and problem solving, culminating in an internship experience. This allows each student to apply the skills and knowledge they have gained in a real-world, commercial setting.

Career Opportunities

Industries in Michigan, the Midwest, and throughout the entire country are using increasingly sophisticated chemical procedures, processes, and instrumentation. Consequently, industrial leaders are becoming more concerned about health hazards and safety factors. These companies need chemists and chemical professionals that are experienced and ready to work. Many managers seek Ferris graduates to fill the demand.

Graduates find jobs in a variety of industries, including chemical, plastics, pharmaceutical, environmental, paint, food, automotive, petroleum and personal care products.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity, and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 Reading and Mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Industrial Chemistry - Manufacturing program leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA overall and a minimum of 120 credits including completion of all general education requirements as outlined on the General Education website. No grade lower than a 'C' is acceptable in courses that apply to the major, supporting sciences, and application area of the program. At least 50% of the semester credits applying toward the Biology major must be completed at FSU with a minimum of 30 FSU credits overall. Minimum of 40 credits at the 300 level. Students may earn only one degree in Chemistry (either Chemistry BA, Biochemistry BA or Industrial Chemistry BS).

**More Information**

MA ADVISOR: Dr. Mark Thomson
PHONE: 231-591-2590
EMAIL MarkThomson@ferris.edu

Department of Physical Sciences
Ferris State University
820 Campus Drive/ASC 3021
Big Rapids, MI 49307-2225
Phone: 231-591-2580

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Industrial Chemistry Technology

Required Courses

Why Choose Industrial Chemistry Technology?

Students in the Industrial Chemistry Technology program are trained in general, organic, analytical and instrumental chemistry. In addition, specialty classes focus on the chemical industry, safety issues and statistical process control.

The Industrial Chemistry Technology courses also provide an excellent gateway into other science-based majors, including biology, chemistry, optometry, and pharmacy. This program is designed to give students the improved laboratory skills and analytical abilities that will help them to excel in other four-year programs.

All classes are taught by faculty with many years of experience in industrial chemistry. The Ferris Industrial Chemistry Technology program is one of only a few such programs approved by the American Chemical Society.

Career Opportunities

Industries throughout Michigan and the Midwest are using increasingly sophisticated chemical procedures. Consequently, industrial leaders are becoming more concerned about health hazards and safety factors. These companies need better-trained chemistry technicians, and many managers seek Ferris graduates to fill the demand.

Graduates find jobs in a variety of industries, including chemical, plastics, pharmaceutical, environmental, paint, food, automotive, petroleum and personal care products.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

This degree requires completion of the General Education requirements for an Associate in
Applied Sciences degree. Details of these requirements are delineated on the General Education website.

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Industrial Chemistry Technology program leads to an associate in applied science degree. Graduation requires a minimum 2.0 GPA overall. Students must complete all general education requirements as outlined on the General Education website as well as all Industrial Chemistry Technology program coursework.

**More Information**

ADVISOR: Prof. Bill Killian
PHONE: 231-591-2590
EMAIL: WilliamKillian@ferris.edu

Department of Physical Sciences
Ferris State University
820 Campus Drive/ASC 3021
Big Rapids, MI 49307-2225
Phone: 231-591-2580

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Industrial Control Systems

Required Courses

Why Choose Industrial Control Systems Minor?

The Industrial Control Systems Minor provides essential concepts necessary for non-Electrical/Electronics students in industrial controls and automation systems technology. Topics such as programmable logic controllers, industrial communications and networking, transformers, motors, sensors, and fundamental electrical concepts are presented with emphasis on hands-on experience.

Students with this minor will gain experience to enhance their knowledge in the key aspects of controls and automation that are vital to careers in industry and technology.

Admission Requirements

The minor is open to all students enrolled and pursuing a baccalaureate or higher degree. Students must be in good standing with a cumulative of a 2.0 or higher in declared major. Students are expected to meet prerequisites for all courses.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate or higher at Ferris State University.

A student returning after an interrupted enrollment must meet the requirements in effect at the time of their return.

Students must

- maintain a 2.00 cumulative FSU GPA
- earn a minimum grade of C- for each course in the minor
- have a minimum of 18 semester credit hours
- have a maximum of 1/3 of the credits, but no more than 7 credits in a minor, may overlap the students major
- have a minimum of 50% (9 credits) of the courses in the minor at the 200 or above level
- have at least one-half (1/2) of the credits (9 credits) from Ferris (FSU Residency requirement)

More Information

EET & CNS Program Office
Ferris State University
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Industrial Electronics Technology

**Required Courses**

**Why Choose Industrial Electronics Technology?**

The Industrial Electronics Technology program is ideal for students interested in pursuing careers working with the latest electronic, computer and control technologies. This challenging program provides an exceptionally strong foundation in electronics theory supported by extensive hands-on experience through accompanying labs. Topics include amplifier and digital circuitry, programmable logic, microprocessors, instrumentation, simulation, troubleshooting and industrial automation. Real world theory and applications are emphasized throughout the program.

The Associate in Applied Science in Industrial Electronics Technology serves as the major preparatory program for the Bachelor of Science in Electrical/Electronics Engineering Technology. The IET degree can also be used to ladder into other Bachelor degrees at Ferris State University.

**Career Opportunities**

Aerospace, commercial, consumer, industrial, medical, security, and transportation technologies depend on electronic systems. The operation, implementation, and design of these require knowledgeable technicians and technologists. Industrial Electronics Technology graduates are employed in the design, testing, installation, and troubleshooting of industrial process control systems, robotics devices, communications systems and sophisticated instrumentation. Most qualifying graduates, however, choose to optimize their career opportunities by advancing into the Bachelor of Science in Electrical/Electronics Engineering Technology program.

**Admission Requirements**

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies.

Admission requires a high school diploma or equivalent, two years of mathematics including algebra and trigonometry and a minimum ACT math score of 19/SAT15 of 500. ACT Composite of 18 or SAT 16 Composite of 950. A laboratory science, preferably physics, and fundamental knowledge of personal computers are strongly recommended.

**General Education Requirements**

All University General Education requirements for an Associate’s degree are here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Industrial Electronics Technology program at Ferris leads to an associate in applied science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 15 credits of Ferris classes (FSU Residency requirement)
- have a minimum 60 total credits to earn an associate degree
- have a minimum grade of a C- in any EEET or ENCS course to qualify as a pre-requisite for another EEET or ECNS course.
- complete all general education requirements as outlined on the General Education website.

**More Information**

EET & CNS Program Office  
Ferris State University  
915 Campus Drive/SWN 405  
Big Rapids, MI 49307-2291  
Phone: 231-591-2388  
Email: eecn@ferris.edu

The College of Engineering Technology, Industrial Electronics Technology, AAS program is accredited by the Engineering Technology Accreditation Commission of ABET (ETAC-ABET)  
http://www.abet.org/  
Next accreditation review is 2021.

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FSUCurriculum@ferris.edu
Industrial Practices

Required Courses

Why Choose a Certificate in Industrial Practices?

Modern industry relies upon employees with broad backgrounds in manufacturing engineering-related topics, whether they hold the title of "manufacturing engineer" or not. Employee expertise in areas such as standardized work, lean manufacturing, statistical analysis, automation, and plant layout techniques are essential to the success of any industrial company and students entering the job market with experience in these topics enjoy a competitive advantage in the marketplace. Ferris State University students will want to complete the Industrial Practices Certificate series in order to expand - and document their industry-related skill sets beyond those developed from courses just within their majors.

Career Opportunities

Specific populations who would benefit by adding the Industrial Practices Certificate to their list of credentials include:

- Students in specific manufacturing process-oriented majors (e.g., Welding, Plastics, and Rubber Engineering Technology, etc.). The Industrial Practices Certificate will make these students less vertically-oriented, and more resistant to being "pigeon-holed" in one small area as nothing more than a single-subject matter expert.
- Students in industrial design-oriented majors (e.g., Electrical/Electronics, Mechanical, Automotive, and Product Design Engineering Technology, etc.). Companies recognize the advantages of simultaneous engineering when designing products and services, and candidates for design positions who have an understanding of design for manufacturability, industrial operations and capabilities, etc., will enjoy a competitive advantage over those who do not.
- Students in industrial management-oriented majors (Operations and Supply Management, etc.). Industrial managers are responsible for overseeing the activities addressed in the Industrial Practices course set. A manager familiar with concepts beyond just the terminology used will be able to more effectively communicate with the various constituencies involved in industrial operations.

In addition, students in other majors (e.g., construction management, health care administration, hospitality management, etc.) may also benefit from an Industrial Practices Certificate, as traditionally manufacturing-oriented topics such as lean, six sigma, and standardized work find wider application in non-manufacturing sectors.

Admission Requirements

2018-2019 Academic Year

Ferris State University
The four courses in the Industrial Practices certificate series are open to any junior admitted to Ferris (in majors other than Manufacturing Engineering Technology) and in good standing. Others may be considered with an advisor’s permission. For further information, please contact the Manufacturing program office as 231-592-2511.

**Graduation Requirements**

Students must

- Complete the certificate requirements with a 2.5 cumulative GPA
- Have no grade lower than a C
- No more than 50% of the credits in a certificate may be transferred from another institution.

**More Information**

Manufacturing Program Office
915 Campus Drive - SWN 220
Big Rapids, MI 49307
Phone: 231-591-2511

manufacturingdegrees@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Industrial Technology and Management

Required Courses

Why Choose Industrial Technology and Management?

The Industrial Technology and Management program is designed to complement previous training in a technical area in order to move into a management role in a manufacturing or related facility. The degree program is interdisciplinary, bringing components of various programs together with specialty courses which expand the knowledge base of the student in manufacturing and industrial settings. The foundation classes provide depth of knowledge applicable to any technology field with classes in automation, globalization, lean manufacturing, general management, quality statistics, and industrial operations. Students typically come to the ITM program with work experience in a manufacturing environment. This allows students to bring their own experiences from their jobs to the classroom for a unique perspective on solving manufacturing related problems.

The Industrial Technology and Management degree is designed for persons involved in any one of a number of areas in manufacturing who may possess many manufacturing or business-related credits or an associate degree, and who desire a bachelors degree. This degree program will assist persons who want to make a career change with their current employer or a career transition to a new employer. It is designed to assist persons who desire to work in production supervision, sales engineering, production planning, quality, engineering supervision, and project management among other positions.

A significant part of the degree is an area called "Related Electives" where an individual can bring up to 41 credits into the degree which may include an associate degree. These credits should be from the area of manufacturing, however, appropriate business-related classes can be included. This area can be used to add a concentration of classes that represents an interest area of the student.

Career Opportunities

Most of our current students work in a manufacturing facility and wish to advance their careers, responsibilities and salaries. By bringing a comprehensive understanding of the fundamentals of manufacturing, additional skills are learned in the program which can transfer directly to the workplace. Employment opportunities for Industrial Technology and Management graduates are found across the entire spectrum of manufacturing and related industries. Common job titles one could expect from completing this program include production supervisor, project leader, project manager, continuous improvement manager, lean specialist, team leader or in middle management. Depending on your previous experience, additional career tracks one could expect from obtaining this degree may also be available in engineering, upper management and sales.
Admission Requirements

Admission into the ITM degree program will require at least 48 transferable credits or an associate degree. In addition, students may be enrolled concurrently at FSU and one of the community college partners associated with the program. A 2.5 overall GPA is required for admission. Placement into FSU MATH 115 and ENGL 150 or equivalents. All official college transcripts must be submitted at time of application for admission. It is recommend that students have 5 years of industry experience. All courses transferred into Ferris at the point of admissions must be "C" or higher including courses used in the ITM required core and recommended electives.

ITM is an off-campus program offered in Grand Rapids and Macomb locations.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Industrial Technology and Management program at Ferris leads to a bachelor of applied science degree. To graduate, students must have a 2.0 CUMULATIVE GPA in all FSU courses, and a 2.75 in the Concentration and Core. A minimum of 22 semester hours of core classes including APPS 499 must be taken at FSU. At least 30 FSU semester hours must be completed to fulfill FSU residency requirements. Students must meet the University General Education requirements. There must be a minimum of 40 total credit hours completed at the 300 or 400 levels. A total of 120 credit hours minimum must be completed for graduation.

More Information

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49503-3263
phone: 231) 591-2635

http:  www.ferris.edu HTMLS colleges technolo  design-mfg tm index.htm

Link to off campus site with transfer guides:
http: ferris.edu HTMLS statewide warren industiraltechnologymanagement bashm

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Information Security & Intelligence, 5 year BS and MS

BS, ISI Required Courses

MS, ISI Required Courses

Why Choose the 5-Year Bachelor and Master of Science in Information Security and Intelligence?

This unique dual enrollment opportunity allows students to begin graduate studies once they have acquired senior status in the ISIN Bachelor program. MISI 629 can be used for ISIN 429 and PROJ 640 can be used for PROJ 320. Alternately, one MISI course can be used as an undergraduate directed elective. As a result, two courses can be used toward both degrees. Application and acceptance to the MS-ISI program is required prior to enrolling in graduate level courses and full admission to the MS-ISI program will begin the semester after completion of the Bachelor of Science in Information Security and Intelligence degree.

MS-ISI courses are specifically designed for flexible scheduling to serve both full-time students and part-time students who are working professionals.

The MS-ISI consists of eight core courses, including an integrated capstone project, and an Advanced Studies Certificate that focuses on the student’s concentration of choice: Incident Response (computer security), Business Intelligence, or Project Management. The MS-ISI can be completed **100% online** with the Business Intelligence or the Project Management concentrations.

There are several things that distinguish our Information Security and Intelligence programs in the top 10 of the nation and the premier programs for cyber security:

We have achieved the following much sought after designations:

- **National Center of Academic Excellence in Information Assurance Education** as designated by the *U.S. Department of Homeland Security (DHS)* and the *National Security Agency (NSA)*.
- **National Center of Academic Excellence in Cyber Defense Education** as designated by the *U.S. Department of Homeland Security (DHS)* and the *National Security Agency (NSA)*.
- **National Center of Digital Forensics Academic Excellence** as designated by the *Department of Defense Cyber Crime Center (DC3)* and the *DC3 Academic Cyber Curriculum Alliance (DACCA)*.
- Accredited Amazon Web Services (AWS) Academy for Cloud Computing Architecture
- Cellebrite Forensic Academic Partner
Other achievements that distinguish the Ferris ISI programs in the nation’s top 10:

- Michigan’s most advanced digital forensic research lab equipped with Axiom, EnCase, FTK, Forensic Explorer, Cellebrite, XRY, Passware Decryption Suite, Maltego, Shadow Dragon Social Net, i2, Stereo and Digital Laser microscopes, network segmentation, Steel Central, Burp Suite, and Palo Alto.
- Funded research grants from the National Security Agency, National Science Foundation and various other foundations.
- Extensive publication record consisting of multiple journals, books and periodicals. Some of this work has been cited in the United States Supreme Court such as in the landmark case Riley v. California.
- Students compete in various cyber security competitions and frequently finish in the top 10% nationally.
- Students are eligible for NSA NIETP scholarships.
- Active student organizations including the Information Security & Intelligence Association and Women in Cybersecurity.
- Multiple faculty have been certified as an expert witness in various courts.
- Faculty that have the following certifications: CISSP, E|CSA, GIAC GSSP-.NET, GIAC GCIH, C|ND, CPTE, CLFE, CAN, C|SCU, PMP, EnCE, ACE, CEH, CAPM, Scrum Master.
- Faculty that average over 15 years of work experience ranging from leadership positions in multibillion dollar corporations to law enforcement and licensed professional investigator.
- Faculty that include a Distinguished Professor, Fulbright Scholar, and International Educator of the year.
- Faculty that have taught on 4 continents that includes teaching digital forensics to the entire federal cybercrime units in Chile and Perú.
- A student body that includes graduates from over 50 countries.
- Alumni that have distinguished themselves as leaders at dozens of organizations worldwide.
- Host site of Michigan’s Cyber Range. Host of cyber competitions and various summer camps and workshops.

**Invest in Your Future**

The BS in Information Security & Intelligence degree prepares students for a variety of career opportunities in fields such as Computer Forensics, Information Security, Intelligence/Big Data, Incident Response, and Mobile Security. Opportunities exist in the government, security, intelligence, health care, insurance, finance, and education fields.

The MS in Information Security & Intelligence (MS-ISI) program further develops students for careers in Business Intelligence, Incident Response (proactive and reactive in areas such as hacking and digital forensics), and Project Management utilizing secure practices. Positions include security officers, analysts, forensics experts, project managers, and technical managers.
Admission Requirements

To be considered for admission into the 5-Year Dual BS-ISIN and MS-ISI program, BS-ISIN students who have acquired senior status with a 3.0 cumulative GPA must submit the following documents:

- Completed application (Free on-line application can be completed at http://ferris.edu/admissions/application/homepage.htm)
- A current resume.
- A Statement of Purpose, approximately one page typed, explaining their reasons for seeking admission into the MS-ISI program. The Statement of Purpose should show that steps have been taken to learn about the MS-ISI program, explain what factors have influenced the decision to apply, and how this degree will help them achieve your short-term and long-term career goals.
- Three academic or professional recommendation letters attesting to the applicants ability to succeed in graduate level studies.
- Official GMAT score of 500 or higher, OR GRE score in the upper 50% with a 2.5 or higher on the analytical writing portion. (Waiver of test requirement will be considered if applicant has completed a previous Master's Degree or if the applicant has earned a Bachelor degree with a 3.5 or better GPA)

Graduation Requirements

- No grade below a C will be counted toward completion of a College of Business graduate degree or certificate.
- No more than two C grades will be counted toward completion of a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better is required to earn a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better must be maintained to avoid dismissal from a College of Business graduate degree or certificate.
- Degree must be completed within five years from the first semester of enrollment.
- No more than 30% of the credits in a College of Business graduate degree may be transferred from another institution.
- Students must “Apply to Graduate” to be awarded a degree. Application can be accessed in MyFSU under Student Records.
- Requirements for Graduate Honors are: 3.75 to 3.89 overall GPA for Distinction, 3.90 to 4.0 overall GPA for Highest Distinction.

More Information

College of Business - Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307
Phone: 231-591-2168
E-mail: ShannonYost@ferris.edu
Web: http://ferris.edu/misi/
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Information Security and Intelligence

Required Courses

Why Choose the Master of Science in Information Security and Intelligence?

The thirty-three (33) credit hour Information Security and Intelligence program has been developed to prepare students for careers in Business Intelligence, Incident Response (proactive and reactive in areas such as hacking and digital forensics), and Project Management utilizing secure practices. Positions include security officers, analysts, forensics experts, project managers, and technical managers.

MS-ISI courses are specifically designed for flexible scheduling to serve both full-time students and part-time students who are working professionals.

The MS-ISI consists of eight core courses, including an integrated capstone project, and an Advanced Studies Certificate that focuses on the student’s concentration of choice: Incident Response (computer security), Business Intelligence, or Project Management. The MS-ISI can be completed 100% online with the Business Intelligence or the Project Management concentrations.

There are several things that distinguish our Information Security and Intelligence programs in the top 10 of the nation and the premier programs for cyber security:

We have achieved the following much sought after designations:

- **National Center of Academic Excellence in Information Assurance Education** as designated by the U.S. Department of Homeland Security (DHS) and the National Security Agency (NSA).
- **National Center of Academic Excellence in Cyber Defense Education** as designated by the U.S. Department of Homeland Security (DHS) and the National Security Agency (NSA)
- **National Center of Digital Forensics Academic Excellence** as designated by the Department of Defense Cyber Crime Center (DC3) and the DC3 Academic Cyber Curriculum Alliance (DACCA).
- Accredited Amazon Web Services (AWS) Academy for Cloud Computing Architecture
- Cellebrite Forensic Academic Partner
- EC-Council Accredited Training Center
- Palo Alto Networks Academy Partner
- CompTIA Academy Partner
- Pearson Vue Testing Center

Other achievements that distinguish the Ferris ISI programs in the nation’s top 10:

2018-2019 Academic Year 373 Ferris State University
Michigan’s most advanced digital forensic research lab equipped with Axiom, EnCase, FTK, Forensic Explorer, Cellebrite, XRY, Passware Decryption Suite, Maltego, Shadow Dragon Social Net, i2, Stereo and Digital Laser microscopes, network segmentation, Steel Central, Burp Suite, and Palo Alto.

Funded research grants from the National Security Agency, National Science Foundation and various other foundations.

Extensive publication record consisting of multiple journals, books and periodicals. Some of this work has been cited in the United States Supreme Court such as in the landmark case Riley v. California.

Students compete in various cyber security competitions and frequently finish in the top 10% nationally.

Students are eligible for NSA NIETP scholarships.

Active student organizations including the Information Security & Intelligence Association and Women in Cybersecurity.

Multiple faculty have been certified as an expert witness in various courts.

Faculty that have the following certifications: CISSP, E|CSA, GIAC GSSP-.NET, GIAC GCIH, C|ND, CPTE, CLFE, CAN, C|SCU, PMP, EnCE, ACE, CEH, CAPM, Scrum Master.

Faculty that average over 15 years of work experience ranging from leadership positions in multibillion dollar corporations to law enforcement and licensed professional investigator.

Faculty that include a Distinguished Professor, Fulbright Scholar, and International Educator of the year.

Faculty that have taught on 4 continents that includes teaching digital forensics to the entire federal cybercrime units in Chile and Perú

A student body that includes graduates from over 50 countries.

Alumni that have distinguished themselves as leaders at dozens of organizations worldwide.

Host site of Michigan’s Cyber Range.

Host of cyber competitions and various summer camps and workshops.

**Invest in Your Future**

An environmental scan of job opportunities and academic programs nationally has confirmed a strong outlook for the field of Information Security and Intelligence and the three concentration areas of the program.

The MS-ISI at Ferris State University not only prepares you for a career in a number of growing fields but also for a career where the analytical and leadership requirements are not easily outsourced or sent offshore. Information Security, Business Intelligence, Project Management, and Cyber Incident Response are some of the areas that you may choose to launch a new career or strengthen the skills needed for advancement in your current career. According to the United States Department of Labor, employment in these areas will grow much faster than average and excellent job prospects are expected.

It is critical to all organizations to be able to ensure their computer systems are safe against vulnerabilities and attacks. Therefore there is a growing demand for Information Security professionals that not only understand how to prevent these vulnerabilities and attacks but also
are trained to properly respond to computer security incidents when they occur. Professionals are in high demand that have what it takes to analyze incident data so they can recognize and respond to security risks and threats as well as prevent future incidents.

The ability to analyze and manage data extends far beyond incident data analysis. A recent report from the McKinsey Institute predicts a shortage of 1.5 million business intelligence analysts by 2018. The Bureau of Labor and Statistics also reports growing demand for workers with deep analytical skills. Potential growth industries are medical and financial where heavy regulations and large amounts of data create a strong need for business intelligence solutions.

If you have an interest or desire to lead and manage then Project Management is a career you should consider. The U.S. Bureau of Labor Statistics also expects job growth in this field to be faster than average through 2018. In addition, a study published by the Anderson Economic Group stated that an average of 1.2 million project management positions will need to be filled each year through 2016. You'll need excellent communication, leadership, organizational, and decision making skills to be successful in a Project Management career. A solid educational foundation in Project Management that is aligned with industry best practices can be found within the ISM program at Ferris State University.

The disciplines of Information Security, Business Intelligence, Project Management, and Cyber Incident Response are not isolated to a particular industry or sector. Job opportunities exist in large corporations, small business, government, and education to name a few. There is clearly no shortage of demand expected in any of these careers if you have the right education and skills.

Some job opportunities are, but not limited to:

- Digital Forensics
- Secure Software Developer
- Network Security
- Penetration Tester (Ethical Hacking)
- Information Security Crime Investigator
- Security Architect
- Security Auditor
- Malware & Intrusion Analyst
- Disaster Recovery/Business Continuity
- Vulnerability Researcher
- Chief Security Officer

**Admission Requirements**

Applicants to the MS-ISI program must have earned a bachelor degree from a regionally accredited university with an overall Grade Point Average (GPA) of 3.0 or better on a 4-point scale, and a 3.0 GPA or better in the Junior and Senior level courses, and submit the following documents for consideration:

- Completed application (free on-line application can be completed at https://apply.ferris.edu)
- Official course transcripts from all undergraduate and graduate colleges and universities
previously attended, which include confirmation of a Bachelor degree from a regionally accredited university with an overall Grade Point Average (GPA) of 3.0 or better on a 4.0 scale, and a 3.0 GPA or better is required in the Junior and Senior level courses. (Original documents become property of Ferris State University and cannot be returned.)

- Current resume.
- Statement of Purpose, approximately one typed page, explaining your reasons for seeking admission into the MS-ISI program. *our Statement of Purpose should show that you have taken steps to learn about our programs and are familiar with and prepared for online or mi-delivery accelerated courses. You should also explain what factors have influenced your decision to apply and how this degree will help you achieve your short-term and long-term career goals.*
- Three academic or professional recommendation letters attesting to your ability to succeed in graduate level studies.
- Official GMAT score of 500 or higher, or GRE score in the upper 50th percentile with the analytical writing score at 2.5 or higher. *(Waiver of test requirement will be considered if applicant has completed a graduate or professional degree or earned a 3.5 or better in their Bachelor degree).*
- International students must have earned a TOEFL score of 70 or above with no sub-score in the Low, Weak, or Limited range.

**Graduation Requirements**

- No grade below a C will be counted toward completion of a College of Business graduate degree or certificate.
- No more than two C grades will be counted toward completion of a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better is required to earn a College of Business graduate degree or certificate.
- An overall GPA of 3.0 or better must be maintained to avoid dismissal from a College of Business graduate degree or certificate.
- Degree must be completed within five years from the first semester of enrollment.
- No more than 30% of the credits in a College of Business graduate degree may be transferred from another institution.
- Students must “Apply to Graduate” to be awarded a degree. Application can be accessed in MyFSU under Student Records.
- Requirements for Graduate Honors are: 3.75 to 3.89 overall GPA for Distinction, 3.90 to 4.0 overall GPA for Highest Distinction.

**More Information**

College of Business - Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307
Phone: 231-591-2168
E-mail: ShannonYost@ferris.edu
Web: http://ferris.edu/misi

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ADA compliant checklist before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Information Security and Intelligence

Required Courses

Why Choose Information Security & Intelligence?

- There are several things that distinguish the ISI programs as one of the top 25 in the nation and the premier cyber security program in Michigan:
  - The National Security Agency and the Department of Homeland Security have designated Ferris State University as a National Center of Academic Excellence in Cyber Defense Education.
  - The Department of Defense Cyber Crime Center (DC3) and the Air Force Office of Special Investigations has named Ferris State University as the first university in the United States to obtain designation as a National Center of Digital Forensics Academic Excellence.
  - Michigan’s most advanced digital forensic research lab equipped with EnCase, FTK, Nuix, Cellebrite, XRY, Passware Decryption Suite, Maltego, Shadow Dragon Social Net, i2, Stereo and Digital Laser microscopes, network segmentation, Steel Central, Burp Suite, and Palo Alto Academic Partner.
  - Funded research grants from the National Science Foundation and various other foundations.
  - Extensive publication record consisting of multiple journals, books and periodicals. Some of this work has been cited in the United States Supreme Court such as in the landmark case Riley v. California.
  - Students compete in various cyber security competitions and frequently finish in the top 10% nationally.
  - Active student organizations including the Information Security & Intelligence Association and Women in Cybersecurity.
  - Multiple faculty have been certified as an expert witness in various courts.
  - Faculty that have the following certifications: CISSP, E|CSA, GIAC GSFP-.NET, GIAC GCIH, C|ND, CPTE, CLFE, CAN, C|SCU, PMP, EnCE, ACE, CEH, CAPM, Scrum Master.
  - Faculty that average over 15 years of work experience ranging from leadership positions in multibillion dollar corporations to law enforcement and licensed professional investigator.
Faculty that include a Distinguished Professor, Fulbright Scholar, and International Educator of the year.

Faculty that have taught on 4 continents that includes teaching digital forensics to the entire federal cybercrime units in Chile and Perú.

A student body that includes graduates from over 50 countries.

Alumni that have distinguished themselves as leaders for dozens of organizations worldwide.

Host site of Michigan’s Cyber Range.

Host of various summer camps and workshops.

Career Opportunities

The Information Security & Intelligence degree prepares you for a variety of career possibilities in fields that allow you to see your contribution in action. Computer Forensics, Information Security, Intelligence/Big Data, Incident Response, and Mobile Security are a few of the possibilities. Opportunities exist in the government, security, intelligence, health care, insurance, finance, and education fields.

Admission Requirements

ISIN Admissions Requirements for College of Business 2018-19 Check Sheets and Catalog

New Students SAT Scores

- 3.0 High School GPA (on a 4.0 scale)
- SAT Math Score of 550 or higher
- Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

New Students ACT Scores

- 3.0 High School GPA (on a 4.0 scale)
- ACT Math Score of 22 or higher
- Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

Transfer Students

- Combined college or university GPA of 3.0 (on a 4.0 scale) from all institutions attended.
GPA based on completion of 24 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

- Completion of the transfer equivalency for FSU's MATH 114/115 with a grade of “C” or higher (this does not include FSU’s equivalent of MATH 117) or a ACT Math score of 22 or higher or SAT Math score of 550 or higher.

- Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here.

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Bachelor of Science in Information Security & Intelligence is awarded to those individuals who have completed the 120 required credit hours with a minimum 2.0 GPA in their major classes, concentration classes, and overall.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

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Information Security and Intelligence

Required Courses

Why Choose Information Security & Intelligence?

- There are several things that distinguish the ISI programs as one of the top 25 in the nation and the premier cyber security program in Michigan:
  - The National Security Agency and the Department of Homeland Security have designated Ferris State University as a National Center of Academic Excellence in Cyber Defense Education.
  - The Department of Defense Cyber Crime Center (DC3) and the Air Force Office of Special Investigations has named Ferris State University as the first university in the United States to obtain designation as a National Center of Digital Forensics Academic Excellence.
  - Michigan’s most advanced digital forensic research lab equipped with EnCase, FTK, Nuix, Cellebrite, XRY, Passware Decryption Suite, Maltego, Shadow Dragon Social Net, i2, Stereo and Digital Laser microscopes, network segmentation, Steel Central, Burp Suite, and Palo Alto Academic Partner.
  - Funded research grants from the National Science Foundation and various other foundations.
  - Extensive publication record consisting of multiple journals, books and periodicals. Some of this work has been cited in the United States Supreme Court such as in the landmark case Riley v. California.
  - Students compete in various cyber security competitions and frequently finish in the top 10% nationally.
  - Active student organizations including the Information Security & Intelligence Association and Women in Cybersecurity.
  - Multiple faculty have been certified as an expert witness in various courts.
  - Faculty that have the following certifications: CISSP, E|CSA, GIAC GSSP-.NET, GIAC GCIH, C|ND, CPTE, CLFE, CAN, C|SCU, PMP, EnCE, ACE, CEH, CAPM, Scrum Master.
  - Faculty that average over 15 years of work experience ranging from leadership positions in multibillion dollar corporations to law enforcement and licensed professional investigator.
• Faculty that include a Distinguished Professor, Fulbright Scholar, and International Educator of the year.

• Faculty that have taught on 4 continents that includes teaching digital forensics to the entire federal cybercrime units in Chile and Perú.

• A student body that includes graduates from over 50 countries.

• Alumni that have distinguished themselves as leaders for dozens of organizations worldwide.

• Host site of Michigan’s Cyber Range.

• Host of various summer camps and workshops.

Career Opportunities

The Information Security & Intelligence minor prepares you for a variety of career possibilities in fields that allow you to see your contribution in action. Computer Forensics, Information Security, Intelligence/Big Data, Incident Response, and Mobile Security are a few of the possibilities. Opportunities exist in the government, security, intelligence, health care, insurance, finance, and education fields.

Admission Requirements

Any current Ferris State University undergraduate student who is in good academic standing may enroll in this minor.

Graduation Requirements

Minimum requirement for the minor is 18 credits. An ISI minor is a collection of four required courses and three elective courses approved by an advisor.

A Ferris student will receive the Information Security & Intelligence minor upon graduation with a Baccalaureate degree, and completion of the requirements for the minor with a minimum 2.0 grade point average in Information Security & Intelligence courses.

No more than 50% of the credits in this minor may be transferred from another institution. A maximum of one third of the credits, but not more than 7 credits in a minor, may overlap with the student’s major.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: (231) 591-2434
Email: AFIS@ferris.edu

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ABA compliant checklist before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Information Security and Intelligence

Required Courses

Why Choose Information Security and Intelligence?

- The National Security Agency and the Department of Homeland Security have designated Ferris State University as a National Center of Academic Excellence in Cyber Defense Education.

- The Department of Defense Cyber Crime Center (DC3) and the Air Force Office of Special Investigations has named Ferris State University as the first university to obtain designation as a National Center of Digital Forensics Academic Excellence.

- Ferris State University is a host site for the Michigan Cyber Range. This provides students with a unique opportunity to develop skills in detecting, preventing, and responding to cyber-attacks in a controlled setting that approximates the real world. The Cyber Range allows for actual performance of cyber security techniques such as penetration testing, digital forensics, malware analysis, and other information technology pursuits in a logically isolated system that has connectivity potential nationwide.

Career Opportunities

The Information Security & Intelligence Associates degree prepares you for a variety of career possibilities in fields that allow you to see your contribution in action. Computer Forensics, Information Security, Ethical Hacking, Penetration Testing, Intelligence/Big Data, Incident Response, and Mobile Security are a few of the possibilities. Opportunities exist in the government, business, intelligence, health care, insurance, finance, and education fields.

Admission Requirements

New Students SAT Scores

- 3.0 High School GPA (on a 4.0 scale)
- SAT Math Score of 550 or higher
- Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

New Students ACT Scores
• 3.0 High School GPA (on a 4.0 scale)
• ACT Math Score of 22 or higher
• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

Transfer Students

• Combined college or university GPA of 3.0 (on a 4.0 scale) from all institutions attended. GPA based on completion of 24 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

• Completion of the transfer equivalency for FSU's MATH 114/115 with a grade of "C" or higher (this does not include FSU's equivalent of MATH 117) or a ACT Math score of 22 or higher or SAT Math score of 550 or higher.

• Submit a 750 to 1,000 word essay to the Admissions Office that addresses the following: Who they are and why they desire admission to the ISI program, description of a personal quality, talent, accomplishment, contribution, or experience, and a description of someone that influenced them and why.

More Information:
Additional guidance can be found on the College of Business web page under the Admissions tab.

General Education Requirements

All University General Education requirements for an Associate's degree are here. Please consult this link for a complete listing of General Education Electives. Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The Associate of Applied Science in Information Security & Intelligence is awarded to those individuals who have completed the course requirements with a minimum 2.0 GPA in their required classes and overall.

More Information

Accountancy, Finance, & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu
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Integrated Marketing Communications

Required Courses

Why Choose an Integrated Marketing Communications Certificate?

With so many media choices available today, all kinds of companies are looking for grads that understand IMC (Integrated Marketing Communications.) In fact, the U. S. Department of Commerce identifies IMC as one of the fastest growing career fields. A certificate in IMC can give you an additional skill set to compliment your major and make you a more attractive hire. It exposes you to the latest advertising techniques, and it also acquaints you with the other promo techniques that work effectively with advertising. Just what companies are looking for these days. It's all about creating and placing ads and other instruments of promotion for maximum impact in traditional media like radio, television, and direct marketing channels, plus the hottest social media, like Facebook, Twitter, Pinterest, and more.

Career Opportunities

Students with an integrated marketing background are in demand at companies and agencies that market using direct and digital marketing, advertising, sales promotion and public relations. Job titles include work in account services, media, research or creative.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Integrated Marketing Communications Certificate after completion of the requirements with a minimum 2.0 grade point.

More Information

Marketing Department
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Integrated Marketing Techniques

Required Courses

Why Choose an Integrated Marketing Techniques Minor?

Integrated Marketing is a management concept designed to integrate all aspects of marketing communication such as advertising, sales promotion, public relations, and direct marketing. The goal of integrated marketing is to create and sustain an overall brand that is consistent and targeted to select markets. The integrated marketing field has grown significantly and marketing organizations are requiring employees to have knowledge in all aspects tactics and techniques. The Integrated Marketing Techniques Minor provides this knowledge base while allowing students to specialize in their area of interest. The completion of this minor provides a firm academic basis for additional advanced courses in the discipline.

Career Opportunities

Professionals in the field of Integrated Marketing work to maximize the impact and efficiency of marketing strategies. As the national and global economies develop, companies will use integrated marketing more and more to differentiate themselves from competition and position themselves with key publics. People with knowledge and experience in integrated marketing are in high demand and this field is projected to be an area of growth for the future.

Admissions Requirements

Any person who is admitted to a Ferris State University Bachelor's degree program is welcome to obtain this minor.

Graduation Requirements

You will receive the Integrated Marketing Techniques minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the Integrated Marketing Techniques courses.

No more than 50% of the credits in this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Marketing Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2426
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Integrated Science for Elementary Education

Required Courses

Why Choose Teaching Majors and Minors for Elementary Education Majors

The Elementary Education program requires the completion of two elementary education teaching minors in addition to a planned program to fulfill the subject area requirements of the program. Students may choose from the subject areas of mathematics, social studies, and language arts.

Admission Requirements

The early childhood minor is an optional minor and is in addition to the subject area major or minors required.

Graduation Requirements

* GPA of 2.75 must be obtained in all required courses
* A minimum of C in any individual course (or transfer equivalent) within the major, and
* A minimum of 6 credit hours of science coursework at the upper level (300+) must be earned at Ferris State University). A 2.75 GPA is required in the Professional Sequence.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Integrative Studies

Required Courses

Why Choose the Bachelor of Science in Integrative Studies Program?

The Integrative Studies BS program is a flexible degree program designed for highly motivated, independent students who wish to pursue an interdisciplinary baccalaureate degree in educational areas where Ferris State University has appropriate faculty, facilities, and course work, but for which FSU does not have an existing baccalaureate degree program.

Within the individualized study program, a student could propose a program of study that crosses department or college disciplinary areas in an unconventional manner or creates a new configuration of areas of study. The proposed programs should not duplicate any existing FSU major.

In short, the program allows students to develop competencies from a variety of disciplines that will be well matched with their intended career and/or educational goals.

Career Opportunities

The 21st century workforce calls for individuals who have multiple talents who must be flexible and have the ability to contract their skills in a variety of contexts. The Integrative Studies B.S. asks students to focus on multiple capacities that they wish to develop and combine for individualized career paths. While each self-styled program is different, the orientation/capstone experiences and general education core provide commonality.

Admission Requirements

Admission into the Integrative Studies BS program requires the following:

For transfer students coming from other FSU programs or from other institutions:
Admission to FSU in good standing; cumulative GPA of at least 2.0; initial interview with Program Coordinator (in person or by phone).

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

All Integrative Studies BS graduates must fulfill the following:
Completion of the University General Education requirement; a minimum of 120 credits with a minimum of 40 at the 300 or higher level; a minimum of 30 credits taught by FSU; a cumulative grade point average of 2.0 or higher; completion of the Integrative Studies program in consultation with the Program Coordinator; and all other University requirements.

More Information

Dr. Roxanne Cullen
Integrative Studies BS Program Coordinator
College of Arts and Sciences
820 Campus Drive, ASC 1009
Big Rapids, MI 49307
Phone: 231-591-2713
Email: RoxanneCullen@ferris.edu

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Integrative Studies

Required Courses

Why Choose the Bachelor of Science in Integrative Studies Program?

You can make a program that is unique; it is built around your special interests and career goals. The degree represents YOU, not a prescribed group of courses that lots of other students take. It's not a curriculum designed by people who don't know you; instead it is a curriculum that you and your advisor craft together based on your unique talents and interests.

Changing majors costs time and money, so why not start by building the foundation that underpins all degrees and in the process discover your future. This degree allows you to explore and supports your individual path of discovery. By the end of the degree you know what bachelor's degree you want and you are prepared to start it with more expertise and maturity than a traditional college freshman.

Career Opportunities

Content knowledge is changing at such a rapid pace that we can't keep up. Schooling has become less about "remembering" information and all about "finding and using information". Employers are looking for people who can learn on their own, who can use information and make connections, people who can work in teams and who can communicate effectively with audiences. That is the focus of this degree program. You and your community of INST students will take classes together, work collaboratively, be challenged to see the connections among the wide variety of subjects you study and develop autonomy as a learner. You will become a problem-solver and your problem-solving skills will culminate in a final thesis project that you and your advisor design around your special interests.

Admission Requirements

Admission into the Integrative Studies AA program requires the following:

For new students: Admission to FSU with cumulative high school GPA of at least 2.5, 17 ACT or 900-930 SAT; initial consultation with Program Coordinator (online or by phone).

For transfer students coming from other FSU programs or from other institutions: Admission to FSU in good standing; cumulative GPA of at least 2.0; initial consultation with Program Coordinator (online or by phone).

General Education Requirements
All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

All Integrative Studies AA graduates must fulfill the following:
Completion of the University General Education requirement; a minimum of 60 credits with a minimum of 15 credits of Ferris classes (FSU Residency requirement); a cumulative grade point average of 2.0 or higher; completion of the Integrative Studies program in consultation with the Program Coordinator; and all other University requirements.

More Information

Dr. Roxanne Cullen
Integrative Studies Program Coordinator
College of Arts and Sciences
820 Campus Drive, ASC 1009
Big Rapids, MI 49307
Phone: 231-591-2713
Email: RoxanneCullen@ferris.edu

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International Business

Required Courses

Why Choose the Certificate in International Business?

The International Business certificate gives you a more advanced understanding of contemporary international business theory and its practical application. The certificate can improve your overall performance, remove uncertainty and widen market opportunities. The certificate displays a level of competency and interest to your employer. Graduates with in-demand skills should seek out positions that call for these abilities. Corporations that have established overseas or are looking to cement bonds with global partners are especially looking for candidates with skills in international business. With applications across a spectrum of industries, salaries will very depending on what type of business you specialize in, who you work for and where.

Career Opportunities

Students who complete a certificate in International Business will find jobs at entry level positions in the following international areas: international human resources manager, international training manager, international operations manager, accountant, taxation, hospitality, and logistics.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive this certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another
in institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

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International Business

Required Courses

Why Choose an International Business Minor?

An International Business Minor is the perfect companion if you are an undergraduate business student majoring in Accounting, Business Administration, Computer Information Systems, Finance, Management, or Marketing. The International Business Minor will enhance your employability. In today's marketplace, graduates who combine strong professional skills with international competence are in demand. Globalization is a force that is affecting all of our lives.

In the same way that business administration provides the general skills that can transfer into a wide array of careers in business, international business offers a multitude of career opportunities. The exciting thing about international and multinational business is that you can literally take your skills with you—and to just about anywhere. With applications across a spectrum of industries, salaries will vary depending on what type of business you specialize in, who you work for and where.

Admission Requirements

Any person who is admitted to a Ferris State University Bachelor's degree program is welcome to seek the attainment of this minor in addition to their major.

Graduation Requirements

A Ferris student will have received this minor after completion of the requirements for the minor with a minimum 2.0 grade point average in the minor classes.

No more than 50% of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

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International Studies

Required Courses

Why Choose the International Studies Minor?

The International Studies minor will enable students to better understand the global economy, international influences, and political events that shape the world we live in today. This interdisciplinary minor includes a core of required courses in geography, history, political science, and sociology. Students then select additional course work dealing with a particular topic or region they want to learn more about. This would be an excellent minor for students with a major in business or in the arts and sciences fields.

Admission Requirements

This International Studies minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Michael Berghoef
PHONE: 231-591-2765
EMAIL: MichaelBerghoef@ferris.edu

Department of Social and Behavioral Sciences
Ferris State University
820 Campus Drive/ASC 2108
Big Rapids, MI 49307
Phone: 231-591-2735

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Journalism

Required Courses

Why Choose the Journalism Certificate?

The Journalism certificate provides students with training in basic journalistic writing and editing, serving as an excellent complement to communications-related majors.

Admission Requirements

This Journalism certificate is open to any student admitted to Ferris State University, except those pursuing a Journalism and Technical Communication B.S.. The certificate is designed to complement any Ferris major program, or to provide additional post-baccalaureate skills and training.

Graduation Requirements

Students desiring to complete this certificate should file an official declaration with the certificate advisor as soon as possible, and meet with that advisor regularly. This certificate requires a minimum of 12 credits of course work with a minimum GPA of 2.0 in these courses. At least 50 percent of the credits of the certificate must be Ferris State University credits. No more than six credits from this certificate may count towards completion of an academic major.

More Information

ADVISOR: Steven Fox
PHONE: 231-591-2529
EMAIL: StevenFox@ferris.edu

Department of English, Literature, and World Languages
Ferris State University
820 Campus Drive/ASC 3080
Big Rapids, MI 49307-2225
Phone: 231-591-3988

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Journalism and Technical Communication

Required Courses

Why Choose Journalism and Technical Communication?

Journalism and Technical Communication students learn about journalistic techniques applied to technical and professional communication. As with all concentrations in Technical and Professional Communication, they also learn the history and future of writing, understand the elements of writing and develop project planning skills. In addition, they analyze newspapers and print medium, contemporary news sources including the internet, journals, books, magazines, and speeches.

All TPC students identify a "content specialty concentration," a 21-credit grouping of courses that builds on their interest in a specific career area. While many TPC students enter the program with an associate degree in a technical area - for example, electronics or plastics technology - many develop their technical specialty based on an established area of expertise in the field of technical communication. Students are encouraged to work with their advisors to select the best grouping of courses for their professional interests. The content specialty gives students a specialized background and typically opens the door to their first professional job.

Career Opportunities

Journalism and Technical Communication is a combination of writing, organizing, and communicating information. Students gain an understanding of communication media, technical and expository writing, desktop publishing, verbal communication, and a chosen technical or professional specialty.

Job opportunities continue to grow for graduates of this program. Nearly every industry needs employees who can communicate technical and professional information effectively to its customers and clients. Jobs also are expanding into marketing, advertising, and public relations fields.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity, and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.
General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Technical and Professional Communication program leads to a bachelor of science degree. Graduation requires a 2.0 cumulative GPA in all FSU courses; 3.0 cumulative GPA in all 300+ level ENGL courses, with a minimum 2.3 GPA in individual 400 level ENGL courses, and at least 120 credits. Students also must present a satisfactory portfolio for graduation.

More Information

Program Coordinator: Dr. Sandy Balkema
Phone: 231-591-5631
E-mail: SandraBalkema@ferris.edu

Department of English, Literature, and World Languages
Ferris State University
820 Campus Drive/ASC 3080
Big Rapids, MI 49307-2225
Phone: 231-591-3988

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Language Arts for Elementary Education

Required Courses

Why Choose Teaching Majors and Minors for Elementary Education Majors

The Elementary Education program requires the completion of two elementary education teaching minors in addition to a planned program to fulfill the subject area requirements of the program. Students may choose from the subject areas of mathematics, social studies, and language arts. The early childhood minor is an optional minor and is in addition to the subject area major or minors required. See Elementary Education, Bachelor of Science for additional program details.

Admission Requirements

The elementary education teaching language arts minor is recommended for those who wish to teach at the lower-level elementary grades. Students should consult with an advisor to determine if the language arts minor is appropriate for their career goals.

Graduation Requirements

- GPA of 3.0 must be obtained in all required courses,
- a minimum of C in any individual course (or transfer equivalent) within the major, and
- a minimum of B in ENGL 150 and ENGL 250 (general education requirements or their transfer equivalents). A 2.75 GPA is required in the Professional Sequence.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Leadership and Project Management

Required Courses

Why Choose the Leadership and Project Management Minor?

This Leadership and Project Management minor integrates multiple disciplinary topics to form an effective project management and modern leadership curriculum. Students will gain the skills necessary to lead and manage real world continuous improvement projects. Undergraduates of this curriculum will learn how to create customer value and continuous improvement through development of cost-effective, creative solutions in complex work environments. Concurrently, students will be educated on how to effectively mitigate risk. Lessons will focus on increasing student's conceptual understanding of the subjects by applying a practical, action learning approach. Graduates will be able to differentiate themselves in a market of skilled professionals.

Admission Requirements

Any Ferris student interested in improving their career opportunities can obtain a Minor in Leadership and Project Management in conjunction with his/her baccalaureate degree.

Graduation Requirements

A Ferris student will receive the Leadership and Project Management Minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the minor courses.

No more than 50 percent of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Ferris State University
College of Business Room 212
Management Department
119 South Street, Big Rapids, MI 49307-2284
Phone: 231-591-2427
mail: MGMT@ferris.edu

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Leadership and Supervision

Required Courses

Why Choose the Advanced Studies in Supervision Certificate?

The Leadership and Supervision certificate is designed to educate students on effective strategies and tools for managing real-world issues. Students will encounter challenges generated in a variety of complex work environments. Diverse organizational situations will be used when applying theory to specific situations. Creativity, critical thinking, problem solving and collaboration skills will be utilized to ensure that objectives are efficiently, effectively and ethically achieved. A practical, action learning approach is incorporated to further professional development.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive this certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.)
http://www.acbsp.org

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Lean Healthcare

Required Courses

Why Choose Lean Healthcare Certificate?

As healthcare costs continue to skyrocket, health facilities are fraught with inconsistent and inefficient processes, while having no system for implementing solutions to deliver safe, cost-effective, quality care. Lean management is being recognized globally as a solution that affords clear guidelines for identifying these inefficiencies, while providing effective methods for developing effective, sustainable change solutions. Students who earn this certificate will be at a unique advantage and in high-demand in the field of healthcare administration, as the Joint Commission Center for Transformative Healthcare encourages use of Lean Six Sigma principles. Students completing this certificate are prepared to write the Lean Six Sigma Green Belt in Healthcare Certification exam.

Admission Requirements

This certificate is open to any student who has already attained a baccalaureate degree from an accredited institution. Students with a Lean Healthcare Minor are not qualified to also receive a Lean Healthcare Certificate.

Graduation Requirements

This certificate requires a minimum of 18 credits with a minimum of 2.25 grade point average in these courses for completion.

More Information

Gail Bullard, Program Coordinator

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2740
Phone: 231-591-2279
GailBullard@ferris.edu

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Lean Healthcare

Required Courses

Why Choose Lean Healthcare Minor?

As healthcare costs continue to skyrocket, health facilities are fraught with inconsistent and inefficient processes, while having no system for implementing solutions to deliver safe, cost-effective, quality care. Lean management is being recognized globally as a solution that affords clear guidelines for identifying these inefficiencies, while providing effective methods for developing effective, sustainable change solutions. Students who earn this minor will be at a unique advantage and in high-demand in the field of healthcare administration, as the Joint Commission Center for Transformative Healthcare encourages use of Lean Six Sigma principles. Students completing this minor are prepared to write the Lean Six Sigma Green Belt in Healthcare Certification exam.

Admission Requirements

Although this minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree, the belief of faculty within the College of Health Professions (COHP) and the College of Business (COB) is that this minor would be very appealing to those students currently enrolled in a Bachelor of Science degree program within the College of Health Professions.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. This minor requires a minimum of 18 credits with a minimum of 2.25 grade point average in these courses.

More Information

Gail Bullard, Program Coordinator

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2740
GailBullard@ferris.edu
Phone: 231-591-2279

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Lean Systems

Required Courses

Why Choose the Lean Systems Certificate?

The Lean Systems Certificate prepares individuals for technical and non-technical careers in lean systems and six sigma management. It specifically integrates the Lean concepts (process efficiency), Six Sigma (process quality), and leadership techniques (employee centric) to assist the organization in achieving and sustaining optimal employee and organization/operational performance.

Career Opportunities

If you are the type of person that likes to take a process and make it better, this certificate could be for you! Have you ever performed a task and through it could be improved? This certificate content addresses how to improve tasks/processes in a repeatable and successful manner. The Lean Systems certificate has been recognized as a professional development educational tool that adds value to internal operations. The applicability of the certificate extends from hospitals to manufacturing to retail and to the front office as a method to increase overall efficiencies and organizational performance.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive the Lean Systems Certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50 percent of the credits required for this certificate may be transferred from another institution, nor will this minor be granted if more than six of the minor credits are
specifically required in the student's ma or

More Information

Ferris State University
College of Business Room 212
Management Department
119 South Street, Big Rapids, MI 49307-22
Phone: 231-591-2427
   mail: MGMT@ferris.edu

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Lean Systems

Required Courses

Why Choose the Lean Systems Minor?

The Lean Systems minor is designed to deliver a comprehensive education for applying lean concepts to various industries: e.g. banks, nonprofits, offices, hospitals, restaurants, manufacturing. The classes prepare individuals to lead, manage, and evaluate a continuous improvement system. Students will acquire the skills to apply the lean principles in a complex work environment. This cutting edge approach will provide graduates with highly sought-after capabilities to improve operational & financial performance and monitor growth within any type of organization.

The courses of this Minor focus on:

1. Integrating the core Lean principles (process efficiency, value stream mapping, kaizen, PDCA, 5S, pull, leveling process stability, standardized work, root-cause problem resolution and A3 Reporting)
2. Six Sigma (process quality)
3. Lean culture (skills development)
4. Lean accounting (value stream performance measurement)
5. Leadership techniques (employee centric) to assist the organization in achieving and sustaining optimal employee and organization/operational performance.

Lessons will focus on increasing student's conceptual understanding of the subjects by applying a practical, action learning approach. This collection of coursework is designed to ensure that participants own the skills upon completion. Graduates will be able to differentiate themselves in a market of skilled professionals.

Career Opportunities

Individuals who acquire the Lean Systems minor possess knowledge of Lean Systems. They are prepared for the following potential occupations: Continuous/Process Improvement Professional/Manager, Quality Improvement Specialist/Leader, Lean Project Alayst, Value Stream Improvement Manager, Operations Analyst/Manager, and many more.

Admissions Requirement

Any Ferris student interested in improving their career opportunities can obtain a Minor in Lean Systems upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the minor courses.

Graduation Requirements
A Ferris student will receive the Lean Systems Minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the minor courses.

No more than 50 percent of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits but not more than 7 credits in a minor may overlap with the student's major.

**More Information**

Management Department  
119 South Street/ us212  
g Rapids, MI 49307-2284  
Email: MGMT@ferris.edu

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Legal Studies

Required Courses

Why Choose the Legal Studies Minor?

Students enrolled in the Legal Studies Minor will be exposed to the practical knowledge necessary to address the legal rights, duties and obligations arising in personal, professional, and business contexts. This Minor provides students with a solid foundation and understanding of substantive and procedural laws, including constitutional, judicial, legislative, and administrative sources of law. Through the Legal Studies Minor, students will further develop their applied critical thinking and problem solving skills as applicable to current legal issues that impact their lives and success in their chosen career.

While Legal Studies Minor students develop skills and knowledge that will help prepare them for success in law school, the Minor is also designed for students who are not considering a career in law, but who want to understand the legal aspects of their chosen fields. The Legal Studies Minor is a relevant and applicable choice for students from all disciplines.

Admissions Requirement

The Legal Studies Minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. This minor requires a minimum of 18 credit hours with a minimum 2.0 grade point average in these courses.

No more than 50% of the credits required from this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student’s major.

More Information

Gayle S. Lopez, J.D.
Office: BUS 212
Phone: 231-591-2427
Email: GayleLopez@ferris.edu

Emily W. Fransted, J.D.
Office: BUS 347
Phone: 231-591-2416
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Liberal Arts

Required Courses

Why Choose Liberal Arts?

If you plan to obtain a liberal arts degree in a major not available at Ferris State University, you should consider the associate of liberal arts program. During the first year, you take basic courses including English, communication, culture and humanities, science, mathematics and social sciences. However, the design of the program allows for flexibility through choice of electives. Therefore, it is possible for you to earn an associate of arts degree while working towards a specific major.

These courses can also be applied to the bachelor of arts degrees at Ferris, or into other career programs in the College of Arts and Sciences such as Psychology, Applied Speech Communication, Technical and Professional Communication and Public Administration, and also into career programs in the Colleges of Education and Human Services, Business and Allied Health Sciences.

As a Liberal Arts major, you will be assigned a faculty advisor to assist you with program planning. Career counseling is available at the Ferris Career and Educational Counseling Center.

Career Opportunities

Liberal Arts provides the educational foundation needed for all careers because it teaches:

- Thinking
- Reading
- Communicating
- Analyzing
- Problem solving

You may earn an associate in arts degree while working toward a specific career objective. Faculty advisors will assist you with educational planning.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and
Long Term Care

Required Courses

Why Choose a Certificate in Long Term Care?

As the health care industry continues to grow and expand, the demand for skilled health care managers also increases. Employment is expected to grow faster than average with the fastest growth in home health agencies, residential care facilities and practitioners' offices and clinics. This program has been designed in two formats, one for students who enter the program either as freshmen or who transfer into the program after having completed an associate degree and the second for students who wish to complete a bachelor's degree while enrolled in a clinical associate degree program.

The course work, which includes courses in management, marketing, accounting, quality assurance, health care finance, health care planning and long-term care management prepares you to work in many areas in health-care. Graduates are able to apply for an entry level administration position or enter graduate school to earn a master's degree.

In addition, the Health Care Systems Administration program also offers the option of a Long Term Care concentration which prepares students for leadership and administrative roles within the Long Term Care area of healthcare. As the healthcare system adjusts to providing care and services to a large aging population, this field affords many opportunities for graduates. See the program page for course information.

General education requirements may be taken at a local college or university and transferred to fulfill Ferris graduation requirements. A minimum of 30 semester credit hours must be earned at Ferris in order for the degree to be granted.

Career Opportunities

The term 'health services manager' encompasses individuals in many different positions who plan, organize, coordinate, and supervise the delivery of health care. Health services managers include both generalists (administrators who manage or help to manage an entire facility or system), and health specialists (managers in charge of specific departments or services found only in the health care industry).

Earnings of health services managers vary by type and size of facility, level of responsibility and geographic region. The May 2014 Occupational Employment and Wages Report distributed by the U.S. Department of Labor provides the following:

Medical and Health Services Managers 2014 median pay is $92,810 per year.
b outlook: 17 (much faster than average)

Admission Requirements

Applicants for admission to the Health Care Systems Administration program must have a 2.5 G A in high school or college work and one year of high school algebra with a 'C-' or better. Students can enter the program from any associate degree program or directly from high school.

Graduation Requirements

The Health Care Systems Administration program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.25 G A overall. Students must earn a 'C' or better in professional (HCSA) courses, many of the professional support, and core courses.

Please refer to the regression policy for Health Care Systems Administration program at the following link:
http: www.ferris.edu HTMLS colleges alliedhe csrchca Health-Care-System-Admin HCSA-regression- policy-Fall-2010.htm

Students must meet all general education requirements as outlined on the General Education website. Also, students must either have an ACT math subscore of 24 or better, complete MATH 115 or pass a proficiency exam.

More Information

College of Health Sciences
Ferris State University
200 Ferris Drive
Grand Rapids, MI 49307-2740
or call 1-800-4 2-8553, ext. 22

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Manufacturing Engineering Technology

Required Courses

Why Choose Manufacturing Engineering Technology?

Did you used to drive your parents up the wall by taking things apart "just to see how they were put together"? (Or do you still do this?) If so, Manufacturing Engineering Technology may be the program for you! Simply put, manufacturing engineers figure out how to make products?anything from tools to toys, cars to consumer goods, electronics to earthmovers.

Good manufacturing engineers can determine how to make their company's products better, faster, safer and less expensive than competitors can. These abilities are always in demand, and the Manufacturing Engineering Technology program at Ferris gives you the skills to command an excellent starting salary. You'll also get to work with state-of-the-art computers and equipment while you're here, plus get more valuable team and project experience than almost anywhere else.

Ferris students learn to identify and select materials based on production requirements and work closely with computer-aided design equipment (CAD/CAM). They conduct time studies, complete costs estimates, utilize computer software to aid in solving manufacturing problems, formulate plant layout requirements, understand management control systems, justify and select quality equipment and automated systems and design a total product manufacturing system. Students also receive on-the-job experience through an internship education program.

Career Opportunities

Manufacturing engineers get involved on the ground level of the production of a variety of industrial and consumer goods and develop the expertise to see production through to completion. Their knowledge of process design, analysis, planning, supervision, manufacturing methods and equipment is used from start to finish. The location of every machine, the movement of each tool or part, the order of operation and the selection of the machines themselves are all decisions that manufacturing engineers make as part of the total production process.

Employment opportunities for Manufacturing Engineering Technology graduates are found across the entire spectrum of manufacturing industries. Specific entry-level positions include manufacturing engineer, process engineer, production engineer, tool engineer, industrial engineer and quality engineer. Graduates of this program typically enjoy high placement rates and starting salaries averaging over $60,000.

Admission Requirements
Students entering the Manufacturing Engineering Technology program must have completed a two-year program at Ferris in CAD Drafting and Tool Design Technology, Manufacturing Tooling Technology, Mechanical Engineering Technology, Plastics and Polymer Engineering Technology, or Welding Technology. An A.A.S. degree in a manufacturing-based technology from another institution or 60 semester hours of college work including general courses, technical courses and technical-related courses is acceptable. Prospective students may elect to start as freshman, and follow a customized track into the B.S. program. Students must have at least a 2.75 GPA in their A.A.S. major courses and a 2.5 cumulative GPA.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Manufacturing Engineering Technology program at Ferris leads to a bachelor of science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website

More Information

Manufacturing Program Office
915 Campus Drive - SWN 220
Big Rapids, MI 49307
Phone: 231-591-2511

manufacturingdegrees@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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Manufacturing Engineering Technology with Quality Concentration

Required Courses

Why Choose Manufacturing Engineering Technology with Quality Concentration?

The field of quality is becoming increasingly important in industry and business. This area is so important to manufacturing, in fact, that representatives from industry and the American Society for Quality Control worked with the FSU Manufacturing Engineering Technology faculty to create this unique concentration. This program is for individuals employed in quality or quality related fields or who desire to become employed in a quality position within a manufacturing company. The program is designed for those who wish to expand and build upon the base of technical knowledge they have acquired through work experience and academic training. Ferris has tailored the program for the part-time student by offering courses at night at the Advanced Technology Center in Grand Rapids.

Career Opportunities

Graduates of the program are prepared to assume technical and leadership positions in all areas of quality within a variety of industries including automotive, aerospace, office furniture, medical manufacture, and food processing. Graduates are prepared to advance into such positions as quality engineer, quality manager, plant manager, and project engineer.

Admission Requirements

To be admitted to this degree program you must have completed at least 57 transferable semester credit hours (“C” or better) from an accredited college or university with a 2.5 overall GPA. We do not require the completion of an A.A.S. degree for entry. Included in the 57 transferable credits you must have completed some specific speech, English, math, science, general education, and technical courses. These typically can be completed within an A.A.S. degree at a local community college.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements
The Manufacturing Engineering Technology with Quality Concentration program at Ferris leads to a Bachelor of Science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website

**More Information**

Program Offered at:

**Ferris Statewide, Grand Rapids (Part time nights)**

(616) 451-4777 or (800) 998-3425

or ferrisgr@ferris.edu

http://ferris.edu/grandrapids

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Manufacturing Operations Management

Required Courses

Why Choose the Manufacturing Operations Management Certificate?

The certificate in Manufacturing Operations Management is designed to give the student a basic understanding of the principles involved in developing and managing a process from input through finished product including quality control.

Career Opportunities

Operations individuals work with the business activities that include planning/scheduling, manufacturing, purchasing, supply chain, and other internal related processes. Operations managers typically possess good communication, technical, and organizational skills, leadership ability, a good work ethic, and are high energy. An operations manager replicates an efficient and effective process from one part of the business and implements it in other pertinent areas. They create and support working teams by providing appropriate resources to accomplish specific tasks. The focus is on solving issues to ensure that the processes flow smoothly, resulting in delivering high quality goods or services to the customer. Individuals who acquire the Manufacturing Operations Management certificate are equipped for the following potential occupations: Operations Supervisor/Manager, Plant Manager, Purchasing Specialist/Supervisor, and Quality Supervisor/Manager.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive this certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.
No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student's major.

**More Information**

Management Department  
119 South Street/BUS 212  
Big Rapids, MI 49307-2284  
Phone: 231-591-2427  
Email: MGMT@ferris.edu

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Manufacturing Technology

Required Courses

Why Choose Manufacturing Technology?

The Manufacturing Technology program is the only manufacturing technology program in Michigan and one of a few in the country that offers two individual career pathway concentrations. Prospective students have a choice of Manufacturing Processing Technology, or Manufacturing Tooling Technology.

You will develop a solid technical foundation through the application of processing technology and tooling operations. You will learn to apply relevant calculations, work in a parametric environment, utilize precision metrology equipment, plan machining processes, specify tooling, equipment requirements, interpret CAD data, and utilize manual and CNC machining equipment. Two CNC courses take you through 2-D manual G-code programming, 2-D and 3-D programming, and 3-D CAD/CAM programming.

All courses feature project-based learning in well-equipped facilities. Lab time alone accumulates to nearly 1,000 hours of applied experience. Course projects focus on manufacturing processing, problem solving and take you through the costing, designing, building, setup, tryout and troubleshooting of manufacturing processes and tooling operations.

This program provides an excellent foundation for any manufacturing-related career. Graduates often use it as a stepping stone to a related bachelor?'s degree program.

Career Opportunities

Because nearly every manufacturing industry requires skilled professionals with a solid foundation in manufacturing processing and tooling operations, graduates of the Manufacturing Technology program are in high demand and have an array of options to choose from upon graduation.

The Manufacturing Technology degree is designed to prepare students to enter industry directly. Many of the career opportunities include: tooling operations, machining operations, manufacturing and engineering operations, computer programming operations, CNC operations, and general manufacturing applications. The program provides students with laboratory projects, career based education, and specific industrial skill sets.

With additional experience and/or education, graduates can move into occupations such as Process Engineer, Tooling Engineer, Manufacturing Engineer, Project Engineer, and Technical Instructor, as well as, all levels of management. Graduates, who decide to continue their
education can stay at Ferris and, within two additional years, earn a bachelor's degree in one of many related programs.

Admission Requirements

Admission to the College of Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of study. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20.

Students entering the Manufacturing Technology program must be high school graduates with a 2.75 cumulative GPA along with an 18 ACT composite and a math sub-score of 19 or 950 SAT16 Total and a SAT16 math sub-score of 500 MATH 115 placement).

Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

Students may qualify for college credit while still in high school. Contact your counselor or the Manufacturing Technology program coordinator 231-591-2511) for details, or visit our homepage. Transfer student must have a 2.0 cumulative GPA and placement into MATH 115 and ENGL 150.

General Education Requirements

All university General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The Manufacturing Technology program at Ferris leads to an associate in applied science degree.

Students must

- maintain a 2.00 cumulative FS GPA
- have 15 credits of Ferris classes FS Residency requirement)
- have a minimum 60 total credits to earn an associate degree
- complete all general education requirements as outlined on the General Education website

More Information

Manufacturing Program Office
915 Campus Drive - SWN 220
Big Rapids, MI 49307
Phone: 231-591-2511

manufacturingdegrees@ferris.edu
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Marketing

Required Courses

Why Choose Marketing?

Our Marketing degree provides students with the opportunity to develop a solid broad-based foundation along with the specialization (in areas such as sport marketing, digital marketing, retailing, sales, etc.) that employers appreciate in their entry-level employees. In fact, students can work with faculty to design a concentration more closely aligned with their particular areas of interest. The Marketing curriculum emphasizes opportunities for hands-on experience, meeting and working with practitioners.

- Our quality faculty with years of "real world" experience combine with modern classroom technology to provide a unique and up-to-date learning environment.
- Internships build on our students' learning from their real-world experience.
- With classes averaging less than 20 students, we stress team-based skills, interactive student presentations and hands-on projects to make learning enjoyable.
- One out of every five presidents or CEO's in the top 500 US corporations has a marketing undergraduate degree.

Career Opportunities

Employers like to hire Ferris marketing graduates because of their practical skills, receptive attitudes and their ability to hit the ground running. Our alumni are a testament to the 50+ years of Marketing program experience. They range from CEO, to VP, to manager and small business owner, serving both for profit and non-profit enterprises, including entertainment and professional sports. Some marketing career options include: sales manager, marketing director, brand manager, market research account manager, sports marketing director, retail manager, digital marketing marketer, purchasing director, industrial marketing director or VP marketing.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher
New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Marketing program leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA in business core courses, the major courses and overall.

More Information

Marketing Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: (231) 591-2426
Email: MKTG@ferris.edu
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Marketing

Required Courses

Why Choose a Marketing Certificate?

If you have a desire to manage organizational activities which service customers and build relationships, this certificate will provide you skills in the following:

- Oral and written communication
- Solving customer-based problems
- Developing, implementing and controlling marketing activities, programs and plans

You will be exposed to a highly relevant set of concepts that will serve you, not just in marketing, but in any career field in which you become a manager or leader and must influence others in order to accomplish the tasks they face in their own job positions.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Marketing Certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the Marketing Certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than 50% of the certificate credits are specifically required in the student’s major.

More Information

Marketing Department
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Marketing

Required Courses

Why Choose a Marketing Associate in Applied Science

The Marketing Associates degree introduces students to business foundational concepts and the basic marketing related disciplines. Students will take a combination of general education courses, business foundation courses, and marketing courses with an opportunity to select electives that meet their professional interests in the marketing field.

Career Opportunities

Graduates are prepared for entry-level positions in Marketing and related fields of Customer Service, Sales, and Retailing.

Students completing their marketing associate’s degree are prepared to enter a four year degree program in Marketing with concentrations in Retailing, Digital Marketing, Sales, or Sports Marketing; Public Relations; or Advertising/Integrated Marketing Communications.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)

- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)

- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students
• Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

• Transfer equivalency for FS ENGL 150 or placement during the first semester at FS which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

• Transfer equivalency for FS MATH 114/115 or placement during the first semester at FS which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of business Webpage under the Admissions tab.

General Education Requirements
All university General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements
The Marketing AAS program at Ferris terminates with an associate in applied science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall. Students must complete all general education requirements as outlined on the General Education website.

More Information
Marketing Department
College of business
119 South Street, S 212
Grand Rapids, MI 49307 - 2284
Phone: 231-591-2426
Email: MKTG@ferris.edu

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Marketing Research

Required Courses

Why Choose a Marketing Research Certificate?

If you have a strong interest in analytical decision making, this certificate will prepare you for the following:

- Creating effective surveys
- Employing computer-based statistical analysis procedures
- Applying research information in real-world marketing decisions

You will be exposed to a wonderful set of concepts that will serve you, not just in a marketing research career pathway, but in any career field you choose that depends on information in order to make successful business decisions.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean's Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate's degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean's Office/SAA.

Graduation Requirements

You will receive the Marketing Research Certificate after completion of the requirements with a minimum 2.0 grade point average.

No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

More Information

2018-2019 Academic Year
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Marketing Sales

Required Courses

Why Choose a Marketing/Sales Certificate?

If you have a strong interest in building a career in developing business relationships, this certificate will provide you with the following:

- Oral and written communication skills
- Ability to solve customer-based problems
- The ability to provide consulting service to persons and/or organizations that seek, or might seek, the products and services you sell

You will be exposed to an exciting set of concepts that will serve you, not just in marketing/sales, but in any career field in which you become a manager or leader and must influence others.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Marketing Sales Certificate after completion of the requirements with a minimum 2.0 grade point average.

No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

More Information
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Marketing Sales

Required Courses

Why Choose the Marketing Sales Minor?

If you are majoring in a non-marketing degree such as a technology degree or the professional fields of optometry or pharmacy, you will find that the marketing sales minor will give you additional skill sets that will help you in creating a successful and rewarding career.

If you are enrolled in this minor, you will build your skills in:

- Creating and delivering effective sales presentations
- Developing managerially relevant marketing strategy
- Creating value-added customer relationships
- Evaluating the effectiveness of marketing/sales activities

This valuable minor will provide non-marketing majors with skills that will allow them to expand upon their chosen major into a broader marketing career track. You and the marketing sales minor advisor will design a course of study based on specific courses that best complement your career goals and academic major.

Admission Requirements

Any person who is admitted to a Ferris State University Bachelor’s degree program is welcome to obtain this minor.

Graduation Requirements

You will receive the Marketing Sales Minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average.

No more than 50% of the credits in this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Marketing Department
119 South Street, BUS 212
Big Rapids MI 49307-2284
Phone: (231) 591-2426
Email: MT ferris.edu

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Mathematics

Required Courses

Why Choose the Mathematics Minor?

Real life problem solving on the job is often mathematically based. The Mathematics minor provides the opportunity for students to develop the logical thinking and problem solving abilities many employers are seeking. When coupled with a technical or scientific baccalaureate it provides the mathematical maturity needed to succeed in the highly competitive employment world of today. It also prepares students for graduate study in mathematically intense graduate programs such as physics, engineering, statistics, operations research or mathematics.

Admission Requirements

This Mathematics minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except for a baccalaureate with a mathematics major. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 21 credits with a minimum 2.5 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Kent Sun
PHONE: 231-591-2579
EMAIL: MathDepartment@ferris.edu

Department of Mathematics
Ferris State University
820 Campus Drive/ASC 2021
Big Rapids, MI 49307
Phone: 231-591-2565

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Mathematics Education Secondary Education

Required Courses

Why Choose Mathematics Education?

Employment prospects are excellent for mathematics education students. A critical shortage of math teachers exists throughout the nation, creating increasing demand for bright new instructors. Mathematics education graduates also have the basic background to pursue careers in industry.

The mathematics education program joins faculty from two top-notch programs. College of Arts and Sciences mathematics faculty provide mathematics instruction while College of Education faculty teaches education classes. Students also receive appropriate field experiences teaching in selected west Michigan high schools.

The Ferris State University mathematics education program requires classes in general education, mathematics major and professional education. A teaching minor is also required. You cannot have a mathematics teaching minor with this teaching major. Students complete one semester of directed teaching at the high school level. Upon completion of program requirements, students may apply for Michigan Secondary Provisional Certification. Candidates are required to pass state-mandated Subject Matter Exams in selected teaching major and minors prior to certification recommendation.

Career Opportunities

Students receive hands-on, technology-rich instruction in both mathematics and education, preparing them for secondary level teaching. Appropriate additional studies may also lead to college teaching careers.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

Teacher Certification Requirements

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

Graduation Requirements

The mathematics education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, mathematics, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

A 2.75 GPA is required for successful completion of the mathematics major.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Mathematics for Elementary Education

Required Courses

Why Choose Teaching Majors and Minors for Elementary Education Majors

The Elementary Education program requires the completion of two elementary education teaching minors in addition to a planned program to fulfill the subject area requirements of the program. Students may choose from the subject areas of mathematics, social studies, and language arts.

Admission Requirements

The early childhood minor is an optional minor and is in addition to the subject area major or minors required.

See Elementary Education, Bachelor of Science for additional program details.

Graduation Requirements

A 2.75 GPA is required in the above minor.

No grade less than "C" in any course.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Mathematics Teaching

Required Courses

Why Choose Teaching Minors for Secondary Education Majors

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Admission Requirements

Secondary Education majors may choose an appropriate teaching minors from the following areas: biology, chemistry, English, geography, history, mathematics, physical education, political science, spanish, or speech communication.

You cannot have a mathematics teaching major with this teaching minor.

Graduation Requirements

A 2.75 GPA is required for satisfactory completion of the mathematics teaching minor. No grade less than a "C".

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Mechanical Engineering Technology MECH

Required Courses

Why Choose Mechanical Engineering Technology?

In this program students develop an understanding of how mechanical systems perform. They
begin by taking classes in engineering graphics and CAD, manufacturing processes and
computer applications along with applied mathematics and physics. Writing and general
education courses are included in the first year as well. Students are then well prepared to take
the applied engineering science courses which give them a solid technical background for a
future in technology. Coursework is enhanced with hands-on lab experiences and real-world
applications provided by faculty with extensive industrial experience.

The Associate of Applied Science in Mechanical Engineering Technology is accredited by the

Career Opportunities

Graduates of the Mechanical Engineering Technology program work with others to develop
machinery, equipment, products and processes. They operate test equipment, prepare
engineering drawings with CAD systems, review designs for specifications, build prototypes of
new products and design new or modify existing products and equipment. Employment
opportunities in this field are plentiful because manufacturers are continually introducing new
products and processes as well as redesigning current ones.

Most graduates of the program continue into the B.S. program in Mechanical Engineering
Technology. Some choose to pursue other disciplines such as Product Design Engineering
Technology and Manufacturing Engineering Technology. Students receiving their A.A.S. degree
accept positions as test technicians, machine designers, product designers, production
expediters, quality control technicians, engineering assistants, cost estimators, specifications
writers and machinery maintenance technicians.

Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who
demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds
appropriate to their chosen program of studies.

Students entering the Mechanical Engineering Technology program should have a strong interest
in mechanical devices and seek to understand them better. A background in math and science
and/or vocational studies can be a suitable starting point. Admission is open to high school
graduates with a 2.75 cumulative GPA along with an 18 ACT composite and a math sub-score of
19 or 950 SAT16 Total and a SAT16 math sub-score of 500. Math 116 placement is required for admissions into the technical sequence.

Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

Students seeking to transfer into the second year of the program should have, at minimum, math through pre-calculus (MATH 126 or 130) and a college level course in physics equivalent to PHYS 211 or PHYS 241. Courses in engineering graphics, CAD and computer applications are also of benefit but generally can be made up. All applicants must have a cumulative 2.0 gpa or higher.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Mechanical Engineering Technology program at Ferris leads to an associate in applied science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 15 credits of Ferris classes (FSU Residency requirement)
- have a minimum 60 total credits to earn an associate degree
- complete all general education requirements as outlined on the General Education website

**More Information**

Mechanical Engineering Technology Program Office
Ferris State University
915 Campus Drive, SWN 405
Big Rapids, MI 49307-2280
Phone: 231-591-2755
email: mech@ferris.edu

www.ferris.edu/mech

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890
The College of Engineering Technology Mechanical Engineering Technology AAS program is accredited by the Engineering Technology Accreditation Commission of ABET (ETAC-ABET)

http://www.abet.org/

The next accreditation review is 2020-2021.

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Mechanical Engineering Technology MECE

Required Courses

Why Choose Mechanical Engineering Technology?

The Mechanical Engineering Technology program prepares students for a broad range of occupations and challenges. Beginning with foundation courses in math, applied science, CAD, manufacturing processes and communication, students move on to the applied engineering courses that give them a solid technical background for their careers. Students develop strong analytic and problem-solving skills. Their understanding of the principles taught in the classroom is enhanced with many hands-on labs and real-world applications provided by faculty with extensive industrial experience.

The Bachelor of Science in Mechanical Engineering Technology is accreditated by the Engineering Technology Accreditation Commission of ABET Accreditation (ETAC-ABET), http://www.abet.org.

Career Opportunities

Due to the broad nature of their studies, graduates of the B.S. Mechanical Engineering technology program will find a great variety of jobs open to them. Many will work in the design and development of products, machines and processes. Others will be involved in manufacturing, operations and technical sales. Areas of employment will include automotive and transportation, power generation, climate control, machine design, manufacturing, materials and automation.

Admission Requirements

Students entering the program should have a strong interest in mechanical devices and seek to understand them better. They should have completed the A.A.S. in Mechanical Engineering Technology at Ferris (or a similar program elsewhere) with a minimum 2.5 GPA overall and a minimum 2.75 GPA in the major. Must have MATH 216/220 competency. Pre-engineering programs also make good starting points. Transfer candidates should contact the Mechanical Engineering Technology office to discuss options.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.
Graduation Requirements

The Mechanical Engineering Technology program at Ferris leads to a bachelor of science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website

More Information

Mechanical Engineering Technology Program Office
Ferris State University
915 Campus Drive, Swan 405
Big Rapids, MI 49307
Phone: 231-591-2755
email: mech@ferris.edu

www.ferris.edu/mech

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

The College of Engineering Technology Mechanical Engineering Technology BS program is accredited by the Engineering Technology Accreditation Commission of ABET (ETAC-ABET)

http://www.abet.org/

The next accreditation review is in 2020.

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Medical Informatics

Required Courses

Why Choose Medical Informatics Minor?

According to the Bureau of Labor Statistics, employment in medical and health informatics is expected to increase by 22 percent through the year 2022. That's faster than the average for all occupations in the United States. One reason the field of medical informatics is expanding at this high rate is the increasing number of medical tests, treatments and procedures evaluated by health insurance companies, regulators, courts and consumers. As a result, there's an increased demand for electronic record-keeping and the professionals who can lead and manage this effort. Medical Informatics specialists are finding jobs in hospitals, medical research laboratories, health insurance companies, health information technology suppliers, consulting organizations and more. They are employed as database administrators, project designers, project managers, computer programmers, researchers, and system analysts. They provide technical support for databases, design new systems, evaluate usability, determine ways to enhance systems, and verify accuracy of medical information.

Admission Requirements

COHP 101 - Orientation to Healthcare (3 credits) is essential to understanding the healthcare arena and, therefore, is a pre-requisite to acceptance into the minor.

Any Ferris student interested in improving their career opportunities can obtain a Minor in Medical Informatics upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the minor courses.

The faculty believes that this minor would be very appealing to those students currently enrolled in the following programs:

- Allied Health Sciences, BS
- Health Information Management, BS (CHP)
- Health Care Systems Administration, BS (CHP)
- Medical Laboratory Science, BS (CHP)
- Molecular Diagnostics, BS (CHP)
- Nuclear Medicine Technology, BS (CHP)
- Nursing, BS (CHP)
- Computer Information Systems, BS (COB)
- Computer Information Technology, BS (COB)
- Information Security Intelligence, BS (COB)
- Business Data Analytics, BS (COB)
Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 22 credits with a minimum 2.0 grade average in these courses.

No more than 50 percent of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits but not more than 6 credits in a minor may overlap with the student's major.

More Information

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2740

Phone: 231-591-2270 or
800-462-8553, x2266

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Medical Laboratory Science

Required Courses

Why Choose Medical Laboratory Science?

Medical Laboratory Scientists (MLS) perform laboratory analyses to help the physician detect, diagnose and treat disease. Lab scientists work with sophisticated laboratory instruments and computers that must be kept in optimal operating condition to give the most accurate results. The volume and sophistication of laboratory testing will increase as the population ages. Physicians base about 70% of their diagnoses and treatment decisions on the results of laboratory testing.

Medical Laboratory Scientists work under the supervision of a medical laboratory director in such departments as blood bank, clinical chemistry, microbiology, hematology, immunology, phlebotomy, body fluid analysis, and molecular testing.

The program combines classroom instruction and laboratory practice on-campus with an internship in an affiliated laboratory.

The program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS.) NAACLS can be contacted at the following: 5600 N. River Road, Suite 720, Rosemont, IL 60018. (773) 714-8880. www.naacls.org

Career Opportunities

Career opportunities exist mainly in the clinical laboratories at hospitals and medical centers and physician offices. Other opportunities may exist in the pharmaceutical industry, research and biotechnology; government crime labs, accreditation offices, environmental technology, veterinary medicine and lab information systems; humanitarian work in the Peace Corps, Project Hope, and medical missionary workers. Many assume positions as laboratory directors and supervisors.

The average annual base salary of full-time medical laboratory scientists was $62,440 in 2016. Laboratory managers averaged $89,762. Salaries are increasing annually.

Admission Requirements

Students must be admitted to the university. To be qualified to enter the professional sequence of the program a student must have earned a minimum grade of "C" in each of the following courses or their equivalent: MATH 115 or MATH 117 (or have an ACT Math subscore of 24) and CHEM 114, CHEM 214, BIOL 205, and BIOL 108 or BIOL 286.
To assure students have a quality technical education in classroom/lab and clinical practice, enrollment is limited. Students who meet or will have met the program's qualification criteria by the end of Spring semester are required to apply to the program's professional sequence between January 15 and January 30 of the year they intend to begin the professional sequence. Admission will be based upon date of qualification.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

To graduate from the program, a student must have earned a minimum grade of "C" in each CLLS course, BIOL 205 and CHEM 214 or equivalent, and the COHP core courses. A minimum cumulative GPA of 2.5 is required.

The internship is in the last semester of the program, although due to limited space, specific clinical site locations cannot be guaranteed. If a student interrupts progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations in laboratory and clinical placement sites.

**More Information**

College of Health Professions  
Ferris State University  
200 Ferris Drive  
Big Rapids, MI 49307  
Phone: 231-591-2270

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Medical Laboratory Technology

Required Courses

Why Choose Medical Laboratory Technology

Medical Laboratory Technicians (MLT) perform laboratory analyses to help the physician detect, diagnose and treat disease. Technicians work with sophisticated laboratory instruments and computers that must be kept in optimal operating condition to give the most accurate results. The volume and sophistication of laboratory testing will increase as the population ages. Physicians base about 70% of their diagnoses and treatment decisions on the results of laboratory testing.

Medical laboratory technicians work under the supervision of the medical laboratory scientist and the medical director of the laboratory in such departments of the medical laboratory as blood bank, clinical chemistry, microbiology, hematology, serology, and body fluid analysis.

The program combines classroom instruction and laboratory practice on-campus with an internship in an affiliated laboratory.

The program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS.) NAACLS can be contacted at the following: 5600 N. River Road, Suite 720, Rosemont, IL 60018, (773)714-8880. www.naacs.org

Career Opportunities

Career opportunities exist mainly in clinical laboratories at hospitals, medical centers, and physician offices. Other opportunities may exist in: the pharmaceutical industry, research and biotechnology; government crime labs, accreditation offices, environmental technology, veterinary medicine and lab information systems; humanitarian work in the Peace Corps, Project Hope, and with medical missionary workers.

The average annual base salary of full-time medical laboratory technicians was $41,700 in 2016. Salaries are increasing annually.

Admission Requirements

Students must be admitted to the university. To be qualified to enter the professional sequence of the program a student must have earned a minimum grade of "C" in each of the following courses or their equivalent: MATH 115 or MATH 117 (or have an ACT Math subscore of 24) and CHEM 114, CHEM 214, BIOL 108 and BIOL 205.
To assure students have a quality technical education in classroom/lab and clinical practice, enrollment is limited. Students who meet or will have met the program's qualification criteria by the end of Spring semester are required to apply to the program's professional sequence between January 15 and January 30 of the year they intend to begin the professional sequence. Admission will be based upon date of qualification.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

To graduate from the program, a student must have earned a minimum grade of "C" in each CLLS course, BIOL 205, CHEM 214, and the COHP core courses. A minimum cumulative GPA of 2.5 is required.

The internship in the last semester of the program, although due to limited space, specific clinical site locations cannot be guaranteed. If a student interrupts progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations in laboratory and clinical placement sites.

**More Information**

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
Phone: 231-591-2270

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Military Science

Required Courses

Why Choose the Military Science Minor?

The Military Science curriculum and faculty are completely focused on the students and their development as world-class leaders. By completing the curriculum, students may qualify to become Army Officers and lead in one of America's most respected professions. Military Science academic programs are open to all students, without any obligation for military service. The program helps students acquire leadership and management skills that make them a sought-after commodity in the civilian job market. Emphasis is placed on strengthening values and ethical leadership. Students develop their mental, physical, and emotional capabilities. They also develop their conceptual and interpersonal skills. Finally, they learn how to communicate effectively; make good decisions; motivate others; plan, execute, and assess operations; develop and build teams; and improve themselves and the organizations they lead. It is the most comprehensive leadership development program in the nation.

Admission Requirements

The Military Science minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major. There is no military obligation.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. An average GPA of 2.5 or higher must be achieved for the courses to count toward the minor. The minor requires 20 credit hours of Military Science and 3 credit hours of Military History.

More Information

For more information about the Military Science Minor or ROTC, contact:

www.ferris.edu/ROTC

Ferris State University
Military Science Department (ROTC)
1349 Cramer Circle, BIS 621 and 627
Big Rapids, MI 49307
Phone: 231-591-5319 or 231-591-5321
Email: rotc@ferris.edu
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Molecular Diagnostics

Required Courses

Why Choose Molecular Diagnostics?

The field of laboratory medicine is advancing towards the use of molecular techniques and molecular diagnostics for the detection of genetic disorders, pre-implantation screening, infectious disease and cancer. With the introduction of personalized medicine which allows an individual to have a panel of genetic tests performed to determine predisposition to disease there will be a rise in genetic testing. Molecular diagnostics can also aid in the decision about therapy to be used for genetic disorders.

Genetic companies are demanding certified, professionally educated, technically competent individuals to work in this growing facet of laboratory medicine. There is a demand nationally in hospitals, reference laboratories, private genetic laboratories and pharmaceutical industries.

The program combines classroom instruction and laboratory practice on-campus with internships in various laboratories to prepare graduates.

The program is fully accredited as a DMS training program by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) in accordance with their regulations.

www.NAACLS.org

Career Opportunities

Graduates of the program will be able to work in hospital, reference, public health, genetic and pharmaceutical laboratories. They may also work for regulatory agencies or as field technicians. Graduates will be able to apply for molecular biology certification through the American Society for Clinical Pathology.

Admission Requirements

Students must be admitted to the university. To be qualified to apply to the Molecular Diagnostics Program, a student must have earned a grade of "C" or higher in BIOL 122, BIOL 205, BIOL 286, CHEM 214, CHEM 324, MATH 115 and have a cumulative grade point average of 2.50.

General Education Requirements

All university General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

In order to fulfill graduation requirements, students must have completed all BIOL, CHEM, CLLS, COHP, and DMOL courses with a grade of "C" or higher and have a minimum cumulative grade point average of 2.5.

**More Information**

Dr. acqueline Peacock  
Program Coordinator  
151 Fountain Ave, NE  
Grand Rapids, MI 49503  
Phone: 616.643.5727  
Email: acquelinePeacock@ferris.edu

**NAACLS**

5600 N. River Rd, Suite 720  
Rosemont, IL 60018-5119  
info@naacles.org  
http://naacles.org  
Phone: 847.979.3597

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Multi-Media Journalism

Required Courses

Why Choose the Multi-Media Journalism Minor?

In the digital age, communication involves far more than pen and paper. It includes audio and video media and publishing on the World Wide Web. The Multi-media Journalism minor prepares students to practice journalism in the various media used today. This minor teaches students to develop the writing skills needed for professional work but also to do design and production work in the electronic media. This minor would be an excellent complement to communications-related majors.

Admission Requirements

This Multi-Media Journalism minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree except those pursuing the Journalism and Technical B.S. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

Students desiring to complete this minor should file an official declaration with the minor advisor as soon as possible, and meet with that advisor regularly. The Multimedia Journalism minor requires a minimum of 21 credits of course work and a minimum 2.0 GPA in all course work comprising the minor. An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

Advisor: Steven Fox
Phone: 231-591-3988
E-mail: StevenFox@ferris.edu

Department of English, Literature, and World Languages
Ferris State University
820 Campus Drive, ASC-3080
Big Rapids, MI 49307-2225
Phone: 231-591-3988

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ADA compliant checklist before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Multicultural Relations in the U.S.

Required Courses

Why Choose the Multicultural Relations in the U.S. Minor?

United States society is becoming more diverse. Consequently, the people being hired and promoted in corporate America are those able to understand and adapt to this diversity. Employers seek applicants who are adept at negotiating multiple differences, who can move back and forth across boundaries that normally separate people, and who understand the historical and persistent structural inequalities that threaten communities.

This minor will provide you with a holistic vision of the multicultural realities of America. You will learn practical communication and collaborative skills to function effectively in culturally diverse work environments, and it will give you a broad understanding of the cultural complexity of contemporary America.

Admission Requirements

This Multicultural Relations in the U.S. minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Michael Berghoef
PHONE: 231-591-2765
E-MAIL: MichaelBerghoef@ferris.edu

Social and Behavioral Sciences Department
Ferris State University
820 Campus Dr., ASC 2108
Big Rapids, MI 49307
Phone: 231-591-2735
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Music and Entertainment Business

Required Courses

Why Choose Music & Entertainment Business?

The Music & Entertainment Business program prepares students to enter the global, multi-billion dollar music and entertainment industry. The degree combines a solid business background with an emphasis on the music and entertainment business. Students are required to complete a minimum of two internships which allow them to focus on areas of the industry which interest them. Internships frequently take place in major metropolitan markets, and smaller regional markets, for well-known record labels, radio stations, manufacturers, agents, and concert venues.

The Music & Entertainment Business program is endorsed by the National Association of Music Merchants (NAMM), the professional trade organization that represents the global music products industry. NAMM sponsors two world-class trade shows per year and Music & Entertainment Business students are allowed to attend these at greatly reduced educational rates. The Winter Show at the Anaheim Convention Center, in California, is the single largest event of its kind in the world. At these shows, students will see the latest in music related products and enjoy live performances by some of their favorite artists. Students benefit as well from special sessions and seminars designed specifically for those planning a career in the music and entertainment industry.

Students may also take part in conferences and trade shows sponsored by the Music Business Association. These are currently held in Nashville, Tennessee and are attended by industry professionals representing major and independent record companies, distributors, major and independent music publishers, artist management agencies, and entertainment law firms.

Within the degree program, all areas of the music and entertainment business are explored with emphasis on preparing students for positions in marketing, management, sales, advertising, public relations, and promotion. Previous formal training in music is not required for admission to the program. Select music courses are required to enhance the student’s understanding of the role of a performing artist.

Career Opportunities

As a result of their academic preparation, in conjunction with the extensive hands-on component of this curriculum (derived from two internships, participation in national/international trade shows and conventions, and active involvement in the student-based organization which functions as a model production company), our graduates are sought after by employers from New York to L.A., Nashville to Chicago, and regional markets throughout the country.
Admission Requirements

New Students SAT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT MATH score of 480 or higher).
  3. SAT Composite of 900 or higher

New Students ACT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students:

- Combined college or university GPA of 2.5 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements
• Maintain a 2.00 cumulative GPA in all FSU courses.
• Maintain a 2.00 in major and business core courses.
• Have 40 credits at the 300/400 level.
• 30 credits FSU Residency.
• Have a minimum 120 total credits.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

Music & Entertainment Business
119 South Street, BUS 112
Big Rapids, MI 49307-2279
Phone: 231-591-2441
E-mail: PaulKwant@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.) Next Accreditation Review is Spring 2028.
http://www.acbsp.org

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Natural Science

Program homepage - Physical Sciences
Program homepage - Biological Sciences
Required Courses

Why Choose Natural Science?

Natural Science is intended for students who have a general interest in science but who are not ready to choose a specific field of study. The program also is intended to provide students with preparatory course work if previous academic experiences require fundamental improvements.

During the first year, you take coursework necessary to fulfill the general education requirements common to all college degrees. You also choose courses in mathematics, biology, chemistry, physics and other sciences to build fundamental skills in these disciplines. During the second year, you continue selecting similar courses to assist you in focusing on an appropriate career direction. Coursework is extremely flexible and advisors work with you to plot a program of courses that suits your interests, goals and needs.

Get a Great Background in Science

Do you enjoy studying the biological and physical sciences? Have you done well in your science and math courses in high school? Are you considering a career in a science-related field but are uncertain of which specific one? The Natural Science program at Ferris provides you with the solid foundation in mathematics and science necessary to pursue these careers.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. Minimum 2.5 high school GPA, with 17 ACT or 900 SAT. Transfer students must have at least 12 credits including an English and a Mathematics course with a minimum 2.0 overall GPA.

General Education Requirements

This degree requires completion of the General Education requirements for an Associate in Science degree. Details of these requirements are delineated on the General Education Website.

All University General Education requirements for an Associate’s degree is here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The Natural Science program at Ferris leads to an associate in science degree. Graduation requires a minimum 2.0 GPA overall in all FSU courses. Students must complete a minimum of 60 college credits, with 20 credits in natural sciences and mathematics. Must have 15 credits of Ferris classes (FSU Residency requirement).

More Information

PROFESSIONAL ADVISOR: Kim Ducat
PHONE: 231-591-2745
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PROFESSIONAL ADVISOR: Jenice Winowiecki
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Big Rapids, MI 49307
Phone: 231-591-2550

Department of Physical Sciences
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820 Campus Drive/ASC 3021
Big Rapids, MI 49307
Phone: 231-591-2580

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Nuclear Medicine Technology

Required Courses

Why Choose Nuclear Medicine Technology?

Ferris has the only University-based program in Michigan. Ferris graduates demonstrate excellent pass rates on national exams. The program is fully accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology. The program combines general education and specialized courses with clinical training.

Course work includes human anatomy and physiology, radiation and nuclear physics, and nuclear medicine theory and methods. Students spend the final two semesters in a hospital setting with emphasis on the clinical application of theory.

Graduates of this program are well prepared to work in the field of nuclear medicine, and are eligible to take the national certifying examinations for registry in nuclear medicine technology.

Career Opportunities

In nuclear medicine, radionuclides (unstable atoms that emit radiation spontaneously) are used to diagnose and treat disease. Nuclear medicine technologists administer these radiopharmaceuticals to patients, then monitor the characteristics and functions of tissues or organs in which they localize. Abnormal areas show higher or lower concentrations of radioactivity than normal.

Nuclear medicine technologists operate gamma scintillation cameras that detect and map the radioactive material in the patient's body to create an image. Nuclear medicine technologists explain test procedures to patients. They prepare a dosage of the radiopharmaceutical and administer it by injection or other means. Technologists then produce the images for a physician to interpret. Technologists adhere to safety standards to keep radiation doses to workers and patients as low as reasonably achievable.

Almost 8 out of 10 jobs are in hospitals. The rest are in specialized settings including imaging centers, radiopharmacies, and manufacturers. The national median annual base salary of full-time nuclear medicine technologists was $73,360 in 2015.

Admission Requirements

Students must be admitted to the university. To be qualified to enter the professional sequence of the program which starts in the summer semester students must have a minimum of a 2.5 GPA and a minimum grade of "C" in MATH 115 (or a math ACT subscore of 24 or higher), CHEM 114, BIOL 108, BIOL 205, PHYS 130, COHP 100, ENGL 150, communications foundation
course (COMM 105, 121, or 221), and one cultural enrichment course (minimum 3 credits) with no more than two attempts for each required course. See the program’s website for details.

To assure students of a quality technical education in classroom/lab and clinical practice, enrollment is limited. Students who meet or will have met the program's qualification criteria by the end of spring semester are required to apply to the program's professional sequence between January 15 and January 30 prior to the May professional sequence entry. Admission will be based upon date of qualification.

**General Education Requirements**

All University General Education requirements for a Bachelor's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The eight-semester sequential course of study at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum of 2.0 GPA overall. Students must earn a "C" or better in major and core courses and meet all general education requirements as outlined on the General Education website.

Ferris provides you an internship in the last two semesters of the program, although due to limited space, specific clinical site locations cannot be guaranteed. If a student interrupts progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations in laboratory and clinical placement sites.

**More Information**

College of Health Professions  
Ferris State University  
200 Ferris Drive  
Big Rapids, MI 49307-2740  
Phone: 231-591-2270  
Email: CHP@ferris.edu

American Society of Radiologic Technologists  
15000 Central Ave., SE  
Albuquerque, NM 87123-3917  
www.asrt.org

The Society of Nuclear Medicine-Technologist Section  
1850 Samuel Morse Drive  
Reston, VA 22090  
www.snmmi.org
For information on certification:

Nuclear Medicine Technology Certification Board
3558 Habersham at Northlake, Building I
Tucker, GA 30084
www.nmtcb.org

Information on program accreditation:

Joint Review Committee on Educational Programs in Nuclear Medicine Technology
2000 W. Danforth Road, Suite 130, #203
Edmond, OK  73003
www.jrcnmt.org

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Nursing MSN

Required Courses

Why Choose the MSN Degree?

The graduate program in nursing is designed to provide a learner-centered curriculum that prepares nurses with the knowledge and skills needed for a variety of advanced specialty roles. The 37 credit degree is comprised of three components: a basic set of Nursing Core courses for 18 credits, a specialized advanced specialty role concentration for an additional 9 credits and the final 10 credits which include the practicum and experiences.

In the discipline of nursing, specialization occurs academically at the graduate level. The Master of Science in Nursing (MSN) program, with specialty concentration options for advanced leadership roles, provides educational opportunities for bachelor prepared nurses who seek career mobility options in new and exciting areas of leadership within the profession. The graduate degree in nursing is intended to build upon the bachelor's degree and provides the student with three specialty concentration options. The specialty advanced leadership concentrations all support professional roles that are in very high demand within the discipline of nursing at the present time. These focused advanced leadership role options include: nursing education, nursing administration, and nursing informatics.

The MSN program is designed to meet the needs of bachelor prepared nurses who want to further their educational growth and development.

Career Opportunities

The MSN degree offers three specialty concentration options, depending on the professional career goal of the graduate student:

**Nursing Education**: The current and anticipated shortage of nursing faculty reflects the general shortage in the nursing profession. The average age of current nursing faculty is 55, heralding a need to replace current faculty as they retire in large numbers over the next several years. If you have ever considered entering the academic setting as a nurse educator, this degree can be your first step to attaining that goal.

**Nursing Administration**: The demand for nurses with a grounded theory base in business administration continues to increase in the health care delivery system. The basic BSN program prepares nurses for entry-level positions in nursing or health care management settings. Those nurses who desire to hold executive positions in those same settings must possess the knowledge and skills that are critical to the administrative role in these tumultuous times in the health care industry.
**Nursing Informatics**: The area of nursing informatics is a growing specialty that many nurses are recognizing as an area of marked career growth in the past few years. This new practice area addresses the burgeoning need for experts who have a health care background, such as nursing, to manage the continuous expansion of information technology in the health care setting. The use of technology in the storage, dissemination and utilization of patient data has become a constantly evolving challenge for the health care industry.

**Admission Requirements**

To be eligible for the program you must be a graduate of a bachelor program with a GPA of 3.0 or higher, hold a current RN license, and submit a writing sample, three letters of reference, a curriculum vitae or resume, official transcripts and a completed application form.

**Graduation Requirements**

Graduation requires a minimum of 3.0 GPA. Students must earn a grade of 2.0 or better in each program course (No more than two courses with a "C" or lower.) Completion of all coursework and professional portfolio is required within a 5 year time limit.

**More Information**

Sharon Colley, Program Coordinator  
College of Health Professions  
Ferris State University  
200 Ferris Drive  
Big Rapids, MI 49307  
231-591-2288  
colley@ferris.edu

The MSN program is accredited by the Accreditation Commission for Education in Nursing (ACEN.)

Communications Department  
Accreditation Commission for Education in Nursing  
3343 Peachtree Road NE, Suite 850  
Atlanta, GA 30326  
Phone: 404-975-5000  
FAX: 404-975-5020  
http://www.acenursing.org

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Nursing Education

Required Courses

Why Choose the Nursing Education Certificate?

The purpose of this graduate certificate is to provide a theoretical and practical foundation in nursing education for staff development role or Master's prepared nurses who wish to assume the role of nursing faculty in an associate or baccalaureate degree nursing program. This certificate will provide the opportunity to acquire some of the basic skills utilized by the nurse educator.

This certificate can also be used to target bachelor prepared nurses who may be teaching in a community college setting by exception (faculty hired without required credentials due to a lack of qualified faculty) and desire career mobility to attain a faculty position in that same setting. The certificate can serve as the first step toward the MSN degree, thus providing a ladder into graduate programming for bachelor prepared nurses. This certificate provides 12 credits of focused coursework in the areas of learning theory, cognition, curriculum and instructional design, and evaluation nursing education programs. The 12 credits of this certificate also comprise the nursing education specialty concentration for the MSN degree.

Career Opportunities

This certificate provides career mobility options for bachelor and masters prepared nurses who wish to enter academia to teach in undergraduate nursing programs. The certificate would also provide career mobility for nurses who desire to work as staff and patient educators in hospitals and other health care settings.

Admission Requirements

To be eligible for the Nursing Education Certificate, you must be a graduate of a Bachelor of Science in Nursing (BSN) program with an overall GPA of 3.0 or higher, hold a current RN license and submit a written goal statement along with the application form.

Graduation Requirements

GPA of 3.0 is required for graduation
No grade below a "C" is acceptable for graduation
No more than two grades of "C"

More Information

Sharon Colley, Program Coordinator
College of Health Professions
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Nursing Practice

Required Courses

Why Choose the Doctor of Nursing Practice?

The DNP program is designed to equip masters-prepared advance practice and specialty nurses with the skills and knowledge to practice in various nursing leadership roles. The DNP degree is comprised of 36-42 credits over 6-8 semesters. Along with 3 short, 3-day intensives or face-to-face courses, this cohort-based online program has been developed to promote learning communities. Course work includes evidence translation, systems leadership, nursing practice and health and disease theories, social and healthcare policy, and informatics. Along with the course work, there is a clinical component that consists of a practice-focused change project. Residencies are those class experiences dedicated to the completion and delivery of the practice project. The exact hours needed to complete the clinical or practice project component are determined by the student’s post BSN mentored or supervised clinical hours.

The DNP is designed for masters prepared nurses who desire to further their education and professional development with a terminal degree.

Career Opportunities

The DNP is a clinical degree offering a focus in specialty nursing or advanced practice leadership. Students will be prepared to actively engage in processes for improving healthcare outcomes.

The degree is a terminal professional degree and offers advanced leadership opportunities depending on the specialty or advanced practice area of the graduate student.

Advanced Practice Nursing, in the State of Michigan, includes nurse practitioner, clinical nurse specialist, and nurse midwife and is designated with graduate level education, licensure and certification. Specialty nursing includes graduate level education in nursing education, nursing administration, and nursing informatics.

Advanced practice and specialty nursing requires leaders grounded in the theory and practice of translating evidence to create sustainable change in healthcare systems.

Admission Requirements

To be eligible for the DNP program, the applicant must be a licensed RN with an MSN degree from an accredited program. The applicant’s graduate GPA must be 3.2 or higher on a scale of 4.0. A completed application, curriculum vitae or resume, official MSN transcripts, an APA formatted writing sample, three letters of reference and the completion of a successful phone interview is required. A successful (passing grade) completion of a graduate level statistics
course within the last five years is required and can be taken prior to acceptance or during the first semester of the program. University associated online graduate level statistic courses are acceptable.

**Graduation Requirements**

Graduation requires a minimum 3.0 GPA in the DNP curriculum and 70% of the credits must be earned at FSU. Students must earn above a 2.0 or C in all course work. One course may be repeated one time if there is a grade less than 2.0. Portfolio, course work, residency and capstone courses must be completed prior to graduation and graduation must take place 5 years from the first enrollment in a graduate course.

**More Information**

The Doctor of Nursing Practice degree at Ferris State University is a new applicant pursing initial accreditation by the Commission on Collegiate Nursing Education, 655 K Street NW, Suite 750, Washington DC 20001, (202) 887-6791. New applicant status is neither a status of accreditation nor a guarantee that accreditation will be granted

For further information please contact:

Wendy Lenon, DNP, MSN, RN
Assistant Professor
DNP Program Coordinator
School of Nursing
Ferris State University
VFS 309
Phone: (231) 591-3185
Fax: (231) 591-2325

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Nursing: RN Program BSN


Required Courses

Why Choose Nursing?

Nursing is the largest health care profession with workforce shortages anticipated for the next two decades. Earnings are above average, particularly for advanced practice nurses who have additional education and certifications. Graduates of the Bachelor of Science in Nursing (BSN) program at Ferris are eligible to write the National Council Licensure Exam (NCLEX-RN) to become a registered nurse.

Registered Nurses (RNs) with the BSN degree are preferentially hired in a variety of health care settings because they are prepared to provide nursing care for a wide variety of patient populations. The Registered Nursing BSN program at Ferris prepares nurses to promote health, prevent disease and to help patients cope with a variety of health problems. RNs with a BSN degree can anticipate opportunities in hospital nursing with positions to include medical, surgery, obstetrics, pediatrics, psychiatric, emergency or intensive care units. RNs can also work in a variety ambulatory care settings such as clinics, emergency medical centers, surgicenters and health maintenance organizations (HMOs) or in long-term care settings. In addition, BSN prepared RNs can also expand their clinical practice to community settings such as Public Health, home care, hospice or school nursing. BSN prepared RNs are also educated to assume entry level management positions in the health care system.

Students in the Ferris Nursing program engage in a learner-centered approach to the study of nursing theory and skills in the classroom, online and state of the art nursing skills laboratories while also having the opportunity to practice direct patient care in hospital and community settings under the guidance of clinically expert faculty. The nursing program at Ferris is a five semester professional sequence that follows the equivalent of one year of pre-requisite coursework and is intended for traditional students who have not earned a college degree. Graduates are eligible to write the licensure exam to become a Registered Nurse. In addition, graduates of the BSN program can continue their education in the Master of Science in Nursing (MSN) program at Ferris or at another University setting.

Career Opportunities

Due to the current and projected nursing shortage, faster than average growth is expected through the year 2020 and beyond. This increased need is based on industry growth and the projected replacement of existing practicing nurses.

Average full-time RNs earn $22 - $50 per hour nationally. The median annual salary for a full time staff RN in 2016 was $68,450. Advanced practice nurses with education beyond the BSN can earn salaries up to $115,000 per year, depending on the specialty and location of employment.
Admission Requirements

Students must be admitted to the University. To be qualified to enter the professional sequence of the program, a student must have at least a 2.7 cumulative GPA with a minimum grade of B- in the following courses or their equivalent: MATH 115 or MATH 117, BIOL 108, BIOL 205 & CHEM 114. Students must also complete the following courses or their equivalent with a grade of C or higher: ENGL 150, COMM 105 or COMM 221 or COMM 121, COHP 100, COHP 101, and COHP 102.

To assure all students of quality education in the classroom, laboratory and clinical instructional practice, enrollment is limited based on guidelines set forth by the MI State Board of Nursing. Students who have met or will meet the program’s qualification criteria by the end of the Spring semester are required to apply to the program’s professional sequence between March 15 and March 30 of the year prior to the academic year they wish to start the program in the Fall (August) or Spring (January) semester in the order they qualify.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

Graduation requires a minimum of 2.0 GPA overall. Students must earn a grade of "C" or higher in all major (NURS) and core courses and meet all the general education requirements as outlined in the General Education website.

If a student interrupts progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations in laboratory and clinical placement sites.

More Information

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
231-591-2270
CHP@ferris.edu

This program is accredited by the Accreditation Commission for Education in Nursing (ACEN.)
http://acenursing.org

The Accreditation Commission for Education in Nursing publishes a variety of nursing and nursing education materials, including a list of nursing programs and information on student financial aid. For a complete list of ACEN publications, please direct your request to:

Communications Department
Accreditation Commission for Education in Nursing
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Nursing: RN to BSN Completion Program

Required Courses

Why Choose the RN to BSN Completion Degree?

There are many opportunities for nurses with experience and a BSN degree. Traditionally a field that provided a constant number of nursing career opportunities, health care is now growing at an unprecedented rate. Driven by technological developments, rapid advancements in disease prevention and health promotion, increased public awareness of health concerns, and a booming, aging population, this field offers you a wide variety of job openings, ranging from traditional but expanded patient care to health care administration.

Students with a diploma or associate degree in nursing and a RN license can complete Ferris’ Bachelor's degree (BSN) on a part or full time basis.

The BSN completion program is based upon a learner-centered instructional approach and builds upon your prior learning. The program reduces unnecessary repetition to minimize your investment of time and money. Designed expressly for associate degree and diploma RNs who want to further their educational growth and development.

Career Opportunities

The Ferris BSN degree equips you with the theory-based knowledge and skills to work in many of the new and expanding fields of nursing. It increases your understanding of illness prevention, health promotion and maintenance, counseling and education and rehabilitative services as they apply to a wide range of patient populations and health care delivery settings.

You will acquire the skills and the self-assurance that will qualify you for diverse career opportunities when you graduate. You will be prepared to lead health care teams, coordinate and plan nursing care for a variety of clients, collaborate with other health professionals, and make confident, independent decisions.

Nurses with BSN degrees typically earn higher salaries than ADN or diploma nurses with the additional opportunities to assume leadership roles in community and health care institutions. The BSN degree also provides the foundation for graduate nursing programs. Advanced practice nurses with education beyond the BSN can earn salaries up to $115,000 per year, depending on the specialty and location of employment.

Admission Requirements

To be eligible for the RN to BSN completion program you must have a Registered Nursing (RN) license, a cumulative GPA of 2.5 in the basic nursing program (ADN or Diploma). Other
prerequisites include the general education requirements for the AAS degree at Ferris. A completed application, copy of the RN license and official transcripts from other educational institutions are all that is required for the application process.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

Graduation requires a minimum of 2.0 GPA. Students must earn a grade of "C" or better in the nursing major courses and meet all general education requirements as outlined on the General Education website.

**More Information**

Lori Kelsey, On-line RN to BSN Advisor  
College of Health Professions  
Ferris State University  
200 Ferris Drive  
Big Rapids, MI 49307  
231-591-2733  
CHP@ferris.edu

This program is accredited by the Accreditation Commission for Education in Nursing (ACEN.)  
http://www.acenursing.org

The Accreditation Commission for Education in Nursing publishes a variety of nursing and nursing education materials, including a list of nursing programs and information on student financial aid. For a complete list of ACEN publications, please direct your request to:

 Communications Department  
Accreditation Commission for Education in Nursing  
3343 Peachtree Road NE, Suite 850  
Atlanta, GA  
Phone: 404-975-5000  
FAX: 404-975-5020  
www.acenursing.org

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FSUCurriculum@ferris.edu
Nursing: RN to MSN Accelerated Track

Required Courses

Why Choose the RN to MSN Accelerated Track?

This track is a hybrid option that combines the RN to Bachelor of Science (BSN) Completion and Master of Science in Nursing (MSN) programs to allow a Registered Nurse (RN) prepared at the associate degree level to earn both the BSN and MSN degrees in a shorter timeframe.

Students begin by entering the RN to BSN completion program to complete required BSN bridging coursework that serves as the foundation for the MSN program. The bridging coursework includes 16 nursing credits and completion of all general education (liberal arts) coursework required for the BS degree. Once these courses are complete and the student has an overall GPA of 3.0, the student can apply for an accelerated admission to the MSN program, bypassing 10 nursing credits. Students then have the opportunity to demonstrate competency for those 10 credits at a higher level in the MSN coursework.

Students can earn both degrees fully online (note that some MISM courses in the informatics concentration of the MSN may require some face to face class meetings.) Upon completion of the MSN program, graduates are granted both the BSN degree and the MSN degree.

Both the BSN and MSN programs are fully accredited by the Accreditation Commission for Education in Nursing (ACEN)

Career Opportunities

The BSN degree is quickly becoming the desired level of preparation for all registered nurses and provides many opportunities for career mobility in both acute care and community health practice settings. See the RN to BSN Completion Program catalog page for more information about this degree.

The MSN degree at Ferris prepares graduates for advanced specialty leadership roles in the areas of nursing administration, nursing informatics and nursing education. See the MSN Program catalog page for more information about this degree.

Admission Requirements

To enter the RN to MSN completion program, the student must have an RN license and a cumulative GPA of 2.0 or higher in the basic nursing degree program. Other prerequisites include the general education requirements for the AAS degree at Ferris.

To apply for the MSN program, the RN to BSN student must complete all of the BSN Bridging...
coursework, General Education coursework for the BS degree to demonstrate competency at the BSN level. Students must have a cumulative GPA of 3.0 or higher in the coursework completed at the BS level. In addition, students must submit a writing sample, three letters of reference, a curriculum vitae or resume, and a completed application form for the MSN program.

**Graduation Requirements**

Graduation requires a minimum of 3.0 GPA. Students must earn a grade of 2.0 or better in each MSN program course (no more than 2 courses with "C" or lower.) Completion of all coursework and professional portfolio is required within a 5-year time limit from the start of the MSN coursework.

**More Information**

Sharon Colley, Program Coordinator  
College of Health Professions  
Ferris State University  
Big Rapids, MI 49307  
231-591-2288  
colleys@ferris.edu

Both the RN to BSN and MSN programs are fully accredited by the Accreditation Commission for Education in Nursing (ACEN.)  
http://www.acenursing.org

The Accreditation Commission for Education in Nursing (ACEN) publishes a variety of nursing and nursing education materials, including a list of nursing programs and information on student financial aid.

Communications Department  
Accreditation Commission for Education in Nursing  
3343 Peachtree Road NE, Suite 850  
Atlanta, GA 30326  
Phone: 404-975-5000  
FAX: 404-975-5020  
www.acenursing.org

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Nutrition and Food Service Management

Required Courses

Why Choose Nutrition and Food Service Management

The Associate of Applied Science (AAS) degree in Nutrition in Food Service Management prepares students to become Certified Dietary Managers (CDM). CDMs work together with registered dietitians to provide quality nutritional care for clients. They perform routine nutritional screening, calculate nutrient intake, identify nutrition problems, implement diet plans and carry out all aspects of food service management. The degree program was developed in direct response to the need for more CDMs in the growing health care field. CDMs are typically employed in areas such as assisted living, long term care, rehabilitation centers, acute care, and daycare facilities. Earning the CDM designation would be beneficial to anyone pursuing a career in the health care field, or food service industry, where knowledge of nutrition, allergens, weight loss, and therapeutic diets would be useful. Throughout their studies, students have the opportunity to earn professional certifications, such as ServSafe and First Aid/CPR, as a part of their required courses.

The nationally-recognized CDM credentialing exam is administered through the Association of Nutrition and Foodservice Professionals (ANFP). The Ferris degree program is the only one in the State of Michigan that is approved by the ANFP. The curriculum provides students with content knowledge that corresponds directly to the topics covered by the exam. As part of the degree program, students complete 150 hours of supervised clinical experience of which 25 hours are working directly with a Registered Dietitian. Students may complete the degree at the main campus or Grand Rapids location.

The AAS in Nutrition and Food Service Management easily ladders into a Bachelor of Science (BS) degree in the Hospitality Management with Specialized Management Concentration

Career Opportunities

Certified Dietary Managers are in high demand in the rapidly growing healthcare field with positions available in: hospitals, long term care, assisted living facilities, rehabilitation centers, senior communities, health clubs, and more.

Admission Requirements

New Students SAT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT MATH score of 480 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students:

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT MATH score of 19 or higher; SAT MATH of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

Exceptions for New and Transfer Students:

Applicants not meeting the above criteria MAY be considered for an approved Associates Degree if:

- High School GPA of 2.35 or higher
- Math ACT score of 16/SAT Math 430 and additional high school algebra
- ACT Reading score of 16 and ACT English score of 14 or a comparable SAT ERW score to be determined.
- SAT Composite score of 860 or ACT composite score of 15.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

- Maintain a 2.00 cumulative GPA in all FSU courses.
- Have 15 credits of FSU Classes (FSU Residency requirement).
- Have a minimum 60 total credits to earn an associate degree.
- Must maintain a 2.00 GPA in major courses.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

Hospitality Programs  
West Commons 106  
1319 Cramer Circle  
Big Rapids, MI 49307  
Phone: 231-591-2382  
Email: hospitality@ferris.edu  

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Why Choose the Nutrition and Food Service Management Certificate?

The Nutrition and Food Service Management certificate is specifically designed for individuals with a qualifying degree or background experience in the food service field to be prepared for the Certified Dietary Managers (CDM) exam. The nationally-recognized credentialing exam is administered through the Association of Nutrition and Foodservice Professionals (ANFP). The Ferris certificate is the only one in the State of Michigan that is approved by the ANFP. The certificate was developed in direct response to the need for more CDMs in the growing health care field. CDMs are typically employed in areas such as assisted living, long term care, rehabilitation centers, acute care, and day care facilities.

CDMs work together with registered dietitians to provide quality nutritional care for clients. They perform routine nutritional screening, calculate nutrient intake, identify nutrition problems, implement diet plans and carry out all aspects of food service management. The course work covers exam topics related to nutritional practice that are outside the scope of normal day to day food service operations. As part of the certificate, students complete 150 hours of supervised clinical experience of which 25 hours are working directly with a Registered Dietitian.

Undergraduate Certificate Programs' Admission Criteria

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

Graduation Requirements

- No more than 50% of the credits in a certificate may be transferred from another institution.
- If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
- A 2.00 cumulative GPA is required for completion of the Certificate.
- **A term prior to completion of the Certificate**, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

Hospitality Management Program  
West Commons 106  
1319 Cramer Circle  
Big Rapids, MI 49307  
Phone: 231-591-2382  
Email: hospitality@ferris.edu

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Operations and Supply Management

Required Courses

Why Choose Operations and Supply Management?

For the serious business student, operations and supply management enables the individual to not only manage the business, but the ability to improve it. The degree includes a lean systems focused curriculum. The classes prepare individuals to lead, manage, and evaluate a continuous improvement system within an organization and with its suppliers. Students will acquire the skills to apply the lean principles in a complex work environment.

The Operations portion of the program focuses on integrating the core Lean principles (process efficiency, value stream mapping, kaizen, PDCA, 5S, pull, leveling process stability, standardized work, root-cause problem resolution and A3 Reporting), Six Sigma (process quality), Lean culture (skills development), Lean cost management (value stream performance measurement), and 5) Leadership techniques (employee centric) to assist the organization in achieving and sustaining optimal employee and organization/operational performance.

The Supply Management section of the program concentrates on how to extend the lean system to the organization's suppliers. Collaboration with an organization’s suppliers and service providers is essential in achieving the lean goal – delivering the right product/service at the right time, in the right quantity, to the right customer, at the right cost. Managing the flow of incoming and outbound goods, services, and related information involved provide valuable tools for turning logistics problems into a competitive advantage. The emphasis will be directed on supplier selection, reducing logistics costs, improving logistics service, and removing impediments as well as bottlenecks to achieve efficient and effective operations.

This cutting edge approach will provide graduates with highly sought-after capabilities to improve operational & financial performance and monitor growth within any type of organization - e.g. banks, nonprofits, offices, hospitals, restaurants, manufacturing.

Career Opportunities

Students who feel they are driven to make things better and see structure in business end up in middle to upper management positions with this degree. To put it simply, graduates of this program are in demand. Business and industry need people with combined technical and business backgrounds for positions in areas such as quality, purchasing, supply chain management, global logistics, human relations, materials, production control and technical support. The Operations and Supply Management program prepares students for these positions.

College graduates are gaining entry-level positions in production control, purchasing, supply
chain management, supplier development engineer, plant layout, inventory control, materials manager, traffic management, distribution management and management training.

In fact, Ferris’ placement service reports that requests for individuals with operations and supply management training are usually in greater demand than the number of available graduates. Companies that have hired Ferris graduates in the past range from Fortune 500 manufacturing firms to the growing service industry.

**Admission Requirements**

**New Students SAT Scores**

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher

**New Students ACT Scores**

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

**Transfer Students**

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

**More Information:**
Additional guidance can be found on the College of Business Webpage under the Admissions tab.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here.
Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Operations and Supply Management program at Ferris leads to a bachelor of science degree in business. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

**More Information**

Management Department, BUS 212  
119 South Street  
Big Rapids, MI 49307-2284  
Phone: (231) 591-2427  
Email: MGMT@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.)  
http://www.acbsp.org

**ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to:** FSUCurriculum@ferris.edu
Operations and Supply Management

Required Courses

Why Choose an Operations and Supply Management Minor?

The Operations and Supply Management Minor is designed to complement the student's existing major and expand their career objectives. Having an Operations and Supply Management Minor adds skills that are highly sought after by employers in areas like Purchasing, Materials and Logistics Management, and Quality Management.

Student's enrolled in the Operations and Supply Management Minor courses will learn current theories and gain experience by applying them. This includes opportunities to network with major corporations, visit plants and facilities, and practice the tools learned in the classroom at specific companies.

The objective of the Operations and Supply Management program is to provide students with a hands-on experience under real conditions with participating companies. The integrated course requirements with the College of Engineering Technology make the Operations and Supply Management Minor unique within the College of Business and University.

Admission Requirements

Any Ferris student interested in improving their career opportunities can obtain a Minor in Operations and Supply Management in conjunction with his/her baccalaureate degree.

Graduation Requirements

A Ferris student will receive the Operations and Supply Management Minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the minor courses.

No more than 50 percent of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Ferris State University
College of Business Room 212
Management Department
119 South Street, Big Rapids, MI 49307-2284
phone: (231)591-2427
email: MGMT@ferris.edu

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Optometry

Required Courses

Why Choose Optometry?

Doctors of optometry offer services including the medical treatment of eye diseases such as glaucoma, management of the ocular consequences of diabetes, refractive care for myopia, hyperopia, astigmatism, and presbyopia with contact lenses and eyeglasses, and rehabilitation for visual disorders caused by brain injury or developmental disorders. Optometrists are valued members of the health care team who own private practices throughout the United States and Canada and also work in interdisciplinary settings such as hospitals, veterans' health facilities, community health centers, and military bases.

The curriculum at the Michigan College of Optometry at Ferris State University is designed to produce doctors of optometry who are qualified to practice full-scope optometric care in any state and practice setting. This includes classroom, laboratory, and clinical training under the supervision of an outstanding, nationally recognized faculty. The college, which is a member institution of the Association of Schools and Colleges of Optometry and is accredited by the Accreditation Council on Optometric Education and the Higher Learning Commission, offers its four-year, doctoral level professional education program in an outstanding, modern facility that includes an on-campus clinic which serves patients from the community and around the state. Off-campus facilities also are used to assure a full-scope clinical education.

Career Opportunities

The Michigan College of Optometry at Ferris State University was established in 1975 and remains the only institution in Michigan (one of only 22 fully accredited in the United States) to offer a doctor of optometry program. The profession is one of the top five income-earning professions in the country and is dedicated to maximizing the visual efficiency, ocular and overall health, and quality of life of patients. It encompasses the prevention and remediation of disorders of the eyes and visual systems through the examination, diagnosis, treatment and management of visual problems and eye diseases.

Doctors of Optometry are primary health care providers who enjoy favorable working conditions, regular hours, and a minimum of emergency calls. The profession offers many career options and great freedom in choosing a location to live and practice. Career options include private practice, group practice or institutional practice in hospitals, health centers, health maintenance organizations or corporate offices. Career options may also include one-year post-graduate residency training in various optometric specialties. Graduates of the program report a high level of satisfaction with the career choice, income, and lifestyle.

Admission Requirements
Applicants to the Michigan College of Optometry (MCO) must complete a minimum of three years (90 semester hours or 135 quarter term hours) of college or university education or have earned a baccalaureate degree prior to admission. An application may be submitted while the minimum requirements are being completed. The baccalaureate degree is preferred for applicants entering MCO unless the student is part of our 3+4 program.

Pre-professional college/university courses must include the following: general biology (one year with lab); inorganic chemistry (one year with lab); organic chemistry (one year with lab); biochemistry (one course); general physics (one year with lab); microbiology (one course with lab); calculus (one course); statistics (one course); general psychology (one course).

Additional required courses for individuals entering without a baccalaureate degree include:

- English/composition (one year); humanities, 9 semester hours; behavioral science, 9 semester hours which should include the general psychology course.

- In addition to the general pre-optometry admission requirements, those lacking a bachelor's degree but wishing to seek the B.S. in Vision Science degree offered by the MCO as an interim degree will be required to complete an Advanced English / Writing course (ENG 321), a 200 level or higher course as a part of the 6 semester hours in behavioral science and a 200 level or higher course as a part of the 9 semester hours in humanities.

Courses which are recommended but not required include business management or accounting, genetics, physiology, anatomy, speech, embryology or developmental biology and speech.

All applicants to the Michigan College of Optometry are required to complete the Optometry Admissions Test (OAT), which is designed to measure general academic ability and scientific knowledge. Applications through the common application service, OptomCAS, are reviewed beginning July 1 and any application must be completed by February 1st.

**Graduation Requirements**

The Michigan College of Optometry at Ferris State University grants the doctor of optometry degree. Graduation requirements for the optometry degree include completion of all courses outlined in the optometry curriculum, a cumulative GPA of at least 2.0 and recommendations for the degree by the dean and by the faculty based on academic performance and ethical and professional standards.

**More Information**

Ferris State University  
Michigan College of Optometry  
1124 S. State Street  
Big Rapids, MI 49307  
Phone: 231-591-3703

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Performance Machining

Required Courses

Why Choose Performance Machining Certificate?

This Certificate Program will allow students to be able to integrate principles of engine machining with performance applications.

Admission Requirements

Must be in good standing, cumulative college GPA of 2.0 or higher or admissible from High School.

Graduation Requirements

Students must

- maintain a 2.00 cumulative FSU GPA
- No more than 50% of the credits in a certificate may be transferred from another institution.
- A minimum grade of C- is required for each course in the certificate.

More Information:

Automotive Program Office
708 Campus Drive, AUT 101
Big Rapids, MI 49307-2281
Phone: 231-591-2655
auto@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Performance Motorsports

Required Courses

Why Choose Performance Motorsports?

This Certificate Program will allow students to be able to integrate principles of engine design and testing with principles of forced induction.

Admission Requirements

All Performance Motorsports Certificate courses are Junior status. Must have completed prerequisite courses for AUTO 310 and 320 to be admissible.

Graduation Requirements

Students must

- maintain a 2.00 cumulative FSU GPA.
- No more than 50% of the credits in a certificate may be transferred from another institution.
- A minimum grade of C- is required for each course in the certificate.

More Information

Automotive Program Office
708 Campus Drive, AUT 101
Big Rapids, MI 49307-2281
Phone: 231-591-2655
auto@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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PGA Golf Management

Required Courses

Why Choose PGA Golf Management?

The origins of golf date back to the 1400s, but the United States has been a significant catalyst in popularizing the sport and expanding the business into nearly a $70 billion dollar industry, offering more than 2 million jobs. Today, more than 24 million Americans play the game with many segments growing quickly. In Michigan alone, there are more than 800 golf courses and 60 resorts.

For more than 40 years, the PGA Golf Management program has produced quality graduates who are today’s golf industry leaders. PGA Golf Management students learn all facets of golf shop operations (marketing, merchandising, accounting and small business management), customer service, golf course maintenance, public relations, tournament operations, instruction and player development, club repair and fitting, and much more. The PGA Golf Management program includes 16 months of required internship providing real world experience at PGA-recognized golf facilities all over the United States. Our 100 percent career placement rate reflects the value of the combined business education, skill development and knowledge gained from extensive hands-on experience.

On campus as a PGA Golf Management student, you have unlimited access to Ferris State’s Katke Golf Course, the proud home of the PGA Golf Management program’s learning laboratory and nationally ranked men’s and women’s golf teams. Our students make the facility their second home with more than 225 acres housing a 21-hole golf course with an award winning practice facility.

The program was the first of its kind sanctioned by The PGA of America in 1975 and integrates PGA membership requirements with learning objectives in Ferris’ accredited College of Business. Through this partnership, you will earn both a B.S. in Business and complete all requirements for membership election into the PGA of America upon graduation.

Career Opportunities

Our graduates enjoy careers as a Head or Assistant Golf Professional, Teaching Professional, Director of Golf, General Manager, Sales Representative, and more.

So whether it is on the course, the lesson tee, the clubhouse or behind the scenes of a televised event, Ferris State PGA Golf Management graduates are professionals working to expand the game’s popularity and accessibility to millions of diverse players.

Admission Requirements
New Students: 2.5 GPA (on a 4.0 scale) from high school, ACT composite score of 19 or combined Verbal and Math SAT score of 980 or higher, and USGA handicap of 8 or lower verified by PGA professional or high school coach.

The program has fall entry only. Because of the uniqueness of the program, prospective students are encouraged to visit campus and talk with an admission counselor and the program director.

Transfer Students: Combined college or university GPA of 2.5 (on a 4.0 scale) from all institutions attended and verified USGA handicap of 8 or lower. GPA is based on completion of 12 credit hours including the FSU equivalency of ENGL 150, MATH 115, and a social awareness or cultural enrichment course. Students must have completed NO MORE than 45 applicable credit hours at other institutions.

Exceptions: Applicants not meeting the above criteria (new or transfer students) for direct admission into the program, but still meet Ferris State University admission criteria, will be placed in the Pre-Professional Golf Management program until the admission criteria are met. Any mitigating circumstances will be considered on an individual basis by the College of Business Dean's Office.

**General Education Requirements**

All University General Education requirements for a Bachelor's degree is here. Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The PGA Golf Management program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall.

**More Information**

PGA Golf Management
1506 Knollview Drive
Big Rapids, MI 49307-2290
Phone:(231) 591-2380
Email: PGM@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.) Next Accreditation Review is February 2018.
http://www.acbsp.org

The PGA Golf Management Program is also accredited by the Professional Golf Association. Next Accreditation Review is February 2021.
www.pga.org
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Pharmacy

Required Courses

Why Choose the College of Pharmacy?

Graduates are well prepared for the North American Pharmacists Licensure Examination (NAPLEX), which is required for licensure in Michigan and most other states.

Ferris offers a pre-pharmacy/professional program leading to a Doctor of Pharmacy (Pharm.D.) degree. Pre-Pharmacy consists of approximately three full-time academic years of study which can be completed in the College of Arts & Sciences at Ferris State University. Application guides are also available which outline pre-pharmacy courses that can be completed at most of the state's two and four-year institutions. The four-year professional degree program is then completed in the College of Pharmacy at Ferris State University. (First two years - Big Rapids, 3rd year - Grand Rapids, 4th year in clinical sites located in Grand Rapids, Kalamazoo, Lansing, Flint/Saginaw, Traverse City, Marquette and several other cities in Michigan).

Pre-Pharmacy subjects include general biology, anatomy & physiology, microbiology, genetics, general and organic chemistry, biochemistry, calculus, statistics, physics, economics, english, communication skills, psychology or sociology, and cultural enrichment. All course work designated as pre-pharmacy must be completed in order to finalize admission. Prospective students should familiarize themselves with the University's General Education Guidelines.

Career Opportunities

Since its inception in 1893, the College of Pharmacy has adapted its programming to meet the challenges and complex demands of an ever-changing profession. Current emphasis is on clinical practice and the provision of medication therapy management to ensure that the patient's drug therapy is appropriate, safe, effective for the condition being treated and cost-effective. Graduates of the College will be prepared to deliver care to patients in a wide range of practice settings.

Some of the many fields of specialization open to the pharmacist include:

- Community pharmacy: most pharmacists are engaged in this type of professional practice in either independently owned or chain pharmacies.
- Hospital pharmacy: this field offers a variety of assignments in support of physicians, nurses and other members of the health care team in dealing with the medication needs of patients.
- Industrial pharmacy: opportunities include those related to production, quality control, research, administration and sales promotion.
- Long term care: This includes many settings such as nursing home, hospice, psychiatric,
rehabilitation, and substance abuse care.
- Other: Nuclear pharmacy, drug information, poison control, public health, home health care, long-term care, law and areas of pharmacy education and specialization.

**Admission Requirements**

Admission to the Doctor of Pharmacy program is competitive and is granted to the best qualified applicants on a space available basis.

Admission criteria include:
1. Academic Achievement in pre-pharmacy courses;
2. Score on Pharmacy College Admission Test (PCAT);
3. Results of an in-person interview (verbal and written);
4. Pharmacy Technical Standards;
5. Course load (average number of hours per semester, repeats, withdrawals);
6. Letters of recommendation; and
7. Results of a criminal background check.

For complete admission policies, check at the link below:
http://www.ferris.edu/HTMLS/colleges/pharmacy/curriculum/Admissions-Policies.htm

Although the minimum acceptable cumulative GPA obtained in pre-pharmacy is 2.5, the average of successful applicants is higher. The Pre-Pharmacy program can be taken at Ferris or at any other accredited college or university.

**Graduation Requirements**

The College of Pharmacy at Ferris State grants the doctor of pharmacy degree. Graduation requirements for the Pharm.D. degree include completion of all work outlined in the Pharm.D. curriculum and a cumulative GPA of at least 2.0.

**The Application Process**

Information on the pre-pharmacy curriculum as well as contact information on pre-pharmacy advisors can be found by clicking on link below: https://ferris.edu/arts-sciences/index.htm

Information on the Doctor of Pharmacy professional degree program can be found at the College of Pharmacy website below: http://www.ferris.edu/HTMLS/colleges/pharmacy/admissions/homepage.htm

For students interested in applying to the College of Pharmacy after completing the two-year pre-pharmacy courses at another State of Michigan college or university should consult the appropriate guide below:
http://www.ferris.edu/htmls/colleges/pharmacy/admissions/guides/AppguidesTxPage.htm

Other students should contact the College of Pharmacy Office at: College of Pharmacy, 220 Ferris Drive, Big Rapids, MI 49307; Phone: 231-591-2249.

**Accreditation**

The College of Pharmacy is recognized by the Michigan Board of Pharmacy and is accredited by the American Council of Pharmaceutical Education, the national accrediting agency for all
colleges of pharmacy. Ferris is a member of the American Association of Colleges of Pharmacy.

**More Information**

College of Pharmacy  
Ferris State University  
220 Ferris Drive  
Big Rapids, MI 49307-2740  
Phone: (231) 591-2249

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Pharmacy and Master of Business Administration

Required Courses

Why Choose the Doctor of Pharmacy and MBA?

There has been and will continue to be a significant increase in the opportunity for pharmacists to move into new roles, including management and pharmacoeconomic positions, requiring a significant grounding in business methodology.

A dual PharmD and MBA degree is a logical combination of two Ferris State University degrees that can provide select Pharmacy students with the unique capability of meeting the clinical expectations of the medical community with greatly enhanced business acumen demanded in today's cost conscious health environment.

Career Opportunities

Since its inception in 1893, the College of Pharmacy has adapted its programming to meet the challenges and complex demands of an ever-changing profession. Current emphasis is on clinical practice and the provision of medication therapy management to ensure that the patient's drug therapy is appropriate, safe, effective for the condition being treated and cost-effective. Graduates of the College will be prepared to deliver care to patients in a wide range of practice settings.

The PharmD/MBA is intended for Pharmacy students interested in corporate management positions within the pharmaceutical industry, health care industry, or corporate pharmacies (chains.)

Admission Requirements

The Ferris PharmD/MBA is a program option available only to currently enrolled PharmD students who have earned a minimum 3.0 GPA their first year of studies. Only those students who have demonstrated the academic capability and motivation to succeed in this rigorous program option will be considered.

Minimum Requirements for Admission:

- Concurrent enrollment in the Doctor of Pharmacy Program.
- Overall Professional Grade Point Average (GPA) of 3.00 or better
- Good academic standing in the Doctor of Pharmacy program.

Application Requirements

To be considered for admission to the joint Pharm.D./MBA, applicants must submit the following
documents to the College of Pharmacy Dean’s Office:

- Completed application
- Current resume.
- Statement of Purpose, approximately one typed page, explaining your reasons for seeking admission into the joint Pharm.D./MBA program.
- Applicants who have not earned a “C” grade or better in Accounting, Economics, Marketing, and Statistics within the last five years must pass the approved foundational test(s) with a score of 80% or better, or successfully complete the approved foundational course(s) with a test score of 80% or better prior to enrollment in some MBA courses.

Graduation Requirements

The College of Pharmacy at Ferris State University grants the Doctor of Pharmacy degree. Graduation requirements for the Pharm.D. degree include completion of all work outlined in the Pharm.D. curriculum, a cumulative GPA of at least 2.0 and recommendation for the degree by the faculty of the College of Pharmacy based on academic performance and ethical and professional standards.

The College of Business at Ferris State University grants the MBA degree. Graduation requirements for the MBA degree include completion of all work outlined in the MBA curriculum with a cumulative GPA of 3.0 or better. No grade below a C and no more than two C grades will be counted toward the MBA degree. An overall GPA of 3.0 or better must be maintained to avoid dismissal from the MBA program. Degree must be completed within five years from first semester of enrollment. Students must complete an application to graduate before their degree will appear on transcripts and a diploma is issued.

Nine credits are shared between the two degrees including a six (6) credit hour experiential in one of the following options: Corporate Pharmacy, Pharmaceutical Industry, or Health System Pharmacy.

More Information

College of Pharmacy
Ferris State University
220 Ferris Drive, PHR 105
Big Rapids, MI 49307-2740
Phone: (231) 591-2304
GregWellman@ferris.edu

or

College of Business Graduate Programs
119 South Street, BUS 212B
Big Rapids, MI 49307-2284
Phone: (231) 591-2168
ShannonYost@ferris.edu
The College of Pharmacy is recognized by the Michigan Board of Pharmacy and is accredited by the American Council of Pharmaceutical Education, the national accrediting agency for all colleges of pharmacy. Ferris is a member of the American Association of Colleges of Pharmacy.

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Philosophy

Required Courses

Why Choose the Philosophy Minor?

Philosophy is the basis of any discipline, whether it is science, math, medicine, literature, legal studies, history or technology. As a result, philosophy allows students the opportunity to discover the intellectual history and cultural context to any area of study. In addition, the minor allows students to develop writing and critical thinking skills that are essential to job placement and advancement.

Admission Requirements

This philosophy minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses. At least 12 of the credits must carry PHIL designators, at least 50 percent of the credits must be numbered 200 or higher, with 6 credits 300 or higher. At least 50 percent of the credits must be Ferris State University credits.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. John Gray
PHON  : 231-591-3515
       AIL: JohnScottGray@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive/JOH 119
Big Rapids, MI 49307 2280
Phone: 231-591-3675

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Physical Education Teaching

Required Courses

Why Choose Teaching Minors for Secondary Education Majors?

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Admission Requirements

Secondary Education majors may choose an appropriate teaching minors from the following areas: biology, chemistry, English, geography, history, mathematics, physical education, political science, spanish, or speech communication.

Graduation Requirements

A 2.75 GPA is currently required for satisfactory completion of the physical education teaching minor.

No grade less than a "C".

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Plastics and Polymer Engineering Technology

Required Courses

Why Choose Plastics and Polymer Engineering Technology

The plastics and rubber programs at Ferris State University are among the biggest, best, and few within the United States. The Plastics Engineering Technology and the Rubber Engineering Technology four-year degree programs are fed by this common first two-year curriculum which introduces the student to the world of polymer materials. Plastics/Rubber continues to grow on a yearly basis, and the graduates out of each of the two bachelor degree programs gain immediate status as successful technical leaders.

This innovative two-year curriculum of study provides students with a background in such topics as materials/testing, processing, tooling, product development, and an exploration of the career possibilities within this vast industry. Classes emphasize hands-on learning, using the same type of equipment that is currently used in industry. Most students continue their education past the first two years to receive their BS degree in either Plastics Engineering Technology or Rubber Engineering Technology.

Partnership with Industry

Both the plastics and rubber industries have long shown support for the polymer programs here at Ferris. They have even sponsored the construction of the National Elastomer Center, the building that houses these programs. The National Elastomer Center contains state-of-the-art laboratories, equipment, and classrooms. Many companies actively support these programs by donating equipment and materials, making on-campus presentations, and sponsoring field trips to their facilities.

Students also serve a paid industry internship. This experience gives the student valuable, firsthand experience before graduation. Some internships occur out-of-state, and some companies even assist with room and board accommodations to attract students to their facilities. The summer experience internship helps students determine what type of position they want to pursue after graduation.

Career Opportunities

After completing the two year program, students are immediately employable within the polymer industry. Or, if they choose, they are prepared to enter the BS degree program in Plastics Engineering Technology or in Rubber Engineering Technology. AAS Degree graduates usually start employment in first-level salaried positions such as manufacturing technician, laboratory technician, or foreman/supervisor. Salaries typically start at approximately $45,000 per year. BS Degree graduates begin at approximately $52,000 to $80,000 per year and can accelerate at a
rapid pace in the years that follow.

**Admission Requirements**

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity, and who have good educational goals and practices. Students with backgrounds appropriate to their chosen program of studies grasp initial concepts quickly, but this is not a determining factor in being very successful in the future within the program. The average GPA of first-time students in our technical programs is 2.8, and the average SAT composite score is 20.

Students entering the Plastics and Polymer Engineering Technology program must have a high school diploma with a minimum 2.75 cumulative GPA along with an 18 ACT composite and a math sub-score of 24 or 950 SAT16 Total and a SAT16 math sub-score of 580 (MAT 120 placement).

Students close to the requirements are encouraged to apply and will be reviewed on an individual basis.

It is a benefit to have at least a year of high school chemistry and computer aided design exposure.

If requirements fall short, the program will advise students to get qualified for program entry.

**General Education Requirements**

All University General Education requirements for an Associate's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Plastics and Polymer Engineering Technology program at Ferris leads to a Bachelor's degree in Plastics and/or Rubber Engineering Technology, or allow the student to gain advanced entry-level employment in the polymer industry.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 15 credits of Ferris classes (FSU Residency requirement)  
- have a minimum 60 total credits to earn an associate degree
- complete all general education requirements as outlined on the General Education website

**More Information**

National Elastomer Center  
919 Campus Drive  
Big Rapids, MI 49 07-2277  
Phone: 2 1-591-2640
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Plastics Engineering Technology

Required Courses

Why Choose Plastics Engineering Technology?

The Ferris Plastics program is the largest and one of the largest and most respected undergraduate program in the United States. The B.S. program was started in 1982 and continues to fill a great need in the growing plastics industry for technically trained personnel. About 1.3 million people across the country work in plastics, making it our third largest industry. Ferris graduates gain immediate status as recognized technical leaders.

This innovative program provides students with a background that includes topics such as plastics processing, polymer material testing and properties, and product development. Classes emphasize hands-on learning, using the same type of equipment that is currently used in industry. An exceptional 80 percent of the entering students receive their degree.

Partnership with Industry

The plastics industry has long shown support for the Ferris Plastics Technology program, even sponsoring the construction of the Plastics Building, which in 1998 was expanded into the National Elastomer Center with state-of-the-art laboratories and classrooms. Many companies actively support us by donating equipment and materials, making on-campus presentations and sponsoring field trips to their facilities.

Students also serve a paid internship in industry for a minimum of ten weeks each, gaining valuable firsthand experience before graduation. Some out-of-state companies even pay room and board in addition to salary to attract our interns. The internship experience helps students decide what type of position they would most enjoy after graduation.

Career Opportunities

After completing the Plastics Engineering Technology program, students are immediately employable by the plastics industry. There is consistent virtually 100 percent placement of our graduates. B.S. graduates usually start in engineering positions such as process, product or project engineer, quality control engineer or technical sales representative. Many graduates have attained management positions throughout the plastics industry. B.S. graduates should make approximately $65,000 per year at graduation and with ten years’ experience can make $100,000 per year or more.

Admission Requirements

Students entering the Plastics Engineering Technology program must have completed the
Plastics and Polymer Engineering Technology program at Ferris or an equivalent A.A.S. program at another institution. Applicants must have a minimum 2.75 cumulative GPA.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here Please consult this link for a complete listing of General Education Electives. Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Plastics Engineering Technology program at Ferris leads to a Bachelor of Science degree. Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website

**More Information**

National Elastomer Center 919 Campus Drive Big Rapids, MI 49307-227 Phone: 231-591-2640

College of Engineering Technology Ferris State University 1009 Campus Drive Big Rapids, MI 49307-2280 Phone: 231-591-2890

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Political Science

Required Courses

Why Choose Political Science?

Political Science as an academic discipline historically developed from the interrelationships between political science and law. Today, political science is multi-disciplinary in both substance and methodology and borrows heavily from economics, sociology, psychology, business administration, social work and criminal justice. In this major you will take coursework in these related disciplines.

As a leading career-oriented institution, Ferris offers you valuable training not found elsewhere. Because of our strong technical programs, you can broaden your academic credentials to include coursework and training in numerous technological fields. The Political Science program at Ferris combines for you multi-disciplinary scholarship with practical training in government, business and technology.

Career Opportunities

Are you concerned with improving the quality of life in your local community, the state of Michigan, the nation? Do you like to work with people? A political science degree will open numerous career paths for you to make a difference.

As a graduate of Ferris with a bachelor of science degree in Political Science, you will have developed the intellectual and practical skills to find entry-level employment in federal, state, regional, and local governmental agencies. Numerous positions exist in the private sector for persons knowledgeable about government policy and procedures. Nonprofit community and social service organizations also will find your credentials appealing.

As a Ferris graduate, you will have the scholarly training necessary to enter graduate and professional programs in Political Science, public administration, the social sciences, management, public policy, social work, criminal justice, law or technology.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for
admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Political Science program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 GPA and a minimum of 120 credits. Students must complete all general education requirements as outlined on the General Education website.

More Information

PROGRAM COORDINATOR: Department of Social and Behavioral Sciences
PHONE: 231-591-2735
EMAIL: MeralTopcu@ferris.edu

PROFESSIONAL ADVISOR: Dave Schrock
PHONE: 231-591-3705
EMAIL: DaveSchrock@ferris.edu

Department of Social and Behavioral Sciences
Ferris State University
820 Campus Drive/ASC 2108
Big Rapids, MI 49307
Phone: 231-591-2735

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Political Science

Required Courses

Why Choose the Political Science Minor?

Students in this minor learn how the American political system works from the local through the national levels of government, and how our political decision making process differs from other countries. Current public policy issues such as social security reform, health care legislation, and campaign finance regulations are analyzed. Students also learn how public opinion generated through the media, interest groups, political parties, and elections affects government. This minor complements majors that involve participation in public affairs, such as communication, criminal justice, education, law, public relations, and social welfare.

Admission Requirements

This Political Science minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing a Bachelor of Science in Political Science. The minor is designed to complement any other Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Department of Social and Behavioral Sciences
PHONE: 231-591-2735
EMAIL: MeralTopcu@ferris.edu

Department of Social and Behavioral Sciences
Ferris State University
820 Campus Drive/ASC 2108
Big Rapids, MI 49307
Phone: 231-591-2735

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Political Science Education

Required Courses

Why Choose Political Science Education?

The Political Science Education program prepares prospective teachers for the challenges of teaching students from a broad range of cultural backgrounds in such diverse educational settings as traditional high and middle schools, vocational-technical centers, alternative and magnet schools and tech-prep programs.

Current vocational studies predict growing opportunities for teachers at all levels, both to replace retiring teachers and to provide lower student-teacher ratios in classrooms.

High school graduates, whether they plan to attend college or not, need to be contributing members of society. Understanding their role in the political systems of the world is necessary in order to help them meet the demands of their future careers. The FSU program prepares prospective teachers with the knowledge and skills essential to provide effective Political Science instruction for students in Michigan and throughout the nation.

Career Opportunities

The Political Science education program prepares students to teach in high school, as well as in vocational-technical centers, alternative and magnet schools, tech-prep programs and other non-traditional educational settings. With additional study, students may also teach in post-secondary schools. The program focuses on preparing prospective teachers for the challenges of teaching students from a broad range of educational and cultural backgrounds. Political Science teachers are in high demand and the employment outlook is excellent. A teaching minor is required. You cannot have a Political Science teaching minor with this teaching major.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Teacher Certification Requirements**

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**Graduation Requirements**

The Political Science education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU’s general education, biology, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

A 2.75 GPA is required for successful completion of the Political Science major.

**More Information**

College of Education & Human Services  
School of Education  
Bishop Hall Room 421  
Ferris State University  
1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Telephone: (231) 591-5361

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Polymer Materials Technology

Required Courses

Why Choose to Minor in Polymer Materials Technology?

The polymer materials technology minor is intended for non-Plastics/Rubber majors who are interested in the polymer industry. This minor is intended to complement existing degrees within FSU. Affording students a technical focus which could result in employment opportunities in the third largest industry in the United States.

Students will:
- Understand and learn the terminology in the plastics and rubber industry.
- Know the most used polymer materials and their significant properties and applications.
- Learn how to measure and evaluate polymer materials by their physical and mechanical properties.
- Know the major polymer suppliers associated with the industry.
- Know and understand the typical rubber and plastics/rubber fabrication techniques.
- Understand polymer materials selection as it relates to materials and product design.

Admission Requirements

The minor is open to all students enrolled and pursuing a baccalaureate or higher degree in majors other than Plastic Engineering Technology or Rubber Engineering Technology.

Approval from the Plastics and Rubber department and satisfying prerequisites. Cumulative GPA of a 2.0 or higher.

Prerequisite:
- Chemistry 121 Science elective (5 credits) or equivalent (University Scientific Understanding)
- Math 120 or equivalent

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate or higher at Ferris State University.

Students must
- maintain a 2.00 cumulative FSU GPA
- earn a minimum grade of C- for each course in the minor
- have a minimum of 18 semester credit hours
- have a maximum of 1/3 of the credits, but no more than 7 credits in a minor, may overlap
• have a minimum of 50% (9 credits) of the courses in the minor at the 200 or above level
• have at least one-half (1/2) of the credits (9 credits) from Ferris (FSU Residency requirement)

More Information

National Elastomer Center
919 Campus Drive
Big Rapids, MI 49307-2277
Phone: 231-591-2640

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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Positioning for Hydrographic Surveying

Required Courses

Why Choose Surveying Engineering Certificate?

This certificate is a collaborative effort between the Surveying Engineering Program at Ferris State University and the Freshwater Studies Institute at Northwest Michigan College. Aims of the certificate are:

- To explore the fundamental principles of Geographic Information Systems (GIS) and their applications.
- To investigate the basic principles of remote sensing as they relate to engineering and environmental problems.
- To understand the basics of how enabling hydrographic surveying technology components are used including: Research Vessels, Remotely Operated Vehicles (ROV), SONAR systems (single beam, multi beam, side scanning) while gaining first-hand experience operating these systems and collecting information.

This certificate is geared toward:

- Practicing Professionals interested in gaining additional competencies.
- Students of surveying or related disciplines who wish to explore an additional subject.
- Those who have an interest in underwater exploration by remote sensing.

Career Opportunities

Hydrographic surveying falls under the definition of “surveying” in both Michigan’s Occupational Code and the National Council of Examiners for Engineering and Surveying (NCEES) Model Law. The Hydrographic Surveyor is a specialist in precise positioning and data acquisition in marine environments; expected to work in a wide range of differing situations and applications from inland waters and rivers, to ports and the deep oceans. Navigation, oil, gas mineral resource exploration and recovery, dredging, coastal works, bridge and port construction, submarine telephone cables and pipelines, environmental monitoring, aquaculture and oceanographic research are all crucially dependent on the hydrographic surveyor for accurate, reliable information.

Employment of surveying and mapping technicians is expected to grow 16 percent from 2010 to 2020. The demand for Hydrographic Survey Technicians (Marine Surveying) is expected to grow faster.

Admission Requirements

Any person admitted to the university is welcome to register for the courses required for this
The certificate will be awarded after successful completion of all required courses with a minimum grade of C- for each course in the certificate.

- The number of transfer credits allowed shall conform to those listed when the certificate was initially approved in April of 2013.

- Cumulative GPA must be a 2.0 or higher.

More Information:

Surveying Engineering Program
College of Engineering Technology
Ferris State University
915 Campus Drive, Swan 312
Big Rapids, Michigan 49307-2291
Phone: 231-591-2633
e-mail: surveying@ferris.edu
web: www.ferris.edu/surveying

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Pre-Engineering

Required Courses

Why Choose Pre-Engineering?

This program was developed to give students a broad overview of the engineering field. Students take general education courses as well as pre-engineering courses to give them the required knowledge and skills necessary to gain entrance to an engineering college.

Pre-Engineering is designed for students who intend to transfer to an engineering college to earn a bachelor's degree in engineering or a related field. The program is based on courses that are fundamental to all engineering disciplines.

Career Opportunities

The Pre-Engineering program at Ferris is a great place to begin a career in the well-paid engineering field, a field that grows larger every year.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The Pre-Engineering program at Ferris leads to an associate in science degree. Graduation requires a minimum 2.0 GPA overall. Students should know that many engineering colleges prefer a 3.0 college GPA for transfer coursework. Students must complete a minimum of 60 college credits including all general education requirements as outlined on the General Education
website.

**More Information**

ADVISOR: Dr. Kent Sun
PHONE: 231-591-2579
E-MAIL: MathDepartment@ferris.edu

Department of Mathematics
Ferris State University
820 Campus Drive, ASC 2021
Big Rapids, MI 49307-2225
Phone: 231-591-2565

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Pre-Pharmacy

Required Courses

Why Choose Pre-Pharmacy?

The Pre-Pharmacy program at Ferris is designed to give you all the tools necessary to gain admission into the College of Pharmacy. Because of the stringent requirements and extensive educational background needed to become a pharmacist, the courses in the Pre-Pharmacy program give you a broad overview and strong beginning to the Pharmacy program.

A path to a career in pharmacy begins with the two-year Pre-Pharmacy program, which is designed to prepare students to meet the competitive admission requirements of the College of Pharmacy. Upon admission to the College of Pharmacy, you will continue your studies for four years to complete the doctor of pharmacy degree.

Career Opportunities

As a professional pharmacist, you will be the most accessible member of the health care team and the most knowledgeable about the effects of drugs on people. You will serve as an essential link between the patient and the prescribing physician, advising both about drug interactions, dosages and possible side effects.

Your knowledge of drugs and drug functions will provide job opportunities as a community pharmacist, hospital pharmacist or industrial pharmacist. Other opportunities include pharmaceutical journalism, advertising, public health, research, law enforcement, pharmacy education and positions with pharmaceutical associations. Ferris graduates enjoy 100 percent job placement, and the financial awards can be abundant.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

Admission to the College of Pharmacy is granted to the best qualified applicants, as space permits. It is based on your Pre-Pharmacy GPA (must be at least 2.5) and the results of your Pharmacy College Admission Test (PCAT). The PCAT is a national, standardized test you must
take about the time you apply for admission to the College of Pharmacy. Successful completion of the Pre-Pharmacy program at Ferris or another university does not guarantee admission into the College of Pharmacy.

**General Education Requirements**

This degree requires completion of the General Education requirements for an Associate in Science degree. Details of these requirements are delineated on the General Education website.

All University General Education requirements for an Associate's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Pre-Pharmacy program at Ferris leads to an associate in science degree. Graduation requires a minimum 2.0 cumulative GPA in all coursework. This degree requires 84 minimum credits including all general education requirements as outlined on the General Education website. The residency requirement consists of 15 minimum FSU semester credits in BIOL/CHEM courses. Students may earn an A.S. degree in Natural Science or an A.S. degree in Pre-Pharmacy, but they may not earn both.

**More Information**

PROFESSIONAL ADVISOR: Kim Ducat  
PHONE: 231-591-2745  
EMAIL: KimberlyDucat@ferris.edu

PROFESSIONAL ADVISOR: Jenice Winowiecki  
PHONE: 231-591-2555  
EMAIL: JeniceWinowiecki@ferris.edu

Department of Physical Sciences  
Ferris State University  
820 Campus Drive/ASC 3021  
Big Rapids, MI 49307  
Phone: 231-591-2580

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Pre-Science

Required Courses

Why Choose Pre-Science?

Pre-Science is intended for students who have a general interest in science but who are not ready to choose a specific field of study. The program also is intended to provide students with preparatory course work if previous academic experiences require fundamental improvements.

During the first year, you take coursework necessary to fulfill the general education requirements common to all college degrees. You also choose courses in mathematics, biology, chemistry, physics and other sciences to build fundamental skills in these disciplines. During the second year, you continue selecting similar courses to assist you in focusing on an appropriate career direction. Coursework is extremely flexible and advisors work with you to plot a program of courses that suits your interests, goals and needs.

Get a Great Background in Science

Do you enjoy studying the biological and physical sciences? Have you done well in your science and math courses in high school? Are you considering a career in a science-related field but are uncertain of which specific one? The Pre-Science program at Ferris provides you with the solid foundation in mathematics and science necessary to pursue these careers. We also encourage you to consider the Natural Science associate degree program.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 15 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

This degree requires completion of the General Education requirements for an Associate in Science degree. Details of these requirements are delineated on the General Education Website.

All University General Education requirements for an Associate’s degree is here
Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Pre-Science program at Ferris can lead to an associate in science degree. Graduation requires a minimum 2.0 GPA overall. Students must complete a minimum of 60 college credits.

**More Information**

PROFESSIONAL ADVISOR: Kim Ducat
PHONE: 231-591-2745
EMAIL: KimberlyDucat@ferris.edu

PROFESSIONAL ADVISOR: Jenice Winowiecki
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Department of Biological Sciences
Ferris State University
820 Campus Drive/ASC 2004
Big Rapids, MI 49307
Phone: 231-591-2550

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Pre-Teaching Elementary

Required Courses

Why Pre-Teaching Education?

Students who plan to major in a curriculum for elementary education may wish to prepare with the pre-teaching program, which includes fundamental education courses and individually broadening classes such as English, mathematics, music and social awareness.

During your freshman year in pre-teaching, you will take courses in English, speech, reading, history, humanities, mathematics, natural sciences, behavioral sciences and other electives. As a sophomore, additional electives are needed, including government, literature, economics, sociology, psychology and other required general courses.

Students who plan to transfer into a B.S. degree program should be sure to select general education courses that satisfy the B.S. degree requirements. After discussion with the academic advisor from the appropriate curriculum, students can choose electives from a subject area.

Career Opportunities

The pre-teaching program allows students to begin the general education requirements common to all teaching degrees. The Ferris secondary pre-teaching program leads to an associate in arts degree and is for students who wish to major in a non-science curriculum. The Ferris elementary education emphasis is a guide to an associate in arts degree and typically involves transfer to another teaching degree for the third and fourth years.

Teacher Certification

If a pre-teaching student wishes to continue in teacher education to complete a teaching degree and obtain certification, the State of requires that all candidates: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.
General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The pre-teaching education program leads to an Applied Associate degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, pre-teaching, and education requirements. Consult individual program description for other admission requirements.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Pre-Teaching Secondary

Required Courses

Why Pre-Teaching Education?

Students who plan to major in a curriculum for secondary or elementary education may wish to prepare with the pre-teaching program, which includes fundamental education courses and individually broadening classes such as English, mathematics, music and social awareness.

During your freshman year in pre-teaching, you will take courses in English, speech, reading, history, humanities, mathematics, natural sciences, behavioral sciences and other electives. As a sophomore, additional electives are needed, including government, literature, economics, sociology, psychology and other required general courses.

Students who plan to transfer into a B.S. degree program should be sure to select general education courses that satisfy the B.S. degree requirements. After discussion with the academic advisor from the appropriate curriculum, students can choose electives from a subject area.

Career Opportunities

The pre-teaching program allows students to begin the general education requirements common to all teaching degrees. The Ferris secondary pre-teaching program leads to an associate in arts degree and is for students who wish to major in a non-science curriculum. The Ferris elementary education emphasis is a guide to an associate in arts degree and typically involves transfer to another teaching degree for the third and fourth years.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Teacher Certification

If a pre-teaching student wishes to continue in teacher education to complete a teaching degree and obtain certification, the State of Michigan requires that all candidates: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.
Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

Graduation Requirements

The pre-teaching education program leads to an Applied Associate degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU’s general education, pre-teaching, and education requirements. Consult individual program description for other admission requirements.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Pro-Mo-Ted Technical Education

Required Courses

Why Choose Pro-Mo-Ted Technical Education?

Rapid technological changes have generated strong demand for Pro-Mo-Ted Education in Michigan. Graduates can expect excellent career opportunities in industry, secondary and vocational education.

Pro-Mo-Ted Education skills and the training to teach them to others are a valuable combination in education today. If you relate well to others and enjoy working with your hands and mind, you are well suited for a worthwhile and rewarding career in Pro-Mo-Ted Education.

The Ferris State University Pro-Mo-Ted education program provides a balanced mix of courses in three major areas: professional education, field experience and liberal arts education. About a third of the courses required for graduation will be in the major's chosen field. Pro-Mo-Ted education students also must complete occupational work experience. A field experience in which students work with young people in public schools is required, along with a full-time directed teaching assignment in a vocational/technical program at an area vocational center or high school.

Career Opportunities

Known for its technical, hands-on programs, Ferris State University offers technical education students diverse opportunities including automotive, electronics, welding, industrial and HVACR technology or computer assisted design and manufacturing.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree are here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General
Education requirements.

Teacher Certification Requirements

As required by the State of Michigan, to receive teacher certification, all teacher candidates must: 1. pass the Michigan Basic Skills Exam  2. pass the Michigan Test for Teacher Certification content area tests in their major and minor  and 3. have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

Graduation Requirements

The social studies education program leads to a Bachelor of Science degree through the School of Education, College of Education and Human Services. Graduates must complete all of Ferris State University's general education, social studies and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

More Information

College of Education and Human Services
School of Education
Ferris State University
Bishop Hall 421
1349 Cramer Circle
Big Rapids, MI 49 07-2737
Phone: 231-591-5361

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Product Design

Required Courses

Why Choose the Product Design Certificate?

The Product Design Certificate will enhance the design capabilities of students within their respective field of study.

Career Opportunities

This certificate will allow the student to transition into careers in the Design/Engineering Departments in their respective field.

Admission Requirements

Student must be in good standing and have a 2.0 Cumulative GPA or higher. Certificate is open to all student enrolled and pursuing all majors other than Product Design Engineering.

The combinations of courses included in this certificate were selected to enhance the product design capabilities of students. The ability to refine a product concept for human interface, develop the models, and fully document that concept with properly tolerated drawings for manufacture will be of significant value to students and their potential employers in a wide variety of industries.

In addition, upon completion of the PDET 312 course, the students will be fully prepared to take the "Geometric Dimensioning and Tolerancing Professional Technologist Level certificate exam through ASME.

Graduation Requirements:

Students must

- maintain a 2.00 cumulative FSU GPA.
- No more than 50% of the credits in a certificate may be transferred from another institution.
- A minimum grade of C- is required for each course in the certificate.

More Information

Product Design Engineering Technology Program
915 Campus Drive, SWN 405
Big Rapids, MI 49307-2291
Phone: 231-591-2755
email: pdet@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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Product Design Engineering Technology

Required Courses

Why Choose Product Design Engineering Technology?

The Product Design Engineering Technology program at Ferris offers intensive instruction and practical experience in all facets of product design. Students are prepared to effectively participate in a design environment, generate conceptual design sketches and drawings, create complex design layouts, perform static and dynamic analysis, create models and prototypes, create and define complex surfaces and shapes, and understand and integrate manufacturing principles into design.

Study also emphasizes communication, mathematics and analytical skills. Students receive extensive hands-on experience through labs and internships to give them real-world experience.

Career Opportunities

A product designer begins with a concept, then transforms it into a working design that specifies the size, shape, style, dimensions and materials needed. Because this skill is needed for the production of millions of industrial and consumer goods, designers are in great demand.

Their knowledge of design, engineering analysis, manufacturing processes and communication techniques are valued in industries across the United States. Employment opportunities exist across the spectrum of the product design field wherever products are produced, designers will be found.

Specific job titles might include product designer, layout drafter, project manager, product developer, computer-aided designer, mechanical designer, project engineer, and design engineer.

Admission Requirements

First Year Student entering the program must have a 2.75 high school GPA or higher, ACT COMPOSITE 20, ENGL 17, MATH ACT 19, READING 20 Or SAT 16 Total of 1030, SAT16 EWR 450. SAT16 MATH 500

Transfer Student 2+2 entering to program must have completed a minimum of 60 transferrable semester hours with a minimum overall GPA of 2.5. The following specific courses are required for admission and may be included in the total transferable credit hours:

English Composition I & II
Basic Public Speaking
Mathematics through Pre-Calculus
General Physics I (with lab.)
Basic Material Science
Introductory Computer Aided Design
Cultural - 3 credit hours
Self and Society - 3 credit hours

Admission counselors or program advisors should be consulted for an evaluation of transferability and course equivalency. Under special circumstances students with exceptional academic records can be admitted to the program before all pre-admission requirements are completed.

General Education Requirements

All University General Education requirements for a Bachelor's degree is [https://ferris.edu/HTMLS/academics/general-education/requirements/BA-BS.htm](https://ferris.edu/HTMLS/academics/general-education/requirements/BA-BS.htm) here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Product Design Engineering Technology program at Ferris leads to a bachelor of science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website

More Information

Product Design Engineering Technology Program
915 Campus Drive, SWN 405
Big Rapids, MI 49307-2291
Phone: 231-591-2755
email: pdet@ferris.edu

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

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Why Choose Professional Brewing Management?

This degree prepares students for management positions in the fast-changing and competitive craft brewing industry. The degree is designed with a business-management focus complimented with professional brew management courses. The curriculum is carefully balanced between theory and practice, giving students many opportunities for group projects, case studies, and individual presentations. The curriculum provides the necessary knowledge, leadership skills, and professionalism that will prepare students for craft brewing and craft brewery operations management.

Students will have the opportunity to become nationally certified in several key skill areas as part of their required coursework for this degree. At the completion of this degree program, students will have earned an Associate of Applied Science in Professional Brew Management, and will have the opportunity to earn four nationally recognized professional certifications: ServSafe Manager, TIPS (Training in Intervention Procedures Alcohol Management), Certified Beer Server and Certified Cicerone. All students graduating from the program are required to complete a minimum of one 400 hour internship in a brewing operation. The internship ensures a balance between classroom learning and real-world experiences and often opens doors to full-time employment following graduation.

This Professional Brewing Management Associate degree can stand alone, or lead into the Hospitality Management Bachelor degree.

Career Opportunities

Graduates of the FSU Professional Brewing Management Associate of Applied Science Degree with its business emphasis are prepared to pursue careers in the emerging craft beer and brewery segment of the hospitality industry. Graduates of the PBMT AAS program may also find successful careers managing restaurants, consulting, or in beverage sales and distribution.

Admission Requirements

New Students SAT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT MATH score of 480 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students:

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT MATH score of 19 or higher; SAT MATH of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

Exceptions for New and Transfer Students:

Applicants not meeting the above criteria MAY be considered for an approved Associates Degree if:

- High School GPA of 2.35 or higher
- Math ACT score of 16/SAT Math 430 and additional high school algebra
- ACT Reading score of 16 and ACT English score of 14 or a comparable SAT ERW score to be determined.
- SAT Composite score of 860 or ACT composite score of 15.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.
Graduation Requirements

- Maintain a 2.00 cumulative GPA in all FSU courses.
- Have 15 credits of FSU Classes (FSU Residency requirement).
- Have a minimum 60 total credits to earn an associate degree.
- Must maintain a 2.00 GPA in major courses.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

**More Information:**

Hospitality Programs  
West Commons 106  
1319 Cramer Circle  
Big Rapids, MI 49307  
Phone: 231-591-2382  
Email: hospitality@ferris.edu

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Professional Digital Marketing

Required Courses

Why Choose a Professional Digital Marketing Certificate?

If you are employed (or hope to be employed) in a field where you need a good working knowledge of Internet-based marketing activity, the Professional Digital Marketing Certificate may be ideal for you. You will learn both the theory and practice of Digital Marketing, and the Professional Digital Marketing Certificate will enhance your skills through courses of your choice focused on:

- Multi-channel marketing
- Selling online, and saving money and time for your company and your customers
- Managing databases in a digital world
- Mastering best practices in business-to-consumer digital marketing, business-to-business digital marketing, and direct marketing
- Creation and execution of Internet marketing/advertising and social media plans and campaigns including the basics of Web site design and implementation

You will be provided with the latest cutting edge Internet-based marketing skills that will help you, not only in Digital Marketing, but also in careers such as direct marketing, advertising and professional selling.

This certificate is structured for experienced professionals who wish to choose Digital Marketing-related courses to enhance their career development.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements
You will receive the Professional Digital Marketing Certificate after completion of the requirements with a minimum 2.0 grade point. All 12 credits in this certificate must be earned from Ferris State University.

More Information

Marketing Department
119 South Street, BUS 212
Big Rapids, MI 49307-2426
Phone: 231-592-2426
-mail: MKTG@ferris.edu

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Professional Tennis Management

Required Courses

Why Choose Professional Tennis Management?

Tennis is truly “the sport of a lifetime,” which can be played by anyone ages 4–95 and there is a high demand for competent and qualified tennis professionals. With more than 20,000 types of tennis facilities in the U.S., from resorts, parks & rec., commercial and private clubs, and an estimated 19,800 tennis specific businesses and organizations, there are boundless viable career opportunities within the tennis industry.

In 1986, the Ferris Professional Tennis Management (PTM) program was the first four-year bachelor’s degree program to combine tennis and business. It remains the largest and the model bachelor degree program of its kind in the nation, placing 100% of its graduates since its inception and producing graduates that are tennis industry leaders.

PTM students receive a Bachelor’s degree in Business coupled with their choice of a minor selected from the many available at the University. Its combined emphasis on tennis skills, training, and the management of tennis as a business, uniquely prepares its students to excel in the tennis industry and business. This program truly merges theory with practice by including three paid internships where PTM students receive on-the-job training at beautiful clubs, resorts, and facilities all over the United States. PTM courses are held at the university-owned and operated 19 court indoor/outdoor Racquet and Fitness Center, which serves as a laboratory for PTM students and contains the PTM classroom and racquet repair/customization room on its upper floor. With our 100% placement rate, the PTM program is a gateway to great career opportunities.

Career Opportunities

Our graduates enjoy careers as Head or Assistant Tennis Professionals, Directors of Tennis, Managers, Business Owners, Sales Representatives, and more.

The program encourages excellence in all aspects of the sport and provides a solid, well-rounded business foundation in addition to the student's choice of approved minor. PTM graduates leave the program as both USPTA and USTA certified tennis professionals.

Due to the support from key tennis industry organizations that include; the United States Tennis Association and USTA University, United States Professional Tennis Association, Wilson Sporting Goods, and the United States Racquet Stringers Association, graduates from the PTM program at Ferris State can look forward to exciting careers within the tennis industry.

Admission Requirements
New Students: 2.5 GPA (on a 4.0 scale) from high school, and one of the following two criteria: (1) Math ACT score of 19 or higher; SAT Math score of 500 or higher, or (2) Reading ACT score of 19 or higher; SAT ERW score 450. A letter of reference from a USPTA professional, tennis coach, or school administrator verifying playing ability is required. NTRP of 4.0 with USTA district ranking or proven ability at the high school level.

Transfer Students: Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49. NTRP of 4.0 with USTA District ranking.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the official checksheet or program advisor for program-specific General Education requirements.

**Graduation Requirements**

The Professional Tennis Management program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.0 GPA in core courses, in the major and overall. Students must obtain USPTA Professional level certification in order to graduate.

**More Information**

Professional Tennis Management  
14342 Northland Drive  
Big Rapids, MI 49307-2290  
Phone: (231) 591-2219  
Email: markdoren@ferris.edu  
Website: www.ferris.edu/ptm

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACBSP.)  
http://www.acbsp.org

The PTM Program is also accredited by the USPTA.
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Project Management

Required Courses

Why Choose Project Management?

Project management is a profession that consists of planning and executing projects within an organization. It is a discipline that is needed in many types of businesses including information technology, construction, health care, finance, marketing, supply chain, manufacturing and others. The Project Management Certificate is a 12 credit hour certificate designed to prepare individuals for careers in project management in technical and non-technical disciplines.

An in-depth examination of project management practices, processes, tools and techniques, and knowledge areas is explored. The first course in the certificate program examines the foundations of project management as defined by the Project Management Institute, which is considered the global standard for project management best practices and is the certifying organization for both the PMP (Project Management Professional) and the CAPM (Certified Associate Project Management) designations. During this program, you will understand the project management life cycle and learn the knowledge areas using the Project Management Body of Knowledge, course textbooks, and case studies. Agile practices, scrum, and visual management systems are introduced as emerging project management frameworks.

Following the foundation course, the remaining courses focus in more detail on specific aspects of project management including project scheduling, budgeting, risk management, communication, team management, and the procurement process.

The final course places emphasis on preparation for project management certification exams including both the PMP (Project Management Professional) and the CAPM (Certified Associate in Project Management.) Completion of the project management certificate satisfies the number of contact hours required to take the CAPM and PMP exams.
Career Opportunities

The Project Management certificate is designed to service one of the fastest growing and largest job classifications in both technical and non-technical fields. According to the Bureau of Labor Statistics (BLS), employment as a project manager is expected to continue to increase at a fast rate for the foreseeable future. Several surveys of job outlooks have also rated project management within the top five career paths today and into the future. Certified project managers (PMP, CAPM) earn, on average, 15.6% more than their non-credentialed colleagues who have similar experience.

Admission Requirements

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.

- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.

- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA

*This document is subject to change. Questions should be submitted to the COB Dean’s Office/Student Academic Affairs (BUS 200) in care of the Director of Student Academic Affairs (231-591-2420).

Graduation Requirements

A Ferris student will receive the Project Management certificate upon graduation with a Baccalaureate degree, and after completion of the requirements for the certificate with a minimum of 2.0 grade point average in Project Management certificate courses.
No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the student's major.

More Information

Accountancy, Finance & Info Systems
119 South Street, BUS 212
Big Rapids, MI 49307-2284
231-591-2434
AFIS@ferris.edu

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Psychology

Required Courses

Why Choose Psychology?

The Psychology Associate in Arts degree is designed for students who intend to transfer into the B.S. in Psychology program at Ferris State University, or a related field. The Psychology Associate in Arts provides students with a solid base of psychological knowledge and its application.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT composite score, and ACT reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they will be considered as first year students.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The Psychology A.A. program at Ferris leads to an Associate in Arts degree. Graduation requires a minimum 2.0 GPA overall, a minimum ‘C’ grade in all psychology courses, completion of all general education requirements as outlined on the General Education website and completion of a minimum of 60 credits.

More Information

Program Coordinator: Dr. Christopher Redker
PHONE: 231-591-2576
EMAIL: ChristopherRedker@ferris.edu

Department of Social Sciences
Ferris State University
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Psychology

Required Courses

Why Choose Psychology?

Psychology, the scientific study of behavior, emotion, and thought, is the second most popular academic major in the United States. This makes sense when one considers the subject matter of psychology: You and those around you. Very few of us will live in a world or have a job that does not involve regular contact with others. Therefore, there is nothing more interesting and important than learning about yourself and the people with whom you interact.

Career Opportunities

Psychology addresses a range of topics, including learning and memory, drug addiction, IQ and personality testing, counseling issues, research design and data analysis, social and emotional development, etc. The best careers in psychology (therapist, professor, researcher, business consultant) require an advanced degree (i.e., a Ph.D., Psy.D., or a master's degree). Your undergraduate psychology degree at Ferris is an important first step on that career path. However, many students elect to enter directly into the labor force with their bachelor's degree. There are a wide variety of job areas for which psychology graduates are well suited, including human resources, research and development, marketing and sales, special needs casework, and human services program coordination. The psychology program at Ferris provides the ancillary courses and internships to maximize the effectiveness of your degree in preparing you for such careers.

The Psychology Major

Psychology is the science of thought, emotion and behavior. As a student of psychology, you will learn how scientists settle controversial questions about how people act, think, feel, and change. In fact, you will become a part of the scientific process yourself. Find out what is and what is not yet known on a topic of interest to you, and learn how to conduct your own original research to answer some of the unanswered questions. You will develop a set of interdisciplinary studies to broaden your experience and increase your marketability. At the end of your senior year, you will complete either a research project or an internship culminating your studies in psychology.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be
considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they will be considered as first year students.

**General Education Requirements**

All University General Education requirements for a Bachelor's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Psychology program at Ferris leads to a Bachelor of Science Degree. Graduation requires a minimum of 120 credits with a minimum 2.3 GPA overall and successful completion of all required courses with a minimum 2.5 GPA in the Psychology major courses and a 'C' or better in each course within the program. Students also must meet all of the university requirements for bachelor degrees.

**More Information**

Program Coordinator: Dr. Christopher Redker
PHONE: 231-591-2576
EMAIL: ChristopherRedker@ferris.edu

Department of Social and Behavioral Sciences
Ferris State University
820 Campus Drive/ASC 2108
Big Rapids, MI 49307-2225
Phone: 231-591-2735

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Psychology

Required Courses

Why Choose the Psychology minor?

The psychology minor will enable you to see how psychological variables play an important role in our daily interactions with other people. You will learn how perceptions influence decision-making, how psychological forces shape our opinions and behavior.

Employers list the following skills as extremely important: Interpersonal, teamwork, analytical, oral communications, flexibility, written communications, leadership, and co-op experience. Completing a minor in Psychology will teach you these skills as well as organizational skills, research skills, problem solving skills, environmental skills, and social skills. Graduating with a minor in psychology will make you more effective in your chosen profession, and therefore more marketable.

Admission Requirements

This psychology minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree except those pursuing a B.S. in Psychology. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student’s major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. An average GPA of 2.0 or higher must be achieved for the courses to count towards the minor. Students in the minor will select courses in consultation with a FSU faculty psychologist, the social sciences department head, or other qualified member of the social sciences department, who can direct them towards the courses most relevant in their major. Only three credits of Independent Study, PSYC 297 or PSYC 497 can apply towards the minor. The psychology minor requires a minimum of 18 credits.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Meral Topcu
PHONE: 231-591-2751
MAIL: MeralTopcu@ferris.edu

Social and Behavioral Sciences Department
Public Advocacy

Required Courses

Why Choose Public Advocacy?

In the workplace or in the community, we are faced with issues that require people to take position and to advocate for better solutions. Advocacy is a key communication skill for all careers, but especially for careers in law, government and social services. The ability to advocate appropriately and effectively for personal needs contributes to life satisfaction.

Admission Requirements

This Public Advocacy certificate is open to any student admitted to Ferris State University. The certificate is designed to compliment any Ferris major program, or to provide additional post-baccalaureate skills and training.

Graduation Requirements

Students desiring to complete this certificate should file an official declaration with the certificate advisor as soon as possible, and meet with that advisor regularly. The Public Advocacy certificate requires a minimum of 12 credits of course work and a minimum 2.0 grade point average in all course work comprising the certificate. Also, 50% of the credits for the certificate must be taught by Ferris State University.

More Information

Advisor: Dr. Stephanie Thomson
Phone: 231-591-3504
Email: StephanieThomson@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive, JOH 113
Big Rapids, MI 49307

Phone: 231-591-3675

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Public Advocacy

Required Courses

Why Choose a Public Advocacy Minor?

In the workplace or in the community, we are faced with issues that require people to take a position and to advocate for better solutions. Advocacy is a key communication skill for all careers, but especially for careers in law, government and social services. The ability to advocate appropriately and effectively for personal needs contributes to life satisfaction. Students select elective courses from an array of disciplines to build a knowledge base for the workplace or community for which they will advocate.

Admission Requirements

This Public Advocacy minor is open to any student admitted to Ferris State University pursing a baccalaureate degree except those pursuing a B.S. in Applied Speech Communication. This minor is designed to complement any Ferris major program. Students should choose courses carefully to avoid excessive overlap with their major or second minor. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

Students desiring to complete this minor should file an official declaration with the minor advisor as soon as possible, and meet with that advisor regularly throughout their college experience. An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. The Public Advocacy minor requires a minimum of 18 credits of course work in communication, nine of which are at the 300 level or above, and a minimum 2.0 grade average in all communication course work comprising the minor. Also, 50% of the credits for a minor must be taught by Ferris State University.

More Information

Advisor: Dr. Stephanie Thomson
Phone: 231-591-3504
Email: StephanieThomson@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive, JOH 119
Big Rapids, MI 49307-2280
Phone: 231-591-3675
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Public Health

Required Courses

Why Choose the Public Health Minor?

According to the U.S. Department of Labor Bureau of Labor Statistics, employment of health educators and community health workers is projected to grow 21 percent from 2012 to 2022, faster than the average for all occupations. Growth will be driven by efforts to improve health outcomes and to reduce healthcare costs by teaching people about healthy habits and behaviors and utilization of available health care services. Importantly, the Public Health Minor will meet a need that has been identified within the College of Health Professions as an additional area of expertise that could complement other programs within the College. In addition, it is noted that there may be students in programs outside of CHP who would find a Public Health minor to be a value-added component to support their field of practice. With the growing interest in public health with the Affordable Care Act enactment and the increasing emphasis on health promotion, this minor would fit well with a wide variety of other disciplinary programs.

Admission Requirements

This minor is open to any student admitted to Ferris State University who has an overall GPA of 2.5 or higher and is pursuing a baccalaureate degree.

Graduation Requirements

This minor requires a minimum of 18 credits and must reflect an area apart from the major concentration of the student’s baccalaureate degree program. A maximum of 1/3 (6) of the credits in this minor may overlap with the student’s major. Minor requirements must be completed prior to or at the time of the awarding of a baccalaureate or higher degree.

Two unsuccessful attempts (grade less than C) in any combination of PUBH courses will lead to dismissal in the program. This includes the following: Two unsuccessful attempts (grade less than C) in any PUBH course; OR One unsuccessful attempt (grade less than C) in any two (2) different PUBH courses.

This minor requires a minimum GPA of 2.0 in the courses selected for the minor. Students must have a minimum GPA of 2.0 in the Public Health Minor for successful completion and conferment of the Minor on the official transcript. At least 9 of the credits must be at the 300 level or above. At least 50% of the credits of the minor must be Ferris State University Credits.

More Information

Fathima Wakeel, PhD, MPH
Program Coordinator, Bachelor of Science in Public Health (BSPH) Program
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Public Health

Required Courses

Why Choose Public Health?

Public health is the science and art of preventing illness and disease and promoting evidence-based health practices with the goal of improving the quality of life. It is concerned with threats to health based on population health analysis. The population in question can be as small as a handful of people, or as large as all the inhabitants of several continents. The dimensions of health can encompass a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, as defined by the United Nations World Health Organization (WHO). Public health incorporates the interdisciplinary approaches of epidemiology, biostatistics and a vast array of health services. A host of specialists including educators, journalists, researchers, administrators, environmentalists, demographers, social workers, laboratory scientists and more, work to protect the health of the public. Public health professionals serve local, national and international communities in settings such as environmental health, community health, behavioral health, health economics, public policy, insurance and occupational health. Public health is a very rewarding field offering great personal fulfillment in serving others.

According to Healthy People 2010 (a study of the U.S. Public Health Infrastructure), there is growing demand for public health professionals, which will exponentially increase with the advent of recently passed health care reform legislation known as the Affordable Care Act. Historically, public health education existed as a professional degree program with training at the graduate level only. In 2003, the Institute of Medicine (IOM) recommended that public health education be accessible to all undergraduates.

The theme of the Ferris Public Health program is “rural public health” which is intended to focus on populations that are underserved by virtue of their geographic location in rural settings. The BSPH program includes both traditional and accelerated tracks, with the accelerated track culminating in a Master of Public Health (MPH) degree within 5 years (See the MPH program catalog page for further information about this track).

Career Opportunities

The Bachelor of Science in Public Health (BSPH) prepares students to pursue entry level careers in public health within governmental, private or non-profit sectors in areas such as public health education, health promotion, environmental health, community health, epidemiology, nutrition, health informatics, biostatistics, global health, maternal and child health, health economics, health services research, health policy and health planning and assessment. Because public health professionals work in such a wide variety of settings and often work in
multi-disciplinary capacities, the salaries vary significantly from job to job. An estimated salary range for BSPH graduates is $37,000 to $50,000 and can then range from $60,000 to $150,000 for MPH graduates, depending on the area of specialization.
(Source for this and other information: Association of Schools of Public Health website: https://www.apha.org/what-is-public-health

According to the U.S. Department of Labor-Bureau of labor Statistics, employment of health educators and community health workers is projected to grow 21 percent from 2012 to 2022, faster than the average for all occupations. Growth will be driven by efforts to improve health outcomes and to reduce healthcare costs by teaching people about healthy habits and behaviors and utilization of available health care services (source: http://www.bls.gov/ooh/community-and-social-service/health-educators.htm).

**Admission Requirements**

- Minimum GPA of 2.7 on a 4.00 scale (Traditional Track) or 3.0 on a 4.00 scale (Accelerated Track)
- International applicants must submit a minimum paper or internet TOEFL score of 550/80 respectively.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Bachelor of Science in Public Health requires a minimum GPA of 2.25 overall for graduation. Students must earn a grade of “C” or higher in all major PUBH, COHP MATH, BIOL, and CHEM courses and meet all the general education requirements as outlined in the General Education website.

**More Information**

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307
231-591-2270
CHP@ferris.edu

The College of Health Professions Website:
http://www.ferris.edu/HTMLS/colleges/alliedhe/

For More Information about Public Health Careers, Programs and Accreditation, please refer to the Association of Schools of Public Health (ASPH) website: http://www.aspph.org
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Public Health

Required Courses

Why Choose Public Health?

Public health is the science and art of preventing illness and disease and promoting evidence-based health practices with the goal of improving the quality of life. It is concerned with threats to health based on population health analysis. The population in question can be as small as a handful of people, or as large as all the inhabitants of several continents. The dimensions of health can encompass a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, as defined by the United Nations World Health Organization (WHO). Public health incorporates the interdisciplinary approaches of epidemiology, biostatistics and a vast array of health services. A host of specialists including educators, journalists, researchers, administrators, environmental scientists, demographers, social workers, laboratory scientists and more, work to protect the health of the public. Public health professionals serve local, national and international communities in settings such as environmental health, occupational health, community health, behavioral health, health economics, public policy and insurance. Public health is a very rewarding field offering great personal fulfillment in serving others.

The FSU Master of Public Health (MPH) program focuses on the preparation of public health and health care practitioners to better serve the community’s health needs. Graduates of this program will be able to help improve the health status of the communities in which they live and work, most notably in the underserved, rural population areas. The theme of the FSU Public Health programs at both the undergraduate and graduate levels is to address the need for an emphasis on “Public Health for Rural, Underserved Populations”.

Career Opportunities

With a Master of Public Health degree, one can work in the fields of health services administration, biostatistics, biomedical laboratory work, health and behavioral science education, environmental health, global health, nutrition, public health practice and program management, and epidemiology. Those with an MPH often work in public and private organizations, such as the Centers for Disease Control and Prevention, the Red Cross, American Cancer Society, federal health departments, food safety agencies, university systems in teaching and research, insurance companies, and pharmaceutical companies. Medical and health service managers (also called health care executives or health care administrators) plan, direct, and coordinate medical and health services.

In contrast to the entry level preparation of the graduate of the BSPH program, the MPH graduate is a member of the upper-level management team. Therefore, the MPH graduate should be able to perform advanced level job responsibilities of the public health professional.
Such job responsibilities differentiate the entry-level professional from upper-level management staff and include:

- Administration & Management of Programs and Staff
- Policy Development
- Grant Proposal Writing and Fund-Raising
- Budget Management
- Program Planning, Development and Assessment
- Research Design and Evaluation

According to the U.S. Department of Labor, Bureau of labor Statistics, employment of health educators and community health workers is projected to grow from faster than the average for all occupations. Growth will be driven by efforts to improve health outcomes and to reduce health care costs by teaching people about healthy habits and behaviors and utilization of available health care services (source: http://www.bls.gov/oco/ocos285.htm).

Depending on the area of public health practice, annual salaries can range from , to (source: https://www.apha.org/what-is-public-health).

**Admission Requirements**

- Minimum GPA of .
- Hold a bachelor degree from an accredited college or university.
- Graduate Record Exam (GRE) or equivalent taken within last years (may be waived if applicant has a professional or academic degree in a relevant area).
- International applicants must submit a minimum paper or computer TOEFL score Paper: 55 Ecomputer: TWE: 4 or TSE: .
- Completion of courses in the areas of mathematics, biology, chemistry, social sciences and statistics with minimal grades of “C”. These may be included in the undergraduate degree or taken prior to or concurrently in the MPH program.
- Personal statement of interest in public health.
- Three professional references.
- Professional resume.

**Graduation Requirements**

The Master of Public Health requires a minimum GPA of “B” or higher in all PUBH courses and no grade below “C” is acceptable for graduation. Degree requirements must be completed within a maximum of five years from the first enrollment in a graduate course following admission.

**More Information**

College of Health Professions
Ferris State University
Ferris Drive
Big Rapids, MI
The College of Health Professions Website:
http: www.ferris.edu HTMLS colleges edhe

For more Information about public health careers, programs and accreditation, please refer to the Association of Schools & Programs of Public Health (ASPPH) website: http: www.aspph.org.

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Public Relations

Required Courses

Why Choose Public Relations?

Public relations is one of the fastest growing industries in the United States, and Ferris is home to one of the best programs in the nation. The Ferris PR program is one of only two in the U.S. offering PR as a business degree; a significant distinction that “wows” employers. Additionally, Ferris is one of 35 elite programs in the U.S. to earn national certification (CEPR) in public relations. Our exclusive business core is combined with eight PR-specific courses, more than any program in the state. Our faculty bring real-world experience and professional certification (APR) to the classroom, where students work on real projects for real clients. The program’s proven excellence and distinctive offerings give our graduates a meaningful competitive advantage.

Career Opportunities

The field of public relations covers the entire spectrum of business communication for all types of organizations, from corporate to agencies to government and non-profit. PR is ultimately about building relationships and positive reputations, so it is literally in every organization everywhere. According to the Public Relations Society of America, the average practitioner’s salary is $69,000, with starting salaries ranging from $35-50,000. Top PR executives can make well into the six-figure salary range. Our program requires students to start the career search process early by making important contacts through job shadows, informational interviews, business networking, and internships. Graduates have landed jobs in all sectors throughout the nation and world.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. SAT ERW score of 450 or higher
  2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
  3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)
Two of the Three Criteria:

1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.

- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.

- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher; SAT Math score of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Public Relations program at Ferris leads to a bachelor of science degree in business with a major in Public Relations. Graduation requires a minimum 2.0 GPA in the core courses, in the major and overall.

More Information

Marketing Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2426
Email: MKTG@ferris.edu

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Public Relations

Required Courses

Why Choose a Public Relations Certificate?

As the first nationally certified Public Relations program in the state of Michigan (and less than 30 in the U.S.), Ferris State's Public Relations Program will give you the skills and knowledge to excel. The four courses required for the certificate provide students with more content and experience than many programs offer in their entire major. With employment growth rates in public relations projected to be more than 24% through 2018, gaining additional skills in PR will significantly enhance your current major.

Research shows that excellent written and verbal communication skills are one of the most sought after trait of potential employers. A certificate in PR from Ferris will help give you these skills. You will learn how to build positive relationships with an organization's key target groups to improve long-term reputation, goodwill, and the bottom line. You will learn to create and implement strategic communication material such as press releases, speeches, events, videos, social media, and interviews. A certificate in public relations from Ferris will give you a solid foundation in business communication and will be a strong asset in your career development.

Career Opportunities

Students with PR skills are in high demand in all industries as smart and savvy business communication specialists. The real-world training in this curriculum gives students a foundation for creating material in corporations, agencies, nonprofit, and government organizations. Job titles include work in media relations, sales promotion, public advocacy, human resources, speech writing, account executive, event planning, and broadcasting.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.
Graduation Requirements

You will receive the Public Relations Certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average.

No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

More Information

Marketing Department
119 South Street, Business 212
Big Rapids, MI 49307-2284
Phone: 231-591-2426
Email: MKTG@ferris.edu

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Public Relations

Required Courses

Why Choose a Public Relations Minor?

PR professionals communicate with a wide variety of audiences in their role as advocates for an organization. PR specialists excel in all areas related to communication and relationship building, such as: writing, public speaking, event planning, social media, publicity, storytelling, branding, and reputation management. Our PR minor will give you a solid foundation in real-world tools of the trade. You will be trained in one of the best programs in the nation, learning how to communicate effectively to meet executive level expectations.

Career Opportunities

At its core, PR is business communication in the service of reputation management, therefore, PR can be found in literally every organization, making it a high-demand job. A PR minor will supplement your major with practical knowledge, skills, and abilities desired by employers. Trained PR specialists start out earning between $35-50,000, with seasoned professionals at the executive level making well into six figure salaries.

Admissions Requirements

Any person who is admitted to a Ferris State University Bachelor’s degree program is welcome to obtain this minor.

Graduation Requirements

You will receive the Public Relations minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average in the Public Relations minor courses.

No more than 50% of the credits in this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Marketing Department
119 South Street, BUS 212
Big Rapids, MI 49307-2284
Phone: 231-592-2426
-mail: MKT ferris.edu
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Quality Leadership

Required Courses

Why Choose the Quality Leadership Certificate?

The field of Quality is increasingly becoming more important in manufacturing, medical, and in all aspects of business. This certificate emphasizes quality systems and a managerial approach to quality.

Career Opportunities

Your understanding of quality systems and management will increase your value and employability in such areas as marketing, engineering, sales, human resources, and general management.

Admission Requirements

Anyone admitted to the university is welcome to seek this certificate. Program offered at Grand Rapids Campus. Contact an advisor early, as all classes are not offered every term.

Graduation Requirements

Students must

- maintain a 2.00 cumulative FSU GPA
- No more than 50% of the credits in a certificate may be transferred from another institution.
- A minimum grade of C- is required for each course in the certificate

More Information

Program Offered at: Ferris Statewide, Grand Rapids (Part time nights)

(616) 451-4777 or (800) 998-3425

or ferrisgr@ferris.edu
http://ferris.edu/grandrapids

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Quality Technology

Required Courses

Why Choose the Quality Technology Certificate?

The field of Quality is increasingly becoming more important in manufacturing, medical, and in all aspects of business. This certificate allows you to increase your technical skills and experience with an understanding of the fundamentals of data analysis and experiment design.

Career Opportunities

Your quality expertise will increase your value and employability in such areas as marketing, sales, human resources, and general management. The program prepares you to take the Certified Quality Exam (CQE) administered by the American Society of Quality.

Admission Requirements

Anyone admitted to the university is welcome to seek this certificate.

Graduation Requirements

Students must

- maintain a 2.00 cumulative FSU GPA
- No more than 50% of the credits in a certificate may be transferred from another institution.
- A minimum grade of C- is required for each course in the certificate

More Information

Ferris Statewide, Grand Rapids (Part time nights)
(616) 451-4777 or (800) 998-3425
or ferrisgr@ferris.edu
http://ferris.edu/grandrapids

Main Campus, Big Rapids (Full time days)
College of Engineering Technology
Manufacturing Engineering Technology
(231) 591-2511
email: manufacturingdegrees@ferris.edu

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Radiography

Required Courses

Why Choose Radiography?

The Radiography program at Ferris is one of the largest and best-known programs in the country. The program is accredited by the Joint Review Committee on Education in Radiologic Technology. Ferris graduates are highly sought after employees in hospitals, doctors' offices, forensic medicine and other health care organizations. Graduates of the program are eligible to take the national certifying examination of the American Registry of Radiologic Technologists.

Perhaps the most familiar use of the x-ray is the diagnosis of broken bones. However, medical uses of radiation go far beyond that. Radiographers produce x-ray films (radiographs) of parts of the human body to assist a physician in the diagnosis of disease and trauma. Experienced radiographers may perform more complex imaging tests, such as CT, MRI, mammography, angiography and surgical procedures.

Students enter the program in the fall semester and spend the first three semesters on the Big Rapids campus. Studies during this period include general education and technical courses. Ample laboratory periods provide an opportunity to apply the theory and principles learned in the lecture sessions. During the final three semesters students work with patients in an off-campus clinical education center. These sites are located throughout the state in hospitals affiliated with the University to provide clinical experience and continued academic instruction.

Career Opportunities

According to the Bureau of Labor and Statistics, employment growth through the year 2018 is expected to increase by 17.2%. Job prospects should be best for persons trained in multiple disciplines such as radiography and CT, MRI, or ultrasound. More than half of jobs for technologists are in hospitals; the rest being in physicians' offices and clinics, including diagnostic imaging centers.

According to the ASRT Wage and Salary Survey for 2010, the national median salary for a registered radiographer across the nation was $61,733, depending on discipline, position, workplace, education, years in the profession and other demographic factors. Most graduates will earn a starting salary between $15 - $22 an hour.

Admission Requirements

Students must be admitted to the University. To be qualified to the professional sequence of the program, an overall GPA of 2.5 must be maintained; and the student must have earned a grade of B- or higher in BIOL 109 and MATH 115 (or a Math ACT sub score of 24 or higher), a grade of
C or higher in Medical Terminology, and a grade of C- or higher in ENGL 150 within two attempts including W grades.

To assure students of a quality technical education in classroom/lab and clinical practice, enrollment is limited. Students who meet or will have met the program's qualification criteria by the end of Fall semester are required to apply to the program's professional sequence between January 15 and January 30 of the year prior to the August professional sequence entry. Admission will be based upon date of qualification.

**General Education Requirements**

All University General Education requirements for an Associate's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The six-semester sequential course of study at Ferris leads to an associate in applied science degree. Graduation requires a minimum of 2.0 GPA overall. Students must earn a "C" or better in all courses listed on the checksheet.

Ferris provides an internship in the last three semesters of the program, although due to limited space, specific clinical site locations cannot be guaranteed. Internship is a 40 hour a week commitment for a year. Students should also be aware that they may be required to complete two weeks of afternoon shifts and 2 weekends during each semester of internship. If a student interrupts progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations in laboratory and clinical placement sites.

**More Information**

College of Health Professions
Ferris State University
200 Ferris Drive
Big Rapids, MI 49307-2740
231-591-2270
chp@ferris.edu

American Society of Radiologic Technologists
15000 Central Avenue, S.E.
Albuquerque, NM 87123-3917
www.asrt.org

American Registry of Radiologic Technologist
1255 Northland Drive
St. Paul, MN 55120
(651) 687-0048
www.arrt.org
Information concerning the accreditation of radiography programs is available from:
Joint Review Committee on Education in Radiologic Technology
21 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182
Phone: (312) 704-5300
www.JRCERT.org

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Real Estate

Required Courses

Why Choose Real Estate?

This program is under revision and is not available at this time.

The Real Estate Certificate will give you a very broad and comprehensive knowledge to apply, not only to the real estate course and license examination, but it will also provide a good foundation to succeed once you become a real estate professional. This course will also prepare you with a knowledge set for other careers and areas of Real Estate

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive this certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu
ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Respiratory Care

Required Courses

Why Choose Respiratory Care?

The Respiratory Care field offers challenge and mobility. Working as a member of the health care team, you will participate in the diagnosis, treatment and rehabilitation of patients with diseases of the heart and lungs. You will be prepared to give patients both emergency and long-term life support in a continually changing environment.

The curriculum is designed to include a combination of theory, laboratory and clinical coursework. Among the areas of study are human anatomy and physiology, pathophysiology, chemistry, pharmacology and mathematics. Other courses deal with therapeutic and diagnostic procedures and tests, equipment, patient assessment, cardiopulmonary resuscitation, the application of clinical practice guidelines, patient care outside of hospitals, cardiac pulmonary rehabilitation, respiratory health promotion and disease prevention. The program is fully accredited by the Commission on Accreditation for Respiratory Care.

Students will have the opportunity to practice skills in a laboratory setting prior to clinical practicum experiences that will occur in a variety of health care settings. NOTE: The Ferris Respiratory Care Program has clinical internships in various semesters of the program and because of limited space, specific clinical site locations cannot be guaranteed. Travel and housing may be necessary to attend some clinical internship experiences.

Upon successful completion of the program, graduates are eligible to sit for the Therapist Multiple Choice (TMC) Exam administered by the National Board for Respiratory Care. Successful completion at the lower cut score level awards the graduate the Certified Respiratory Therapist (CRT) credential and eligibility to apply for the Michigan State license. Successful completion of the TMC at the higher cut score level makes the graduate eligible to sit for the Clinical Simulation Examination for the Registered Respiratory Therapist (RRT) credential.

Career Opportunities

Employment opportunities include critical ventilatory management, cardiopulmonary rehabilitation, pulmonary function testing, neonatal and pediatric respiratory care as well as home care. Prospects for the future are excellent. Growing attention to heart diseases and their cause, new developments in treating and preventing disease as well as an aging population promise to broaden the field and provide more job opportunities. The average annual salary for a fully licensed and credentialed Respiratory Therapist is $50,070.

Admission Requirements
Students must be admitted to the University and must meet qualification requirement to apply for admission to the clinical sequence of respiratory courses. To become qualified, the student must earn and maintain a minimum college GPA of 2.5 and must complete designated pre-requisite coursework, earning a minimum grade of C in all math and science courses.

To assure students of a quality education in classroom/lab and clinical practice, enrollment is limited. Students who meet or will have met the program’s qualification criteria by the end of Spring semester are required to apply to the program's professional sequence between January 15 and January 30 of the year prior to the August professional sequence entry. Admission will be based on the semester of qualification.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

To graduate from the Respiratory Care Program, the student must earn a "C" grade or better in each of the respiratory care courses and the CHP core courses, and must meet all the general education requirements for the Associate in Applied Science (AAS) degree.

Students may not progress in the program when a grade of less than "C" is earned in any respiratory course. Students may repeat one respiratory course. If the student interrupts progression in the professional sequence of the program, re-entry cannot be guaranteed due to space limitations in laboratory and clinical placement sites.

**More Information**

College of Health Professions  
Ferris State University  
200 Ferris Drive  
Big Rapids, MI 49307  
Phone: 231-591-2270 or  
1-800-462-8553, ext. 2266

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Respiratory Therapy

Required Courses

Why Choose Respiratory Therapy?

The baccalaureate program in respiratory therapy is designed for Registered Respiratory Therapists with an associate degree in respiratory therapy who want to earn a Bachelor of Science degree in Respiratory Therapy in a student-centered learning environment. Students engage in self-directed learning activities, advance their knowledge in the areas of critical thinking, exhibit values for lifelong learning, synthesize evidence based information and develop leadership skills.

Career Opportunities

This program is meant to advance the associate degreeed Registered Respiratory Therapist into the next phase of education. It is focused on those who are interested in advanced care or leadership.

This fully on-line program is a self-paced program meant for the working individual.

Admission Requirements

Students must be admitted to the University and must meet qualification requirements to apply for admission to the BSRT completion program. To become qualified, the student must be a graduate of a CoARC accredited associate degree Respiratory Care program, hold the RRT credential from NBRC, hold a current state license, and have a cumulative grade point average of 2.5 or greater.

Applications will be taken at any time, to start Fall or Spring semesters. Seats are limited and will be awarded on a first come first serve basis, for those that are qualified. Students may reapply each semester if not admitted.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

To graduate from the Bachelor of Science in Respiratory Therapy program, the student must earn a “C” grade or better in each of the program courses. Students may repeat one respiratory
course. If a student interrupts progression in the program, re-entry cannot be guaranteed due to space limitations.

**More Information**

**Pre-admission Advising**

Sue Waters, MAT, RRT-ACCS, LRT

Program Coordinator

margaretwaters@ferris.edu

**Program Advising**

Emily Zyla, MS, RRT, LRT

Clinical Coordinator

emilyzyla@ferris.edu

Currently seeking accreditation by the Commission on Accreditation for Respiratory Care (CoARC). CoARC can be contacted as follows:

CoARC, 1248 Harwood Rd., Bedford, TX, 76021-4244

Office: 817-283-2835

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Restaurant and Food Industry Management

Required Courses

Why Choose Restaurant & Food Industry Management?

With over $790 billion in sales in 2017, the restaurant industry is a fast-paced environment where innovation and customer experience rule. Over 1 million locations within the United States alone provide our graduates with limitless opportunity to pursue a career in an industry focused on food waste reduction and environmental sustainability. As simplicity and locally sourced products continue to gain momentum in the foodservice experience, our program opens doors for a career with the potential to impact your community and our world.

The curriculum at Ferris encompasses all aspects of food production and guest service with particular emphasis on fiscal responsibility, leadership functions, and regulatory compliance. A balance between theory and practice is achieved by hands-on experience and real-life application illustrated through our dynamic industry partnerships. Whether on a site visitation or through a professional development opportunity, students meet and interact with industry professionals to learn cutting-edge concepts and skills necessary for success in the industry. During their academic career, students will earn relevant nationally recognized certifications, including ServSafe, First Aid/CPR, and TIPS.

Students wishing to continue their education may easily ladder into the Bachelor of Science in Business degree in Hospitality Management with a Food & Beverage Management Concentration.

Career Opportunities

Graduates of the Restaurant and Food Industry Management degree, with its business emphasis, are prepared to pursue careers within the food & beverage industry at the managerial level in a variety of different types of operations. Examples of such positions include:

- Dining Room Manager
- Bar Manager
- Catering Manager
- Food & Beverage Director

Admission Requirements

New Students SAT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT MATH score of 480 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores:

- 2.5 High School GPA (on a 4.0 scale)
- Two of the Three Criteria:
  1. ACT English score of 16 or higher
  2. ACT Math score of 19 or higher
  3. ACT Reading score of 19 or higher

Transfer Students:

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher; or SAT ERW score of 450 or higher; or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT MATH score of 19 or higher; SAT MATH of 500 or higher; or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

Exceptions for New and Transfer Students:

Applicants not meeting the above criteria MAY be considered for an approved Associates Degree if:

- High School GPA of 2.35 or higher
- Math ACT score of 16/SAT Math 430 and additional high school algebra
- ACT Reading score of 16 and ACT English score of 14 or a comparable SAT ERW score to be determined.
- SAT Composite score of 860 or ACT composite score of 15.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

More Information:

Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

- Maintain a 2.00 cumulative GPA in all FSU courses.
- Have 15 credits of FSU Classes (FSU Residency requirement).
- Have a minimum 60 total credits to earn an associate degree.
- Must maintain a 2.00 GPA in major courses.

NOTICE: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

Hospitality Programs
1319 Cramer Circle/WCO 106
Big Rapids, MI 49307
Phone: (231) 591-2382
Email: hospitality@ferris.edu

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Restaurant and Food Industry Management

Required Courses

Why Choose Restaurant and Food Industry Management?

The Restaurant and Food Industry Management certificate is designed to complement any degree by providing the fundamental knowledge necessary to successfully manage a food service operation. Required courses focus on essential financial skills and “front of the house” leadership critical to ensuring profitability and achieving high levels of guest satisfaction. Electives allow students the option of selecting courses that fit their particular needs and interests such as bar management, menu writing, service management, culinary skills, sanitation & safety, or purchasing. Throughout their studies students will have the opportunity to earn several nationally recognized certifications such as ServSafe, First Aid/CPR, AHLEI Dining Service Management and TIPS as part of their required courses.

Undergraduate Certificate Programs' Admission Criteria

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.
Graduation Requirements

- No more than 50% of the credits in a certificate may be transferred from another institution.
- If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
- A 2.00 cumulative GPA is required for completion of the Certificate.
- **A term prior to completion of the Certificate**, the student will log into MyFSU, and complete the "Apply for Graduation". You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

**More Information**

For more information, contact:

Hospitality Management Program  
West Commons 106  
1319 Cramer Circle  
Big Rapids, MI 49307  
Phone: 231-591-2382  
Email: hospitality@ferris.edu

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Retailing

Required Courses

Why Choose Retailing?

If you are interested in a dynamic, fast-moving career with potential for early responsibility and advancement, a retailing certificate will provide you with a route to success by providing you with skills in the following:

- Merchandise buying for profitability
- Inventory management
- Understanding buyer behavior in order to meet customer needs

You will be exposed to a powerful set of concepts that will serve you, not just in a retailing career pathway, but in any business field you choose that requires serving customers and successfully meeting corporate goals.

Career Opportunities

By itself the Retail Certificate provides students with the industry-specific skills to support careers in merchandising, store operations, or independent shop ownership. Taken as part of a four-year degree program, students with this certificate also qualify for executive training, buyer or management development programs with major retail chains.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete their high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

You will receive the Retailing Certificate after completion of the requirements with a minimum 2.0 grade point average.
No more than 50% of the credits in this certificate may be transferred from another institution, nor will the certificate be granted if more than 50% of the certificate credits are specifically required in the students major.

More Information

Marketing Department
119 South Street, Business 212
Big Rapids, MI 49307-2284
phone: 231-591-2426
email: MKTG@ferris.edu

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Risk Management and Insurance

Required Courses

Why Choose the Risk Management and Insurance BS Degree?

The Risk Management and Insurance program offers students a wide array of career choices in a dynamic and growing industry. The goals of this program are to provide students with a well-rounded, broad based business education, complemented with a carefully designed risk management and insurance concentration that includes flexibility for students to create their own area of emphasis. Areas of study include: personal and commercial insurance, risk management, marketing, sales, customer service, employee benefits, law, insurance company operations, probability, life insurance, health insurance and annuities. Students will also be able to obtain practical, on the job experiences by experiencing an internship as part of their course of study. In addition, students can earn exam waivers toward the coveted Chartered Property & Casualty Underwriter (CPCU) designation, and may also obtain their property and casualty producers license.

The Risk Management and Insurance faculty have solid academic credentials, and years of practical experience within the industry. The business faculty adds to this exciting field of study by combining their corporate, consulting, and academic experience that will enable them to deliver the courses in a practical and understandable fashion.

Career Opportunities

Employers are eager to hire qualified graduates. Opportunities include positions as agents, field representatives, underwriters, claims representatives, loss control professionals, and risk managers. There are also a wide variety of positions in technology, finance, accounting, marketing, and statistics. Graduates have demonstrated a very high level of job satisfaction, opportunities for creativity, advancement, and excellent growth of income. With the recognition of this program by many national and global insurance organizations, graduates will also have the opportunity to work in various areas of America, and in other countries.

This degree will prepare students for an exciting career within the insurance industry, and it will also provide students with the balance of managerial courses that will prepare them for supervision, management, and leadership roles.

Admission Requirements

New Students SAT Scores

- 2.5 High School GPA (on a 4.0 scale)
Two of the Three Criteria:

1. SAT ERW score of 450 or higher
2. SAT Math score of 500 or higher. Placement in MATH 109/110 will be considered (SAT Math score of 480 or higher).
3. SAT Composite of 900 or higher

New Students ACT Scores

- 2.5 High School GPA (on a 4.0 scale)

Two of the Three Criteria:

1. ACT English score of 16 or higher
2. ACT Math score of 19 or higher
3. ACT Reading score of 19 or higher

Transfer Students

- Combined college or university GPA of 2.35 (on a 4.0 scale) from all institutions attended. GPA based on completion of 12 credit hours or more. Developmental courses will not be considered in computing the GPA requirement.
- Transfer equivalency for FSU ENGL 150 or placement during the first semester at FSU which would require an ACT English score of 16 or higher or SAT ERW score of 450 or higher or Accuplacer English score of 6 or higher.
- Transfer equivalency for FSU MATH 114/115 or placement during the first semester at FSU which would require an ACT Math score of 19 or higher SAT Math score of 500 or higher or Accuplacer Math scores: Elementary Algebra score 75 or higher and College Level Math 0-49.

More Information:
Additional guidance can be found on the College of Business Webpage under the Admissions tab.

General Education Requirements

All University General Education requirements for a bachelor’s degree is here.

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Risk Management and Insurance program at Ferris leads to a bachelor of Science degree in business. Graduation requires a minimum 2.0 GPA in business core classes, the major courses and overall.

More Information

Ferris State University
ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Risk Management and Insurance

Required Courses

Why Choose the Risk Management and Insurance Certificate?

The Risk Management and Insurance certificate provides students in any major the basic knowledge and skills in the field of insurance. Topics covered in this certificate are essential foundational courses. This certificate will enhance any degree and provide graduates with distinctiveness.

Career Opportunities

Career opportunities in risk management and insurance management have never been stronger. Almost half of insurance industry professionals are over age 45, with 25% of the industry expected to retire in the next few years. Possible risk and insurance positions include helping people and businesses put their lives back together after disasters (claims professionals), finding ways to minimize risks (loss prevention engineers), managing an organization’s risk program (risk managers or risk analysts), matching customers with appropriate insurance products for their needs (insurance agents), and analyzing/pricing insurance applications according to their risk levels (underwriters).

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive this certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.

No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student’s major.
More Information

Ferris State University
College of Business Room 212
Management Department
119 South Street, Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Risk Management and Insurance

Required Courses

Why Choose the Risk Management and Insurance Minor?

The Risk Management and Insurance minor offers students in any major the knowledge and skills necessary to combine insurance acumen as a complement to their major. Students will experience the most important aspects of the risk and insurance concentration. Areas of study include: principles of risk management, personal insurance, commercial insurance, insurance company operations, insurance law, and employee benefits. The Risk Management and Insurance minor will help prepare students for exciting careers within their major, by providing additional depth and expertise within the risk management and insurance field.

Admission Requirements

Any Ferris student interested in improving their career opportunities can obtain a minor in Risk Management and Insurance in conjunction with his/her baccalaureate degree.

Graduation Requirements

You will receive the Risk Management and Insurance Minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average.

No more than 50% of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Ferris State University
College of Business Room 212
Management Department
119 South Street, Big Rapids, MI 49307-2284
Phone: 231-591-2427
mail: M  MT@ferris.edu

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Rubber Engineering Technology

Required Courses

Why Choose Rubber Engineering Technology?

The Rubber Engineering Technology program was started in 1998 based on an urgent need in the rubber industry for technically trained personnel. It is the ONLY Rubber Engineering Technology bachelor's degree program in the United States, so many companies are competing for these graduates. Approximately one million people across the country work in the rubber industry, making it one of our largest employers.

This innovative program provides students with a diversified background that includes advanced coursework in the mixing and testing of rubber compounds for industry standards, the processing of rubber compounds into finished products that meet customer requirements, product and mold design, and materials selection and properties. Classes emphasize hands-on learning, using the same type of equipment that is currently used in industry.

Partnership with Industry

The rubber industry, working with the State of Michigan, generated more than $7,000,000 to create the National Elastomer Center, a building on campus with state-of-the-art laboratories and classrooms. Many companies actively support us by donating equipment and materials, making on-campus presentations and sponsoring field trips to their facilities.

Students also serve a paid internship in industry for a minimum of ten weeks each, gaining valuable firsthand experience before graduation. Some out-of-state companies even pay room and board in addition to salary to attract our interns. The experience helps the students decide what type of position they would most enjoy after graduation.

Career Opportunities

After completing the Rubber Engineering Technology program, students are immediately employable by the rubber industry. One hundred percent placement is expected in the foreseeable future. B.S. graduates usually start in engineering positions such as process, product or project engineer, quality control engineer or technical sales representative. The rubber industry is looking to graduates of this Ferris program to become their senior engineers and managers of the future. B.S. graduates should make approximately $65,000 per year at graduation and with ten years’ experience can make $100,000 per year or more.

Admission Requirements

Admission requires an associate degree in Plastics and Polymer Engineering Technology (or...
approved equivalent) with a minimum 2.75 cumulative GPA and MATH 120 Competency. For entry from another program, prior work will be evaluated and the student will be placed at the appropriate point in the program. Admission is competitive.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Rubber Engineering Technology program at Ferris leads to a Bachelor of Science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website

More Information

National Elastomer Center
919 Campus Drive
Big Rapids, MI 49307-2277
Phone: 231-591-2640

College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890

ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an ADA compliant checksheet before the 19-20 catalog is published, please send your request to: FSUCurriculum@ferris.edu
Ski Resort Management

Required Courses

Why Choose Ski Resort Management Certificate

The Ski Resort Management certificate is designed to prepare students with the prerequisite technical skills and knowledge necessary for successful employment in entry-level management positions within the ski industry. Emphasis is placed on understanding the functions of lift operations, snowmaking, trail grooming, equipment rental, and repair facilities. Additional coursework focuses on providing high levels of guest service, managing retail operations, and risk management.

Ski resorts are large operations and require a large workforce. The certificate in Ski Resort Management can lead to opportunities such as:

- Ski Operations Manager
- Business Operations Manager
- Lift Operations Supervisor

Undergraduate Certificate Programs' Admission Criteria

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change
Any mitigating circumstances will be considered on an individual basis by the College of Business Dean’s Office/SAA.

**Graduation Requirement**

- No more than 50% of the credits in a certificate may be transferred from another institution.
- If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
- A 2.00 cumulative GPA is required for completion of the Certificate.
- **A term prior to completion of the Certificate**, the student will log into MyFSU, and complete the “Apply for Graduation”. You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

**NOTICE**: Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

**More Information**

Hospitality Management Program  
West Commons 106  
1319 Cramer Circle  
Big Rapids, MI 49307  
Phone: 231-591-2382  
Email: hospitality@ferris.edu

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Small Business and Entrepreneurship

Required Courses

Why Choose the Small Business and Entrepreneurship Minor?

The Small Business Entrepreneurship minor is a practical preparation for individuals interested in starting a business. The six-course sequence will guide students through the process of conceptualizing and testing business ideas, developing a business plan, and navigating legal and government requirements. Students will be instructed in small business accounting principles and will learn how to incorporate managerial metrics into their business decision-making. Students will engage in hands-on activities and simulations, guided by faculty with actual small business management experience. Students will be introduced to promotion and marketing strategies to grow the business. Students will also be introduced to the various methods of raising capital including an understanding of pro forma preparation, entrepreneurial funding, risk management, and exit strategy design. Finally, students will complete an internship within the entrepreneurial industry (e.g. small business, start-up company, small business incubator, venture fund, etc.)

Admission Requirements

Any person who is admitted to a Ferris State University Bachelor's degree program is welcome to pursue this minor in addition to their major.

Graduation Requirements

You will receive the Small Business and Entrepreneurship Minor upon graduation with a baccalaureate degree, and after completion of the requirements for the minor with a minimum 2.0 grade point average.

No more than 50% of the credits required for this minor may be transferred from another institution. A maximum of 1/3 of the credits, but not more than 7 credits in a minor may overlap with the student's major.

More Information

Management Department
119 South Street/BUS 212
Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

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Small Business Management

Required Courses

Why Choose the Small Business Management Certificate?

The Small Business Management certificate is a practical preparation for individuals interested in starting a business. The four-course sequence will guide students through the process of conceptualizing business ideas, developing a business plan, and navigating legal and government requirements. Students will be instructed in small business accounting principles, and will learn how to incorporate managerial metrics into their business decision-making. Students will engage in hands-on activities and simulations, guided by faculty with actual small business management experience. Finally, students will be introduced to promotion and marketing strategies to grow the business.

Career Opportunities

According to the Small Business Administration, small business makes up 99.7% of all employer firms. No matter what discipline you specialize in, chances are high that you will work in, manage, or own a small business at some point in your career. This certificate prepares students for career roles in management, day-to-day operations, and entrepreneurial start-up of small business organizations. Career opportunities include small business supervisors, managers, and company founders.

Admission Requirements

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.

Graduation Requirements

A Ferris student will receive this certificate after completion of the requirements for the certificate with a minimum 2.0 grade point average in the certificate courses.
No more than 50% of the credits required for this certificate may be transferred from another institution, nor will this certificate be granted if more than six of the certificate credits are specifically required in the student's major.

More Information

Management Department
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Big Rapids, MI 49307-2284
Phone: 231-591-2427
Email: MGMT@ferris.edu

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Social Studies Elementary Education

Required Courses

Why Choose Social Studies Elementary Education

Social Studies Elementary Education involves the study of history, geography, political science and economics. In today’s society, social studies elementary education is especially relevant. Trained social studies elementary educators are able to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world (NCSS, 1994.) These educators are well rounded in the various aspects of Social Studies and will play an important role in helping future generations understand the world around them. These educators can assist students in gaining knowledge in anthropology, archaeology, economics, geography, history, law, philosophy, religion, and sociology and to make global connections.

Career Opportunities

Current employment opportunities in the field of social studies education is based on two key factors. Both on a national and state level there is a common theme of the extreme need for teachers and adequately prepared elementary social studies teachers. Concerns at the beginning of the decade focused primarily on the issue of the retirement for a significant number of educators, in the Michigan Education Report of 2001. Teacher shortages in Michigan are predicted to be most severe at the secondary education level. The issue of teacher shortage due to retirement has been redress a major issue - teachers who teach in content areas where they have little or no formal training. This issue is especially relevant to the field of social studies. With the cuts in funding for education, school districts are relying on hiring teachers who can teach in multiple areas. Social study teachers have broad-based education in multiple content areas which makes them highly marketable in the current economic times.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 and a 17 ACT or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Teacher Certification Requirements**

As required by the State of Michigan, to receive teacher certification, all teacher candidates must: 1. pass the Michigan Basic Skills Exam; 2. pass the Michigan Test for Teacher Certification content area tests in their major and minor; and 3. have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**Graduation Requirements**

The social studies education program leads to a Bachelor of Science degree through the School of Education, College of Education and Human Services. Graduates must complete all of Ferris State University’s general education, social studies and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

**More Information**

College of Education and Human Services  
School of Education  
Ferris State University  
Bishop Hall 421  
1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Phone: 231-591-5361

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Social Studies Secondary Education

Required Courses

Why Choose Social Studies Education

Social Studies Education involves the study of history, geography, political science and economics. In today's society, social studies education is especially relevant. Trained social studies educators are able to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world (NCSS, 1994.) These educators are well rounded in the various aspects of Social Studies and will play an important role in helping future generations understand the world around them. These educators can assist students in gaining knowledge in anthropology, archaeology, economics, geography, history, law, philosophy, religion, and sociology and to make global connections.

Career Opportunities

Current employment opportunities in the field of social studies education is based on two key factors. Both on a national and state level there is a common theme of the extreme need for teachers and adequately prepared social studies teachers. Concerns at the beginning of the decade focused primarily on the issue of the retirement for a significant number of educators, in the Michigan Education Report of 2001. Teacher shortages in Michigan are predicted to be most severe at the secondary education level. The issue of teacher shortage due to retirement has been redress a major issue - teachers who teach in content areas where they have little or no formal training. This issue is especially relevant to the field of social studies. With the cuts in funding for education, school districts are relying on hiring teachers who can teach in multiple areas. Social study teachers have broad-based education in multiple content areas which makes them highly marketable in the current economic times.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Teacher Certification Requirements**

As required by the State of Michigan, to receive teacher certification, all teacher candidates must: 1. pass the Michigan Basic Skills Exa.; 2. pass the Michigan Test for Teacher Certification content area tests in their major and minor; and 3. have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**Graduation Requirements**

The social studies education program leads to a Bachelor of Science degree through the School of Education, College of Education and Human Services. Graduates must complete all of Ferris State University's general education, social studies and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

**More Information**

College of Education and Human Services  
School of Education  
Ferris State University  
Bishop Hall 421  
1349 Cramer Circle  
Big Rapids, MI 49307-2737  
Phone: 231-591-5361

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Social Work

Required Courses

Why Choose an Associates Degree in Social Work?

The Social Work Associate in Arts degree is designed for students who intend to transfer into the BSW program at Ferris State University. The Social Work Associate in Arts provides students with a solid base of social work knowledge and its application.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT composite score, and ACT reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT scores for admission review.

General Education Requirements

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

Graduation Requirements

The Social Work AA program leads to an Associate in Arts degree. Graduation requires (1) a minimum 2.0 GPA overall, (2) a minimum 'C' grade in all social work courses, (3) completion of all general education requirements as outlined on the General Education website and (4) completion of a minimum of 60 credits.

More Information

PROFESSIONAL ADVISOR: Dave Schrock
PHONE: 231-591-3705
E-MAIL: DaveSchrock@ferris.edu

Social Work Department
Ferris State University
820 Campus Drive, ASC 2108
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Social Work

Required Courses

Why Choose Social Work?

The curriculum includes a strong liberal arts foundation, including courses in communication, biology, natural sciences, math, history, politics, psychology and sociology. Beyond this are the professional foundation courses that develop knowledge, skills and values relating to interviewing, problem solving, social research and understanding the complexities of social welfare policies and services.

Social work majors complete 600 hours of field instruction in two different social work agencies. The first field placement requires 120 hours and is scheduled in the summer between the student's first and second years in the program. It is usually completed in the student's home town. The second field placement requires 480 hours over the senior year and is usually located in the region surrounding Ferris. The Ferris Social Work program is accredited by the Council on Social Work Education.

Career Opportunities

It's a rewarding profession. Social workers help to bring about individual and social change. Examples include helping delinquent youth change their disruptive behavior, improving an abused child's chances of emotional and physical survival by providing supportive family services or locating alternate placement, helping alcoholics change their self-destructive habits, assisting communities in providing better housing for the elderly, or working professionally and politically to help our nation improve its policies and programs for the poor and unemployed.

It's a big and diverse profession. There are approximately 500,000 social work jobs in the United States, with estimates of an additional 200,000 needed by the year 2005. U.S. News & World Report named social work as one of '21 Hot Job Tracks for the 21st Century.'

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT composite score, and ACT reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT scores for admission review.

General Education Requirements
All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Social Work program at Ferris leads to a bachelor of social work (BSW) degree. Graduation requires a minimum 2.0 GPA overall and presentation of a social work portfolio. Students must complete all general education requirements as outlined on the General Education website.

**More Information**

PROGRAM COORDINATOR: Michael Berghoef  
PHONE: 231-591-2765  
EMAIL: MichaelBerghoef@ferris.edu

PROFESSIONAL ADVISOR: Dave Schrock  
PHONE: 231-591-3705  
EMAIL: DaveSchrock@ferris.edu

Department of Social Work  
Ferris State University  
820 Campus Drive/ASC 2108  
Big Rapids, MI 49307-2225  
Phone: 231-591-2737

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Social Work

Required Courses

Why Social Work?

Social Workers serve individuals, families and communities. It is the helping profession. With an advanced degree in social work, you will have more employment doors opened and have the ability to make a greater difference in people’s lives.

The curriculum includes study in Human Behavior in the Social Environment, Clinical Practice, Research and Policy. Ferris has a clinical concentration in the MSW program. As such, the emphasis will be on clinical theory and practice as well as the policy contexts of practice. You will be trained to treat behavioral, mental and emotional issues and be prepared to work as counselors, therapists and clinical supervisors.

Full time students typically complete their MSW degree in two years. For students with a BSW from an accredited university, the Advanced Standing program enables students to complete their degree in three semesters.

Students complete 900 hours of field instruction in one or two different social work agencies. Advanced Standing students’ BSW field education counts toward the total number of hours. The capstone project gives students an opportunity to engage in research or program development.

An MSW degree is considered a terminal practice degree in the field of social work. Ferris State University’s MSW program is currently in candidacy for accreditation by the Council on Social Work Education. All students entering the program in fall 2014 will be graduated from an accredited program retroactively.

Career Opportunities

The Bureau of Labor Statistics forecasts a 25% employment growth for social workers, faster than the average for all occupations. With an MSW, graduates will have a higher earning capacity as well as be in positions of greater influence. The wide range of clinical positions includes mental health and substance abuse therapists, behavioral health counselors, medical social workers, school social workers, marital counselors and child and family clinicians.

Admission Requirements

Traditional Program: Bachelor's Degree from an accredited college or university. Applicants must have an undergraduate degree that includes a clear liberal arts base with a firm foundation in the social sciences, political science, humanities and the sciences. 3.0 overall undergraduate GPA.
Advanced Standing: Bachelor's in Social Work from a CSWE Accredited social work program. 3.5 average GPA in social work courses.

**Graduate Requirements**

Traditional Program: 3.0 GPA in all courses, minimum 65 credits, completion of all required courses listed Traditional Year and Advanced Year.

Advanced Standing: 3.0 GPA in all courses, minimum 35 credits, completion of all required courses listed Advanced Year.

**More Information**

Advisor: Dr. Janet Vizina-Roubal
Office: ASC-2102
Phone: 231-591-2846
Email: JanetVizinaRoubal@ferris.edu

Department of Social Work
Ferris State University
820 Campus Drive, ASC 2108
Big Rapids, MI 49307-2225
Phone: 231-591-2737

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Sociology

Required Courses

Why Choose Sociology?

Sociology, the study of human society, gives students the ability and knowledge to understand social systems and their influence on individuals. It gives students the tools and knowledge they need to do social research, to identify and devise solutions to social problems, to identify group influences, and to understand group dynamics. Above all, it gives students the ability and knowledge they need to understand the complexities of modern life in an ever-changing swirl of economic, political, and cultural dynamics, and to take positive action on behalf of their employer, community, or interests.

Students in the Sociology major complete core courses in social theory and research methods. They also choose from an array of courses dealing with different topics such as marriage and family, minority groups, health and illness, social change, deviant behavior, and urban sociology. Advanced students often participate in undergraduate research projects or internships.

Career Opportunities

The Sociology major is excellent preparation for a variety of career paths. These include careers in law, government, human services, marketing research, education, health-related systems, management, and the mass media. Many graduates continue their education in graduate or professional school in a variety of fields, while others use their analytic, research, and organizational skills to find immediate employment in a variety of settings.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

In order to graduate with a Bachelor of Arts in Sociology, a student must complete a minimum of 120 credit hours including the Sociology major, the BA core, an academic minor in another field of study, and all general education requirements for the Bachelor of Arts degree with a minimum 2.0 cumulative GPA in all courses. At least 40 credits must be at the 300 level or higher. No grade lower than 'C' will count toward the major.

**More Information**

LEAD ADVISOR: Dr. Bonnie ght
PHONE: 231-591-2791
E-MAIL: Bonnie ght@ferris.edu

PROFESSIONAL ADVISOR: Dave Schrock
PHONE: 231-591-3705
E-MAIL: DaveSchrock@ferris.edu

Social and Behavioral Sciences Department
Ferris State University
820 Campus Drive/ASC 2108
Big Rapids, MI 49307-2225
Phone: 231-591-2735

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Sociology

Required Courses

Why Choose the Sociology Minor?

The Sociology minor enables students to see the 'big picture' of human society. Each of us lives out our life within a complex web of social relationships at many levels, from small groups such as the family and peers to giant organizations that span the globe, such as the United Nations and multinational corporations. Sociology students learn to look at this intricate mosaic of life with a perspective that helps them to understand their places in it, and to cope with a changing world and workplace.

The Sociology minor will help prepare you for the world of work and the lifelong changes you will encounter in your careers. Sociologists study all human institutions and levels of social systems and how they interact in the modern world. Sociology helps us understand the motivations and aspirations of those with whom we deal on a daily basis. This helps us function more easily and effectively in the workplace and in the larger society, which is becoming ever more diverse. Employers seek those who have skills dealing with people. Whatever major you are pursuing, a Sociology minor will add a human social dimension with a breadth not available in other disciplines.

Admission Requirements

This Sociology minor is open to any student admitted to Ferris State and pursuing a Baccalaureate degree except those pursuing the Bachelor of Arts with a Sociology major. The minor is designed to complement any Ferris major program. A maximum of one-third of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Bonnie Wright
PHONE: 231-591-2791
E-MAIL: BonnieWright@ferris.edu
Social and Behavioral Sciences Department
Ferris State University
820 Campus Drive, ASC 2108
Big Rapids, MI 49307
Phone: 231-591-2735

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Spa Management

Required Courses

Why Choose Spa Management Certificate

The Spa Management certificate is designed to prepare individuals with the knowledge and skills required for successful employment in the spa industry at a supervisory or management level. Emphasis is placed on retail merchandising, exceeding guest expectations, spa operations and the role of management.

Spa Management leads to career opportunities such as: spa director, spa management, product & sales management, and front desk concierge manager within hotels, resorts, wellness centers and more.

The spa services industry in the US includes about 20,000 facilities with combined annual revenue of about $15 billion, according to the International SPA Association.

Undergraduate Certificate Admission Requirements

Any person admitted to a Ferris State University degree program may enroll in courses for undergraduate COB certificates. No more than 50% of the credits in a certificate may be transferred from another institution. If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major. The certificate will be granted upon completion with an average GPA of 2.0 or higher in the courses designated for the certificate.

Individuals wanting to advance their career, but not admitted to an FSU degree program, may also earn undergraduate COB certificates.

Admission process for individuals seeking only a certificate:

- Applicant should show proof of high school graduation with a 2.35 GPA. If it is determined by the COB Dean’s Office/SAA that regular program admission criteria should be met in order to complete the certificate successfully and be a contributing member of the course, all college transcripts should be submitted to the Admissions Office. Once admitted, an advisor will be assigned by the College of Business in the certificate program.
- Dual enrolled/concurrent students must complete the high school degree (provide transcript) before the certificate will be granted from FSU.
- Students wishing to pursue a bachelor or associate’s degree must meet the admission criteria for the program. This criteria review is initiated when the “Program Change Form” request is processed through the COB Dean’s Office/SAA.
Any mitigating circumstances will be considered on an individual basis by the College of Business Dean's Office/SAA.

Graduation Requirements

- No more than 50% of the credits in a certificate may be transferred from another institution.
- If a student is in a FSU degree-seeking program, the certificate will not be granted if more than 50% of the certificate credits are required in the program/major.
- A 2.00 cumulative GPA is required for completion of the Certificate.
- **A term prior to completion of the Certificate**, the student will log into MyFSU, and complete the "Apply for Graduation". You will receive an email back with the next steps to take. Once this is done, the Graduation Secretary will notify the Registrar who will note the completion of the Certificate.

**NOTICE:** Students who return to the university after an interrupted enrollment (not including summer semester) must normally meet the requirements of the curriculum, which are in effect at the time of their return, not the requirements which were in effect when they were originally admitted.

More Information

Hospitality Management Program  
1319 Cramer Circle/ ☏ 106  
Big Rapids, MI 49307  
Phone (231) 591-2382  
Email: hospitality@ferris.edu

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Spanish

Required Courses

Why Choose a Spanish Minor?

The fastest-growing population in the U.S. is Spanish-speaking Americans, and some of our most important trade partnerships are in Mexico and Latin America. In the coming years, a demonstrated fluency in Spanish is sure to be an asset in any career, whether it is education, health care, business, governmental service, technology, or tourism and leisure activities. The Spanish minor allows students to develop their skills in written and conversational Spanish and also to study the cultures of Spain, Mexico, and Latin America. Summer study-abroad programs are available when there is sufficient demand.

While all careers are enhanced by knowledge of a second or third language, specific majors at Ferris lend themselves to this intercultural awareness including:

- International Business
- Hospitality Management
- Criminal Justice
- Social Work
- Plastics Engineering
- Teacher Education
- Public Relations
- Public Administration
- Health Care
- HVAC
- and Building Trades.

Spanish today is the second language of the United States. In virtually all major metropolitan areas, as well as in many agricultural regions, a knowledge of Spanish provides a distinct professional and cultural advantage. Students with this minor enhance their opportunity for employment in a variety of careers throughout the country.

This academic minor prepares students for careers requiring effective communication, cultural understanding, intensive technical and professional reports, interpretive and critical thinking skills, formal proposals for funding, advanced writing abilities, and methods of research, analysis, and interpretation.

Admission Requirements

This Spanish minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree expect those pursuing a Bachelor of Science in Spanish for the Professions. The minor is designed to complement any Ferris major program. A maximum of one-third of the credits, but no more than 7 credits, may overlap with the student’s major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 22 credits with a minimum 2.0 grade average in these
courses.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

**More Information**

Advisor: Eric Warner  
Phone: 231-591-5049  
e-mail: EricWarner@ferris.edu

Department of English, Literature, and World Languages  
Ferris State University  
820 Campus Drive, ASC 3080  
Big Rapids, MI 49307  
Phone: 231-591-3988

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Spanish for the Professions

Required Courses

Why Choose Spanish for the Professions?

This Bachelor of Science in Spanish for the Professions degree program at Ferris will have a distinct purpose and approach: it will focus on Spanish for the professions and on Spanish in the Americas, including Spanish language and Hispanic/Latino culture in the United States.

The major has been constructed considering the most current needs of a diverse community; that is, it will prepare students with the right tools to expand their professional service abilities to a wider community in the areas of education, medical professions, social work and criminology.

With a B.S. in Spanish for the Professions students will have several advantages. They will have the opportunity to participate in community-based experiences. They will complete an internship with Spanish-speaking populations either locally or abroad. Students will also complete a Senior Capstone course to culminate their experiences in the classroom with their experiences in the professional arena.

Career Opportunities

With today's competitive job market, students with the Spanish for the Professions B.S. degree will have greater opportunities and will be better prepared for their job search as evidenced by the growing frequency of job market offerings that seek bilingual and culturally aware employees. Employers in fields such as education, criminal justice, health care, social work and engineering recognize the importance of hiring bilingual personnel.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity, and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 Reading and Mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.
Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Spanish for the Professions program leads to a Bachelor of Science degree. Graduation requires a 2.0 cumulative GPA in all coursework required for graduation. All Spanish major courses under the prefix SPAN must be completed with a grade of ‘C’ or better, otherwise students must repeat the course. Students entering below a 300 level are recommended to take SPAN 102, 201 and 202 as general education electives. This major requires a minimum of 40 credits at the 300 level or higher and 121 semester credits minimum. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student’s major. Students may apply 6 credit hours of overlap between minors.

**More Information**

ADVISOR: Dr. Eric Warner  
PHONE: 231-591-5049  
EMAIL: EricWarner@ferris.edu

Department of English, Literature, and World Languages
Ferris State University  
820 Campus Drive/ASC 3080  
Big Rapids, MI 49307-2225  
Phone: 231-591-3988

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Spanish Teaching

Required Courses

Why Choose Secondary Education Spanish?

The Spanish Education Minor prepares future teachers to communicate with prospective students in the target language in a simple, but efficient way, the basics of the language grammar, vocabulary, culture, and important aspects of the Hispanic world. A highlight of the program is the Spanish pedagogy class, which entails a variety of examples and classroom like scenarios where students have hands-on experiences to become familiar with the current trends and approaches of a second language acquisition.

Admission Requirements

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Secondary Education majors may choose an appropriate teaching minors from the following areas: biology, chemistry, English, geography, history, mathematics, physical education, political science, spanish, or speech communication.

Graduation Requirements

A 2.75 GPA is required for satisfactory completion of the Spanish teaching minor. No grade lower than a "C".

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Special Education Endorsement Only

Required Courses

Why Choose the Special Education Endorsement?

This program is designed for persons with a Provisional Teacher Certificate who are seeking a Special Education Endorsement.

Admission Requirements

Students seeking this endorsement must complete a minimum of one area for Endorsement.

Graduation Requirements

Candidates for a Special Education Endorsement must pass the Special Education test in their Endorsement.

Please contact the School of Education Certification Officer at 231-591-5375 for additional information on state requirements.

More Information

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School of Education
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Speech Communication Teaching

Required Courses

Why Choose Teaching Minors for Secondary Education Majors?

The Secondary Education program requires the completion of a teaching major and a teaching minor to fulfill the subject area requirements of the program.

Admission Requirements

Secondary Education majors may choose an appropriate teaching majors from the following areas: biology, chemistry, English, geography, history, mathematics, physical education, political science, spanish, or speech communication.

Graduation Requirements

A 2.50 GPA is required for satisfactory completion of the speech communication teaching minor. No grade less than a "C".

More Information

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Sports Communication

Required Courses

How to Enter a Career Working in the Sports Industry

Did you know it takes 30 people doing all kinds of jobs to make every professional athlete's job happen? I am one of those 30: I plan the sports event, I advertise the event and market the tickets and other products sold at the event, I broadcast and report the event, I manage the sports facility, I coach the athletes and I manage the development of their careers from prep school through college on to the pros. I am a Sports Communication specialist.

What Will I Study?

Students in Sports Communication develop a strong set of "soft" communication skills working with people one on one, on teams and in formal settings in the Core courses. They identify one of four workplace applications in which they acquire the "hard" skills to complete their jobs: Management and Leadership, Broadcasting/Journalism, Event and Facilities Management or Media and Marketing (Advertising, Marketing, Public Relations). They finish their curriculum with an academic minor chosen to expand their interests and marketability. The Sports Communication course (COMM 389) includes a team project to plan, execute and assess a "value-added" activity at a Ferris sports event or a fund-raising event hosted by Sports Careers RSO.

Why Choose This Major?

Sports Communication students not only earn a degree but they also build their resume with experiences working in the sports industry. Majors have held paid jobs with the Athletic Department, including Game Day Manager, responsible for setting up 15+ intercollegiate sports facilities and managing a staff of 30+ student workers, many of whom are Sports Communication majors. Through guest speakers in class and community events (such as the Sports Speakers Series), students can network into internships and career tracks in sports from the amateur/recreational level to professional and from K-12 to the major leagues. Student athletes find the major accommodating to their schedules and career goals. Sports Careers RSO supports major coursework with program activities ranging from travel to conferences and career fairs to community service outreach in partnership with Special Olympics College Club.

What are Sports Communication Graduates Doing Now?

The job titles of our graduates include athletic director, professional athlete, coach, events operations manager for a professional basketball team, and director of education for a coaches association. Graduates have earned advanced degrees in communication, higher-education student-affairs and sports studies. Graduates have pursued careers in sports law and sports
Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 reading and mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12 credits at the time of application with a minimum 2.0 overall GPA including an English and Mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

General Education Requirements

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Sports Communication program leads to a bachelor of science degree. Graduation requires (1) a minimum 2.0 GPA overall, (2) no grade lower than ‘C’ in any COMM or ENGL class, (3) a 2.0 GPA in the applications to the workplace courses, (4) at least 40 credits at or above the 300 level, (5) completion of all general education requirements as outlined on the General Education website, and (6) completion of a minimum of 120 credits.

More Information

ADVISOR: Dr. Sandy Alspach
PHONE: 231-591-2779
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1009 Campus Drive/JOH 119
Big Rapids, MI 49307-2280
Phone: 231-591-3675

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Sports Communication

Required Courses

Why Choose the Sports Communication Minor?

The sports industry has become a major player in the national and world economy. Beyond the obvious competition events involving players, coaches and spectators, the industry requires many support personnel to administer, market, and broadcast events. At every level of involvement, appropriate and effective communication is required. This minor offers students pursuing careers in the sports industry an opportunity to acquire knowledge and develop skills and attitudes for career success.

Admission Requirements

This Sports Communication minor is open to any student admitted to Ferris State University and pursuing a baccalaureate degree except those pursuing a B.S. in Applied Speech Communication or B.S. in Sports Communication. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student’s major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State University. The Sports Communication minor requires a minimum of 18 credits of course work in communication, nine of which are at the 300 level or above, and a minimum of 2.0 grade average in all communication course work comprising the minor. Also, 50% of the credits for a minor must be taught by Ferris State university.

More Information

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1009 Campus Drive/ OH 119
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Phone: 231-591-3675

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Sports Communication

Required Courses

**Why Choose the Sports Communication Certificate?**

The sports industry has become a major player in the national and world economy. Beyond the obvious competition events involving players, coaches and spectators, the industry requires many support personnel to administer, market, and broadcast events. At every level of involvement, appropriate and effective communication is required. This certificate offers students pursuing careers in the sports industry an opportunity to acquire knowledge and develop skills and attitudes for achieving competent 'sports communication.'

**Admission Requirements**

This Sports Communication certificate is open to any student admitted to Ferris State University except those pursuing a major in B.S. in Applied Speech Communication or B.S. in Sports Communication. The certificate is designed to complement any Ferris major program.

**Graduation Requirements**

This certificate requires a minimum of 12 credits. This certificate requires a minimum GPA of 2.0 in these courses. At least 50 percent of the credits for this certificate must be Ferris State University credits. No more than three credits from this certificate may count towards completion of an academic major. English 250 with a C or higher is required.

**More Information**

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Phone: 231-591-2426
Email: M T G@ferris.edu

Graphic Communications is accredited by the Accrediting Council for Collegiate Graphic Communication, Inc.
Next accreditation review is 2021.
http://accgc.org/programs.html

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Surveying and Mapping

Required Courses

Why Choose Surveying and Mapping Minor?

The objective of the minor program in surveying and mapping is to give the students a general understanding of how surveying measurements are performed and to gain familiarity of knowing how to use the field surveying instruments. The students completing this program should be able to:

- Perform basic differential leveling in the field
- Reduce differential leveling observations
- Understand the concept of field data collection using conventional and modern electronic data collection instruments such as an electronic total station
- Understand the concept of field data collection using global positioning system (GPS) instruments
- Understand the basic concept of how to prepare a topographic map from actual survey data
- Perform traverse computations and simple traverse adjustment
- Develop an appreciation for establishing horizontal and vertical control for a small to medium size surveying project
- Have a basic understanding of State Plane Coordinates, Lambert conic projection in particular
  Depending on the student's selection of the optional courses, the student completing this minor will demonstrate:
  - Performing simple circular curve calculations
  - Performing the field layout of a basic circular curve
  - An appreciation for the basic photogrammetric concepts such as photo scale, flying height, overlap, side lap
  - An understanding of the public land surveying systems
  - An appreciation for the basic concepts of Geographic Information Systems (GIS)

Career Opportunities

The knowledge gained through this minor will enable the student who completes the program to function as a surveying technician within an organization.

Admission Requirements

The minor is open to all students enrolled and pursuing a baccalaureate or higher degree in majors other than Surveying Engineering. Students are expected to meet prerequisites for all courses. Students must be in good standing with a cumulative of a 2.0 or higher in declared
Graduation Requirements

Students are also required to meet with their Surveying Engineering faculty advisor to plan and track their progress throughout the minor degree.

An academic minor may only be awarded upon completion of a baccalaureate or higher at Ferris State University.

Students must

- maintain a 2.00 cumulative FSU GPA
- earn a minimum grade of C- for each course in the minor
- have a minimum of 18 semester credit hours
- have a maximum of 1/3 of the credits, but no more than 7 credits in a minor, may overlap the students major
- have a minimum of 50% (9 credits) of the courses in the minor at the 200 or above level
- have at least one-half (1/2) of the credits (9 credits) from Ferris (FSU Residency requirement)

More Information

Surveying Engineering Program
915 Campus Drive, SWN 312
Big Rapids, MI 49307-2291

Phone: 231-591-2633
email: surveying@ferris.edu

College of Engineering Technology

Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280

Phone: 231-591-2890

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Surveying Engineering

Required Courses

Why Choose a Certificate in Surveying?

The student completing this program should be able to:

- Perform basic differential leveling in the field
- Reduce differential leveling observations
- Recognize the concept of field data collection using conventional and modern electronic data collection instruments such as an electronic total station
- Recognize the concept of field data collection using global positioning system (GPS) instruments.
- Recognize the basic concept of how to prepare a topographic map from actual survey data
- Perform traverse computations and simple traverse adjustment
- Develop an appreciation for establishing horizontal and vertical control for a small to medium size surveying project

Career Opportunities

The objective of the certificate program in surveying is simply to give the program completers a general exposure to the surveying practice and the capacity for employment with a real surveying degree.

Admission Requirements

Any person who is admitted to the University is welcome to seek the attainment of this certificate. Student must be in good standing of a 2.0 or higher GPA.

Graduation Requirements

A minimum of 50% of the total credits required must be earned at Ferris State University.

Only 6 credits can be shared with student’s major.

A minimum grade of C- is required for each course in certificate.

Cumulative GPA must be a 2.0 or higher.

More Information:

Surveying Engineering Program
915 Campus Drive, SWN 312
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Surveying Engineering

Required Courses

Why Choose Surveying Engineering?

Instruction in this program emphasizes theoretical principles as well as practical applications of advanced surveying techniques and related computational procedures, geodesy, map compilation and photogrammetry, business aspects of operating a surveying firm, geographic information systems (GIS) and planning and conducting surveys.

Students in the Surveying Engineering program must complete advanced mathematics, have an aptitude for physical science and have the ability to work effectively as a team member.

The Bachelor of Science program in Surveying Engineering is designed to meet the needs of all students in the program. The Surveying Engineering program educational objectives are as follows:

- Program graduates will apply communication skills, lifelong learning attitude, and the knowledge of mathematics and basic science to attain advancement within the surveying profession.
- Program graduates will exhibit creativity, leadership and team-building abilities, cultural appreciation and an understanding of global, societal, and environmental context consistent with the principles of sustainable development.
- Program graduates will be engaged in the professional practice of surveying engineering with high ethical and professional responsibilities.
- Program graduates will strive for professional licensure.

Additional Student Learning Outcomes can be found HERE

Career Opportunities

Surveying engineering is the science of making precise measurements of the Earth's surface with the aid of sophisticated electronic instruments. A challenging and satisfying profession, surveying engineering is of vital importance for national defense, exploration, conservation, preservation of natural resources and land development.

There is a very high demand for surveying engineers, with five to six job opportunities for every graduate. Professional surveyors can choose to join an existing surveying and/or civil engineering firm or enter private practice following completion of licensing requirements. Graduates may also find employment with local, state and federal governmental agencies. In addition, surveying engineers are needed in resource recovery, oil and mineral exploration and other high-tech industries.
Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20.

Students entering the Surveying Engineering program must have a high school diploma (or equivalent) with a minimum 2.5 GPA and a minimum ACT math subscore of 26 or SAT 16 of 610 (MATH 220 Placement) Transfer students must have a 2.0 GPA or better for previous college coursework and a MATH 220 placement.

General Education Requirements

All University General Education requirements for a Bachelor's degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

Graduation Requirements

The Surveying Engineering program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.0 cumulative GPA overall. Students must complete all general education requirements as outlined on the General Education website.

More Information

Surveying Engineering Program
915 Campus Drive, SWN 312
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College of Engineering Technology
Ferris State University
1009 Campus Drive
Big Rapids, MI 49307-2280
Phone: 231-591-2890 The College of Engineering Technology Surveying Engineering BS program is an accredited program of the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC-ABET)
http://www.abet.org/
The next accreditation review is scheduled for 2017-18.

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Surveying Technology

Required Courses

Why Choose Surveying Technology?

The Surveying Technology program at Ferris is designed to provide students with the skills and knowledge necessary to function as effective member of surveying field crew. Graduates have the ability to operate equipment and perform basic surveying calculations and create maps using different computer-assisted mapping software.

Courses cover the use of basic surveying instruments, evaluation of the accuracy of field data, production of computer drawings using surveying and mapping software, use of advanced electronic total stations, inspection of basic civil engineering materials such as soils, aggregates, portland cement and bituminous concrete, the study of laws and history of past judgments pertaining to boundary establishment, conformance with established survey standards and effective communication with clients and colleagues.

Career Opportunities

Surveying technicians assist surveyors in making precise measurements of the earth's surface for the purpose of establishing property boundaries, subdividing land parcels, creating maps of land and water forms for planning, navigation and general use, and the layout and control of construction projects. Technicians are familiar with the operation of sophisticated optical and electronic surveying instruments needed for compiling this information.

Surveying technicians work for private engineering and land surveying firms assisting in the construction of roads, bridges, buildings and dams as well as making measurements to determine the location of property boundaries. They also may find jobs with local, state and federal government agencies.

Prospects for advancement are excellent. There are numerous job opportunities for each graduate. Students who possess strong technical skills, management abilities and a desire for increased responsibilities can rise to supervisory positions.

Admission Requirements

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20.

Students entering the Surveying Technology program must have a high school diploma with a
minimum 2.5 GPA and an ACT math subscore of 19 or SAT 16 math subscore of 500 or Math 115 placement. Minimum composite ACT of 18 or SAT 16 of 950.

Transfer students must have a 2.0 or higher cumulative average and be MATH 115 eligible.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Surveying Technology program at Ferris leads to an associate in applied science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall. Students must complete all general education requirements as outlined on the General Education website.

**More Information**

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Technical and Professional Communication

Required Courses

Why Choose Technical & Professional Communication?

Technical and Professional Communication students learn the history and future of writing, edit technical manuals, understand the elements of writing technical documents, and develop project planning skills. In addition, they analyze technical journals, books, magazines, and speeches.

All TPC students identify a content specialty concentration, a 21-credit grouping of courses that builds on their interest in a specific career area. While many TPC students enter the program with an associate degree in a technical area - for example, electronics or plastics technology - many develop their technical specialty based on an established area of expertise in the field of technical communication.

A wide variety of content specialty concentrations are possible, including electronics, automotive technology, computer information systems, plastics technology, medical writing, applied mathematics, visual communication, technical training, and applied biology. These concentrations are not, however, the only areas of specialty allowed by the program; students are encouraged to work with their advisor to select the best grouping of courses for their professional interests. The content specialty gives students a specialized background and typically opens the door to their first professional job.

Career Opportunities

Technical and professional communication is a combination of writing, organizing, and communicating information. Students gain an understanding of communication media, technical and expository writing, desktop publishing, verbal communication, and a chosen technical or professional specialty.

Job opportunities continue to grow for graduates of this program. Nearly every industry needs employees who can communicate technical and professional information effectively to its customers and clients. Jobs also are expanding into marketing, advertising, and public relations fields.

Admission Requirements

First year student admission is open to high school graduates (or equivalent) who demonstrate academic preparedness, maturity, and seriousness of purpose with educational backgrounds appropriate to their chosen program of study. High school courses and grade point average, ACT/SAT16 composite score, and ACT/SAT16 Reading and Mathematics subscores will be considered in the admission and placement process. Transfer students must have at least 12
credits at the time of application with a minimum 2.0 overall GPA including an English and mathematics course, or they must provide their high school records and ACT/SAT16 scores for admission review.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Technical and Professional Communication program leads to a bachelor of science degree. Graduation requires a 2.0 cummulative GPA in all FSU courses; 3.0 cumulative GPA in all 300-level ENGL courses with minimum 2.3 GPA in individual 400-level ENGL courses, and at least 120 credits including completion of all general education requirements as outlined on the General Education website. Students also must present a satisfactory portfolio for graduation.

**More Information**

Program Coordinator  . Sandy Balkema  
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E-mail  SandraBalkema@ferris.edu  

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820 Campus Drive/ASC 3080  
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Phone  231-591-3988  

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Technical Education

Required Courses

Why Choose Technical Education?

Rapid technological changes have generated strong demand for technical teachers in Michigan. Graduates can expect excellent career opportunities in industry, secondary and vocational education.

Technical skills and the training to teach them to others are a valuable combination in education today. If you relate well to others and enjoy working with your hands and mind, you are well suited for a worthwhile and rewarding career in technical education.

The Ferris State University technical education program provides a balanced mix of courses in three major areas: professional education, field experience and liberal arts education. About a third of the courses required for graduation will be in the major's chosen field. Technical education students also must complete occupational work experience. A field experience in which students work with young people in public schools is required, along with a full-time directed teaching assignment in a vocational/technical program at an area vocational center or high school.

Career Opportunities

Known for its technical, hands-on programs, Ferris State University offers technical education students diverse opportunities including automotive, electronics, welding, industrial and HVACR technology or computer assisted design and manufacturing.

Admission Requirements

High school students and transfer students with 29 credit hours or less must possess a high school grade point average of 2.5 (on a 4.0 scale) or an ACT composite score of 17 or 900 SAT. Transfer students with 30 credit hours or more must possess a 2.0 cumulative GPA. Students transferring into the program with completed majors or minors must have the appropriate GPA as established by each department. Consult individual program description for other admission requirements.

Admission to the Technical Education curriculum requires the completion of one of the following:

- An A.A.S. Degree with at least 40 semester hours in the occupational major and a minimum grade point average of 2.50 in the major courses.
• Occupational competence documented by the Michigan Occupational Competency Assessment Center (MOCAC).

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Teacher Certification Requirements**

As required by the State of Michigan to receive teacher certification, all teacher candidates must: (1) pass the Michigan Basic Skills Exam, (2) pass the pedagogy tests in their subject area majors and minors, and (3) have a 2.50 minimum GPA to receive teacher certification in Michigan. These state requirements are in addition to the FSU graduation requirements of your individual program.

**THIS DEGREE LEADS TO AN INTERIM OCCUPATIONAL CERTIFICATION THROUGH MICHIGAN DEPARTMENT OF EDUCATION.**

**THIS DEGREE DOES NOT LEAD TO SECONDARY TEACHER CERTIFICATION UNLESS YOU HAVE AN ACADEMIC MAJOR AND MINOR (i.e. Math, English, etc.).**

**Graduation Requirements**

The technical education program leads to a Bachelor of Science degree through the School of Education, College of Education & Human Services. Graduates must complete all of FSU's general education, technical, and education requirements. Professional education requirements include a semester of directed student teaching. Consult individual program description for other graduation requirements.

**More Information**

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Technical Writing

Required Courses

Why Choose Technical Writing?

A certificate is a concentration of coursework in a designated area. The certificate in technical writing provides students the opportunity to highlight the concentration of writing courses on a résumé thus making their writing abilities obvious to prospective employers. A concentration in technical writing is an asset to almost any major since employers in all fields are looking for people who can write competently and express themselves in a professional manner.

Admission Requirements

The Technical Writing certificate is open to any student admitted to Ferris State University, except those pursuing a Technical and Professional Writing B.S. or Journalism and Technical Communication B.S. The certificate is designed to complement any Ferris major program, or to provide additional post-baccalaureate skills and training.

Graduation Requirements

Students desiring to complete this certificate should file an official declaration with the certificate advisor as soon as possible, and meet with that advisor regularly. The Technical Writing certificate requires a minimum of 14 credits of course work and a minimum GPA of 2.0 in all course work comprising the certificate. Also 50 percent of the credits for the certificate must be taught by Ferris State University.

More Information

Advisor: Erin Weber
Phone: 591-3740
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Television and Digital Media Production

Required Courses

Why Choose Television and Digital Media Production?

Within the Television and Digital Media Production (TDMP) program, students acquire skills in film, audio, and video production, interactive media production and authoring, instructional design, editing, script writing, and graphics. All these skills are built on a foundation of planning, scripting, directing, and producing television and video programs. Almost all of the program's classes are hands-on. DVD-R, CD-ROM, digital videotape, and a variety of other media are available to TDMP students. The curriculum is constantly being scrutinized to assure that it remains current with the industries where our graduates are employed.

After completing the necessary requirements, the student will further perfect their skills in a 6-month internship off campus. This internship will take place at a production facility or station typically in Michigan or Chicago. This exciting class allows the student to gain experience in a real-world setting working full-time with industry professionals.

Career Opportunities

Graduates learn communication skills in visual media that apply to a wide range of careers. Alumni have been employed in television and digital media production positions in:

- Broadcasting
- Cable corporations
- Manufacturing facilities
- Hospitals
- Professional sports venues
- Independent production companies
- Post-production firms
- Education
- Government
- Communication
- News
- Film production
- Media Distribution

Equipment and Facilities

For field acquisition, the TDMP program uses the new High Def format HDV as well as the professional mini-DV format for video (camcorders and studio recorders), DAT for digital audio, and cameras with Memory Sticks for digital stills. The camcorders vary from single chip Sony
models for web and other lower-end applications to three chip JVC, Canon, and new Sony High Definition models are higher-end applications. They all produce clear, crisp digitally recorded images and better than CD-quality audio.

In the studio or on a multi-camera remote, students use Inscriber Character Generators, Echo Lab and Panasonic switchers, Mackie audio mixers, Lowell and Colortran lights and lighting controls, Clearcom intercoms, and Tektronix waveform monitors and vectorscopes.

For post-production, students will edit on a variety of nonlinear editing systems including Adobe Premiere, Apple Final Cut Pro, and Avid.

For distribution, student productions are released on a local cable channel, on CDs, streamed over the web, burned to DVD, on 16mm film, and the old standard VHS.

Add to that new digital cameras in the studio, DVD authoring from Sonic, Sound Forge digital audio editing, After Effects for composting, Flash MX, and 3-D animation with Lightwave; and you will be prepared for a wide range of careers as a result of your education in the Television and Digital Media Production program at Ferris State University.

**Admission Requirements**

High school students and transfer students with less than 12 credit hours must possess a high school grade point average of 2.5 (on a 4.0 scale) and an ACT composite score of 17. Transfer students with more than 12 credit hours must possess a 2.0 cumulative GPA.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

Completion of the TDMP program at Ferris leads to a Bachelor of Science degree. Graduation requires a minimum 2.5 GPA in the curriculum and a minimum 2.25 GPA overall. Students must complete all general education requirements as outlined on the General Education website.

**More Information**

College of Education and Human Services  
Television and Digital Media Production  
BIS 303, 1349 Cramer Circle  
Big Rapids, MI 49307-2748  
Phone: 231-591-2712  
www.ferris.edu/tdmp

**ADA compliant checksheets are being developed for the 2019-2020 Catalog. If you would like to request an**
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Total Quality Management in Education

Required Courses

Why Choose the Total Quality Management in Education Certificate Program?

The Advanced Certificate in Total Quality Management for Education is centered around the principles of total quality management (TQM) and the Malcolm Baldridge National Quality Award Criteria for Educational Programs. This comprehensive certificate is designed to provide an in-depth knowledge of TQM principles, the Baldridge Award Criteria, and an understanding of how to conduct an assessment using the Baldridge criteria. The focus of the four certificate courses is an understanding of the value that Baldridge brings to your organization and how to use the Baldridge Award Criteria for Education as a change management tool. With a focus on strategic goals and indicators, this certificate offers school leaders an approach to help guide district, school and classroom improvement planning.

Admission Requirements

Must be enrolled in a degree granting program of a BS or Master degree.

This program can be used as part of the Career and Technical Education Doctorate program at Western Michigan University. https://www.wmich.edu/leadership/academics/ed-leadership/doctor/wed

Graduation Requirements

An average GPA of 2.0 or higher is required in the course(s) designated for the certificate.

More Information

College of Education & Human Services
School of Education
Bishop Hall Room 421
Ferris State University
1349 Cramer Circle
Big Rapids, MI 49307-2737
Telephone: (231) 591-5361

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Vascular Ultrasound

Required Courses

Why Choose Vascular Ultrasound?

This certificate is intended for working sonographers already logging vascular ultrasound hours and exams as part of their employment who want to continue their education in the field of vascular ultrasound by adding a didactic foundation to their cross-training. This certificate along with the clinical experience working sonographers have will prepare them to pass the ARDMS Registered Vascular Technology (RVT) certification exam. It will NOT provide the clinical hours to fulfill the ARDMS RVT requirement. This certificate is intended for practicing sonographers.

The Vascular Certificate is offered in a student centered learning environment. Students engage in self-directed learning activities to advance their knowledge of vascular ultrasound.

Career Opportunities

In May 2012, the median annual wage for cardiovascular technologists and technicians, including vascular technologists, was $52,070. Employment of cardiovascular technologists and technicians, including vascular technologists is projected to grow 30 percent from 2012 to 2022, much faster than the average for all occupations. http://www.bls.gov/ooh/healthcare/diagnostic-medical-sonographers.htm

Since 2010, Medicare has required that all non-invasive vascular studies be performed by a RVT sonographer in at least 44 states. For others, all non-invasive vascular diagnostic studies must be performed under at least one of the following settings:
a. performed by a physician who is competent in diagnostic vascular studies or under the general supervision of physicians who have demonstrated minimum entry level competency by being credentialed in vascular technology, or
b. performed by a technician who is certified in vascular technology, or
c. performed in facilities with laboratories accredited in vascular technology.

Admission Requirements

To be eligible for the Vascular Ultrasound certificate courses, you must be an active ARDMS or ARRT credentialed sonographer employed at least four days a month in ultrasound. A completed application, copy of ARDMS and or ARRT certification credential, and verification of employment are required for application.

Graduation Requirements

Students must pass each class with a grade of C or better. Students must pass the vascular mock registry exam with a grade of 77% or better. Students will earn a grade of 85% or better on
the final portfolio project.

Courses may be repeated twice (three times total) to earn the certificate.

...radules will be required to pass a vascular technology mock registry and submit a vascular portfolio.

**More Information**

Department of Dental Hygiene and Medical Imaging
College of Health Services
Ferris State University
200 Ferris Drive

\(\text{\&}\) Rapids, MI 49307
Phone: 231-591-2261 or 800.462.8553

chp@ferris.edu

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Welding Engineering Technology

Required Courses

Why Choose Welding Engineering Technology?

Established in 1984, the nationally recognized Welding Engineering Technology program is the largest of its kind in the United States. The program is designed to produce plant-level welding engineering technology graduates who are involved in the concept, design and engineering of weldments and implementation of welding processes. This overall knowledge of weldments and the ability to engineer welding and joining systems produces graduates who are in great demand and highly compensated. As recognition of academic excellence and program quality, in August 2008 the Welding Engineering Technology program was granted TAC-ABET Accreditation from the Technology Accreditation Committee (TAC) of ABET.

Ferris provides several welding instructional areas including laboratories dedicated to inspection, mechanical testing, robotics, laser processing, resistance welding and material preparation/fabrication. In addition to core welding classes, courses in material science, computer aided design, electronics and machine tool disciplines are required and are taught by faculty specialists in those departments.

Career Opportunities

With one out of two products that comprise the gross domestic product containing a weld, the welding profession is prevalent in all areas of our economy. Graduates of the Welding Engineering Technology program currently hold over fifty different job titles. The most common include welding engineer, manufacturing engineer, application engineer, sales engineer and project engineer or manager. Graduates find employment opportunities in all sectors of the construction, fabrication and manufacturing economy. The most common employers include the automotive industry, agricultural and construction equipment producers, oil & gas industry suppliers, welding equipment manufacturers and robotics and welding automation firms. Employment has been procured in more than 30 states across the country, with Michigan, Wisconsin, Illinois, Indiana, Ohio and Iowa having the highest concentrations. Alumni have enjoyed international assignments ranging from a few weeks to five years in over 20 countries on six different continents around the world. Average starting salaries are more than $70,000 per year.

Admission Requirements

Effective for students who enroll after the start of the Fall 2016 semester:

To be eligible for the Welding Engineering Technology, the following requirements must be met:

- Application for admission submitted by January 15 prior to Fall term requested.
- Associate degree in Welding Technology
- A minimum 3.0 honor point average overall
- Satisfy all prerequisites to enter MATH 130 (MATH 120)
- Satisfy all prerequisites to enter EEET 301 (EEET 201)
- FSU PHYS 211 - Introductory Physics I or equivalent transfer course
- FSU ETEC 140 - Engineering Graphics Comprehensive or equivalent transfer course
- FSU MATL 240 - Introduction to Material Science or equivalent transfer course

Welding Engineering Technology applicants are required to achieve a minimum score of 70 on the NOCTI Job Readiness Assessment for Welding (Test Code 4272) in order to be admitted to welding engineering technology or pre-welding engineering technology bachelor degree.

**General Education Requirements**

All University General Education requirements for a Bachelor’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Courses above or the program advisor for program specific General Education requirements.

**Graduation Requirements**

The Welding Engineering Technology program at Ferris leads to a bachelor of science degree.

Students must

- maintain a 2.00 cumulative GPA in all FSU courses
- have 40 credits at the 300/400 level
- have 30 credits of Ferris classes (FSU Residency requirement)
- have a minimum 120 total credits to earn a bachelor degree
- complete all general education requirements as outlined on the General Education website.

**More Information:**

Ferris State University  
Welding Program Office  
915 Campus Drive - Swan 220  
Big Rapids, MI 49307  
Phone: 231-591-2511  
Email: WELDINGDEGREES@FERRIS.EDU

The College of Engineering Technology Welding Engineering Technology BS program is...
accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC-ABET)

http://www.abet.org/

The next accreditation review is 2021-2022.

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Welding Technology

Required Courses

Why Choose Welding Technology?

Established in 1972, the Welding Technology program produces welding technicians and prepares students for admission into the bachelor of science program in Welding Engineering Technology. Students receive hands-on laboratory experience in welding processes, metallurgy, mechanical testing, inspection and fabrication of weldments. Graduates become technicians involved in testing and improving welding processes, procedures and equipment. Welding Technology graduates hold job titles as welding technicians, welding supervisors, inspectors and sales representatives.

Ferris provides several welding instructional areas including laboratories dedicated to inspection, mechanical testing, robotics, laser processing, digital radiography testing, resistance welding and material preparation/fabrication. In addition to core welding classes, courses in material science, computer aided design, electronics and machine tool disciplines are required and are taught by faculty specialists in those departments.

Career Opportunities

Due to the fact that welding is a basic element in the production of a vast array of items, jobs as welding technologists are abundant. In the United States, welding is utilized in approximately fifty percent of the industrial and commercial products that make up the Gross National Product (GNP.)

Welding Technicians also select and maintain quality control procedures throughout the welding process, and perform destructive and non-destructive tests to ensure the quality and reliability of weldments.

The demand for skilled technicians will continue to grow as the use of automated systems in the metals fabrication industry increases. A wide variety of employment positions are found in the manufacturing and construction industries.

Admission Requirements

Effective for students who enroll after the start of the Fall 2016 semester:

Admission to the College of Engineering Technology is open to high school graduates who demonstrate academic preparedness, maturity, and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the minimum high school GPA is 2.75, and the minimum ACT composite score is 19.
Admission to the Welding Technology program is open to high school graduates who meet the College of Engineering Technology admission requirements, as well as non-graduates who demonstrate by other means that their backgrounds are appropriate to their chosen programs. No prior welding education or experience is required to enroll in the Welding Technology program. An ACT math sub score of 19 or SAT 16 math sub total of 500 and English sub score of 14 or SAT16 EWR of 450 are the minimum requirements to enroll in the technology course sequence. All students are expected to demonstrate maturity and seriousness of purpose to meet their goals.

Transfer students are required to complete MATH 110 or equivalent with B or higher, and ENGL 074 or equivalent with B or higher and have a college GPA of 3.0 or higher prior to being admitted to welding or pre-welding technology.

Please note due to demand, it is important to apply early for this program and immediate entry is not guaranteed.

Students continuing on to the Bachelor's degree program in Welding Engineering Technology are required to maintain a 3.0 GPA and achieve a minimum score of 70 on the NOCTI Job Readiness Assessment for Welding (Test Code 4272) in order to be admitted to welding engineering technology or pre-welding engineering technology.

**General Education Requirements**

All University General Education requirements for an Associate’s degree is here

Please consult this link for a complete listing of General Education Electives.

Consult the Required Course above or program advisor for program specific General Education requirements.

**Graduation Requirements**

The Welding Technology program at Ferris leads to an associate in applied science degree.

Students must

- maintain a 2.00 cumulative FSU GPA
- have 15 credits of Ferris classes (FSU Residency requirement)
- have a minimum 60 total credits to earn an associate degree
- complete all general education requirements as outlined on the General Education website

**More Information**

Ferris State University
Welding Program Office
915 Campus Drive - Swan 220
Big Rapids, MI 49307
Phone: 231-591-2511
Email: WELDINGDEGREES@FERRIS.EDU
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Women and Gender Studies

Required Courses

Why Choose the Women and Gender Studies Minor?

The Women and Gender Studies minor is designed to allow students the opportunity to study the history and cultural contributions of women through an interdisciplinary approach. Study includes the political and theoretical issues related to woman and to the construction of gender. In addition, the minor allows students to develop writing and critical thinking skills that are essential to job placement and advancement.

Admission Requirements

The Women and Gender Studies minor is open to any student admitted to Ferris State and pursuing a baccalaureate degree. The minor is designed to complement any Ferris major program. A maximum of 1/3 of the credits, but no more than 7 credits, in a minor may overlap with the student's major. Students may apply 6 credit hours of overlap between minors.

Graduation Requirements

An academic minor may only be awarded upon completion of a baccalaureate degree at Ferris State. This minor requires a minimum of 18 credits with a minimum 2.0 grade average in these courses. 50 percent of the credits of the minor must be numbered 300 or higher.

Also, 50 percent of the credits for a minor must be taught by Ferris State University.

More Information

ADVISOR: Dr. Susan Morris
PHONE: 231-591-2774
EMAIL: SusanMorris@ferris.edu

Department of Humanities
Ferris State University
1009 Campus Drive/JOH 119
Big Rapids, MI 49307-2280
Phone: 231-591-3675

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Accountancy, Finance, Info Systems
119 South Street, S 212
Grand Rapids, MI 49307-22 4
231-591-2434
AFIS@ferris.edu

The College of Business is accredited by the Accreditation Council for Business Schools and Programs (ACSB). Next accreditation review is February 202.
http://www.acbsp.org

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<table>
<thead>
<tr>
<th>COURSE</th>
<th>Title</th>
<th>Subject Description</th>
<th>COLLEGE</th>
<th>Department</th>
<th>Level</th>
<th>Credit Hours</th>
<th>Lecture</th>
<th>Lab Hour</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACCT200</td>
<td>Accountancy</td>
<td>Principles of Accounting</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>This course covers the principles of financial and managerial accounting for non-business students, including the framework that underlies financial and managerial accounting and how accounting information should be used by external as well as internal parties of an organization. Students are taught how to prepare, read, and analyze corporate financial statements. Additionally, students are taught the tools and techniques necessary for managerial planning, control, and decision making. Prerequisites: MATH 114 or MATH 115 or MATH 117 and ISYS 104 or ISYS 105, or equivalent. Typically offered Fall, Spring Summer.</td>
</tr>
<tr>
<td>ACCT201</td>
<td>Accountancy</td>
<td>Princ. of Financial Accounting</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>Introduction to accounting principles with an external reporting emphasis on the preparation and use of financial statements. Includes recording and adjusting accounts, the accounting cycle, accounting for merchandising operations, internal control and cash, receivables, inventories, assets, liabilities, corporate organization, stock transactions, dividends, and retained earnings and investments. Pre-Requisites: MATH 109 or 110 with a grade of C- or better, or 19 on ACT or 460 on pre 2016 SAT or post 2016 SAT MATH 500 or one of the following MATH courses: 114, 115, 116, 117, 118, 119, 120, 126, 130, 132, 135. Meets General Education requirements for Problem Solving. Typically Offered Fall, Spring, Summer.</td>
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<tr>
<td>ACCT202</td>
<td>Accountancy</td>
<td>Princ of Managerial Accounting</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>Continuation of ACCT 201. Introduction to management decisions in reliance on systems that provide historical and projected data to guide present and future operations. Includes managerial accounting, job-order costing, process costing, cost behavior, cost-volume-profit relationship, variable costing, activity based costing, profit planning, standard costing, flexible budgets, segment reporting, profitability analysis and decentralization, capital budgeting, service department costing, statements of cash flows and financial statement analysis. Pre-Requisites: ACCT 201 with a grade of C- or better and MATH 114, 115, 116, or 117 or ACT 24 or pre 2016 SAT 560 or post 2016 SAT MATH 580. Meets General Education requirements for Quantitative Skills, and new Fall 2017 Quantitative Literacy and Problem Solving. Typically Offered Fall, Spring Summer.</td>
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<tr>
<td>ACCT205</td>
<td>Accountancy</td>
<td>Managerial Accounting</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>Designed for non-accounting majors who need or desire an understanding of how financial information is used in management decision making. Emphasis is on the uses of accounting data rather than its preparation. Not open to accounting majors. Pre-Requisites: ACCT 202; non-Accountancy majors. Typically Offered Fall, Spring Summer.</td>
</tr>
<tr>
<td>ACCT221</td>
<td>Accountancy</td>
<td>Prin of Construction Acct</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>An introductory course for construction management major to learn the design, analysis, and output of construction accounting systems. Students also learn how to report the results of operations, analyze the financial statements produced and use the analysis to bid and budget future projects. Pre-Requisites: MATH 115 with C/better or ACT 24 or pre 2016 SAT 560 or post 2016 SAT MATH 580; &amp; Construction Mgmt students. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>ACCT231</td>
<td>Accountancy</td>
<td>Payroll Accounting</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>An elective course to learn how to prepare a payroll for a company. Students will also study the various tax rules and tax reports that form the core of a payroll accountant’s responsibilities. Pre-Requisites: ACCT 201 with a grade of D- or better. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>ACCT241</td>
<td>Accountancy</td>
<td>Computerized Accounting</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>An elective course to learn how to use application software systems on the microcomputer that provide experience in computerized office accounting functions, including preparing payroll for a company. Develops problem resolution skills in the automated office using microcomputer and application software packages and an understanding of automated applications and their relation to other office systems. Students will also study the various tax rules and tax reports that form the core of a payroll accountant’s responsibilities. Pre-Requisites: ACCT 201 and ISYS 105 with a grade of D- or better in each course. Typically Offered Spring, Fall.</td>
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<tr>
<td>ACCT290</td>
<td>Accountancy</td>
<td>Special Topics in ACCT</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>LAB</td>
<td>Special topics in Accountancy - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>ACCT297</td>
<td>Accountancy</td>
<td>Special Studies in ACCT</td>
<td>BU</td>
<td>Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>LAB</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring Summer.</td>
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<td>Department</td>
<td>Grade Level</td>
<td>Credits</td>
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<td>ACCT301</td>
<td>Accountancy Fed Tax Concepts for Business</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT305</td>
<td>Accountancy Intermediate ACCT Concepts</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>ACCT310</td>
<td>Accountancy Intermediate Accounting 1</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT312</td>
<td>Accountancy Intermediate Accounting 2</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<td>ACCT321</td>
<td>Accountancy Cost Accounting 1</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<td>ACCT322</td>
<td>Accountancy Adv Managerial Accounting</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT350</td>
<td>Accountancy Fed Income Tax-Individual</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT370</td>
<td>Accountancy Forensic Accounting</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT372</td>
<td>Accountancy Forensic Accounting II</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT397</td>
<td>Accountancy Special Studies in ACCT</td>
<td>BU</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT410</td>
<td>Accountancy Adv Financial Accounting 1</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT412</td>
<td>Accountancy Adv Financial Accounting 2</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>ACCT414</td>
<td>Accountancy Financial Accounting Theory</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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</tbody>
</table>

**ACCT301**
Introduces Federal tax law and its impact on financial decision making: income concept, taxable entities, tax aspects of selecting a business form, accounting method options, capital gains and losses, compensation considerations, non-taxable transactions, common tax traps, and family tax planning. Computer modeling to assist in choosing between tax alternatives. Pre-Requisites: ACCT 202 with a grade of D- or better. Typically Offered Fall Only

**ACCT305**
The course covers Intermediate Accounting topics with the emphasis on understanding the account titles used, the formatting of account titles in financial statements, and the significance of the accounting information reported in the financial statements and footnotes. For non-accounting majors only. Pre-Requisites: ACCT 202 with C- or better & Non-accounting majors only. Typically Offered Fall Only

**ACCT310**
Expands the student's exposure to financial accounting concepts introduced in the Principles of Accounting sequence. Deals with authoritative pronouncements from FASB and generally accepted accounting principles concerning the income statement, balance sheet, current and long-term assets, plant assets and depreciation. Pre-Requisites: ACCT 202 with a grade of C- or better and MATH 114 or 122 with a grade of C- or better or ACT 24 or pre 2016 SAT 560 or post 2016 SAT MATH 580. Typically Offered Fall, Spring

**ACCT312**
A continuation of ACCT 310. Topics covered include current and long-term liabilities, pensions, leases, income tax accounting and the cashflow statement and stockholder equity. Pre-Requisites: ACCT 310 with a grade of C- or better. Typically Offered Fall, Spring

**ACCT321**
Deals with the manufacturing cycle and includes job-order and process costing, the control of material and labor costs, overhead standard costs, and variable costs. Pre-Requisites: ACCT 202 with a grade of C- or better. Typically Offered Spring only.

**ACCT322**
Covers advanced topics in managerial accounting. It will examine managerial decision making methods using quantitative and qualitative analysis and cover such topics as short-term and long-term decision models, distribution cost analysis, transfer pricing and multinational considerations. Strongly encouraged for those students seeking CMA certification. Pre-Requisite: ACCT 202 with a grade of C- or better. Typically offered Spring only.

**ACCT350**
Gross income, adjustments, itemized deductions, personal exemptions, capital gains and losses, passive activities, the individual tax computations and credits. Pre-Requisites: ACCT 202 with a grade of C- or better. Typically Offered Fall only

**ACCT370**
Topics covered include: principles and methodology of fraud detection and deterrence; ethical issues related to accounting and auditing; the nature of fraud and its effects on business organizations. Methods to prevent, detect, and investigate fraud will be explored in detail with a focus on management and financial statement fraud. Students will develop skills in preventing and detecting fraudulent activities. Pre-requisites: Junior standing and completion of ACCT 202 with a C- or better. Offered Spring.

**ACCT372**
Students will focus on the financial aspects of business disputes and fraud. This includes an overview of the legal aspects of disputes from an expert witness perspective, quantification of financial damage techniques in areas such as breach of contract, lost profits and breach of fiduciary duty. Additionally, students will examine issues unique to contracts between private companies and government entities. Pre-requisites: Junior standing and completion of ACCT 202 with a C- or better. Offered Fall.

**ACCT397**
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer

**ACCT410**
Expands a student's exposure to financial accounting concepts and GAAP procedures. Topics include: dilutive securities, revenue recognition, accounting changes, statement interpretation, interim reporting, partnerships, insolvency, segment reporting and S.E.C. Pre-Requisites: ACCT 310 with a grade of C- or better. Typically Offered Fall Only

**ACCT412**
A continuation of ACCT 410. Estates and trusts, foreign currency, business combinations, consolidated statements, and intercompany transactions. Pre-Requisites: ACCT 312 with a grade of D- or better. Typically Offered Fall, Spring

**ACCT414**
A study of the background and present state of accounting theory with an emphasis on recent accounting pronouncements. The course considers the history and development of accounting principles with an intensive study of theoretical problems related to the determination of income and the presentation of financial position. Pre-Requisites: ACCT 312 with a grade of D- or better. Typically Offered Fall Only
The design and installation of accounting information systems and controls. Combines internal controls, financial reporting and flow charts of financial information with manual, mechanical, and electronic data processing techniques. The integration of financial and cost data into the information system and its relation to internal control is the objective of the course. Pre-Requisites: ACCT 310 with a grade of C- or better. Typically Offered Fall only

ACCT441 Accountancy Auditing BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Generally accepted auditing standards, audit procedures and programs, internal control, statistical sampling, proper work paper techniques, AICPA industry audit guides, SEC releases, ethics and legal liabilities of the auditor and other specialized problems of the attest function. Meets General Education requirements for Collaboration. Pre-Requisites:ACCT 431 with a grade of D- or better. Typically Offered Fall, Spring

ACCT450 Accountancy Federal Income Tax-Corp BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Continuing the federal income tax sequence, the course topics include the concepts of gross income, ordinary and necessary business expenses, property transactions, accounting periods and methods, and the alternative tax system for C-Corporations, S-Corporations, and Personal Service Corporations. In addition to income taxation, the course includes the tax consequences of corporate formation, distributions, and liquidations. Pre-Requisites:ACCT 202 with a grade of C- or better. Typically Offered Spring Only

ACCT461 Accountancy Governmental Accounting BU Account, Finance, Info Systems Undergraduate 3 LEC LAB A study of the fundamental accounting principles related to the operations of governmental entities. The course considers the accounting and financial reporting practices of governmental entities, and examines the standards that affect their accounting and financial reporting systems. Pre-Requisites:ACCT 312 with a grade of D- or better. Typically Offered Fall Only

ACCT490 Accountancy Special Topics in ACCT BU Account, Finance, Info Systems Undergraduate 1 TO 4 LEC LAB Special topics in accountancy - 400 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

ACCT491 Accountancy Accounting Internship BU Account, Finance, Info Systems Undergraduate 1 TO 6 LEC LAB Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student’s academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 15 weeks with the total hours worked approved by the department head. Pre-Requisites:Completion of 60 semester hrs & department approval. Typically Offered Fall, Spring, Summer

ACCT497 Accountancy Special Studies in ACCT BU Account, Finance, Info Systems Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

ACCT614 Accountancy Accounting for Managers BU Account, Finance, Info Systems Graduate 3 LEC LAB Accounting for Managers introduces accounting framework used in financial reporting (financial accounting) with emphasis on the interpretation of financial statements including how managers analyze financial data and economic events to assess and manage value creation activities (managerial accounting). Topics include an overview of the financial and Accounting for Managers environments; valuation of financial statement accounts; short and long-term budget preparation and analysis; standard costing and variance analysis; business combinations (mergers and acquisitions); and discussion of GAAP versus IFRS. Prerequisites: MMBA 506 or equivalent competency, Accounting Foundation Competencies, and BUS graduate student. Typically offered Fall, Spring, Summer.

AESL090 Accelerated ESL Special Topics in AESL CP Professional-Tech Studies Undergraduate 1 TO 6 LEC LAB Special Topics in AESL - 000 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

AESL097 Accelerated ESL Special Topics in AESL CP Professional-Tech Studies Undergraduate 1 TO 2 LEC LAB Special Studies in ESL is designed to remedy/enhance one identified subject area of English as a second language. This coursework includes one of the Accelerated ESL Courses offered within the Intensive English program during Summer term D and E and will be supplemented with individualized projects/instructions.

AFAM107 African American Studies Intro African American Studies AS Humanities Undergraduate 3 LEC LAB Introduction to African American Studies is designed for the person who is interested in subjects as diverse as African Civilizations, Diasporic Popular Culture, the Harlem Renaissance, African-Black American Religions, Theories of Development, the Black Arts Movement, and Africana Literature. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender Issues and new Fall 2017 Culture and U.S. Diversity. Typically Offered Fall Only

AFAM297 African American Studies African American Studies AS Social and Behavioral Sciences Undergraduate 2 LEC LAB This independent study is designed to provide content related to African American Studies. This is intended to be a one-time offering as it is tailored for an individual student.
<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
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<td>Media Strategy and Tactics</td>
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**AIMC101**
Lecture/discussion course, will focus on discussing the scope of IMC. Integrated Marketing Communication, how IMC operates as an aspect of business, marketing, and promotion, the career outlook within the field of IMC, and the specific types of career opportunities which exist within the field. Discussions will be supported and reinforced by assignments which will give the students the opportunity to apply, in specific terms, the information and knowledge they obtain. Prerequisites: AIMC major. Typically Offered Spring only.

**AIMC300**
Scope and purpose of Integrated Marketing Communication, brand management and corporate image, consumer behavior, IMC planning, advertising management, advertising design and message strategies; media e-commerce marketing, alternative marketing; database and direct response marketing; personal selling, sales promotion, public relations and sponsorship programs, IMC ethics, regulation and evaluation. The course includes a final project that integrates and demonstrates learning. Prerequisites: ENGL 150 C- or better and Sophomore Standing. Typically Offered: Fall, Spring, Summer.

**AIMC301**
Group discussions, projects, activities, field trips and guest speakers designed to enable the student to prepare for entering the IMC profession. Seminar includes resume and cover letter development, developing a personal marketing plan, job search, interviewing, employee benefits, the job offer, career planning and other current topics. Typically Offered Spring only.

**AIMC312**
Techniques in building the printed advertisement and television story boards: visualization of appeal, principles of design, indication of typography and illustration, color usage, and production processes. The use of typography as a design element. A brief introduction to printing processes and paper stocks. Preparation of layout for various media (includes use of mock-ups and prototypes). Prerequisites: AIMC 300 with C- or better. Typically Offered Fall only.

**AIMC324**
Nature purpose of advertising/IMC copy, essential principles of construction. Use of specific product benefits and selling points, headline writing, use of human interest material, preparation of radio and television commercials, print ads and supplementary media, copy presentation skills. Prerequisites: AIMC 300 with C- or better and ENGL 250 with C or better. Typically Offered Spring only.

**AIMC334**
An introductory examination of the advertising/IMC media industry with particular emphasis on the individual media themselves. Focuses on understanding the role of, examining the structure and operation of, and gaining a working knowledge of the use of the individual media. Project assignments will focus on analyzing and application of space/time rates and research data pertaining to the individual media. Prerequisites: AIMC 300 with C- or better and MATH 114 or 115 with C- or better or ACT 24 or pre 2016 SAT 560 or post 2016 SAT MATH 580. Typically Offered Fall only.

**AIMC352**
A comprehensive introductory examination of sales promotion as a form of integrated marketing communication (IMC). Emphasis will be placed on understanding the unique nature of sales promotion and on differentiating it from other forms if IMC, on exploring its strategic differences, on indentifying its principal audiences, and on indentifying its principal forms and their uses. The course will also include a term project, which will integrate the studentâ€™s knowledge and understanding of sales promotion. Prerequisites: Sophomore Standing or higher.

**AIMC375**
A study of business-to-business advertising/IMC strategies and techniques with emphasis on its use in improving the salesperson's productivity. Explores business market places and industrial purchasing behavior. IMC department organization and integration with other marketing efforts, focusing on a detailed review of the creative and media functions performed in the context of business-to-business marketing and sales objectives. Prerequisite: AIMC 300 with C- or better. Typically Offered Spring and Summer.

**AIMC376**
A detailed examination of the process of developing IMC media strategy and the building and execution of an IMC media program. Emphasis is placed on understanding the functional relationships affecting and within advertising media planning and the emergence of an effective media program from this planning activity. Project assignments focus on using and understanding advertising media concepts, research data and on structuring advertising media plans. Prerequisites: AIMC 334 with C- or better. Typically Offered Spring only.
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A hands-on overview of Business-to-Business Digital Marketing. Provides proven strategies for increasing profits, customer communications, customer satisfaction, and customer loyalty by using the Internet/intranet/extranet to supplement face-to-face sales in the Business-to-Business arena. Prerequisites: MKTG 321 with a C- or better. Typically offered Spring, Summer.

A hands-on overview of Business-to-consumer Digital Marketing. Places digital marketing in perspective as a growing part of the American and global economics where digital is being integrated into some going businesses, how it is becoming a complete way of doing business for others, and how to maximize opportunities for success in this fast-changing field. Prerequisites: MKTG 321 with a C- or better. Typically offered Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

Includes the development of a complete advertising plan, including primary and secondary market research, creative strategy, media strategy and planning, message pre-testing, sales promotion, and push/pull campaign strategy. Presentation of campaign required. Prerequisites: AIMC 312 and AIMC 324 and AIMC 376 with a C- or better. Typically Offered Fall only.

Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student's academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 15 weeks with total hours worked approved by the department head. Prerequisites: Completion of 60 semester hours and department approval, typically Offered Fall, Spring, and Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Focuses on the evolution of automotive product distribution in the U.S., the development of aftermarket channels, marketing, demographics, and the global nature of the industry. Includes an overview of the evolution of management styles, manufacturing processes, and a discussion of current and future trends. PC software applications applicable to this industry are introduced, including operating systems (Windows), word processing (Word), E-Mail, and Internet access. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall Semester.

Overview of wholesale and retail distribution practices, focusing on the OEM franchised dealer system. Includes introduction of wholesale financing, retail financing and leasing concepts used in the automotive industry, PC spreadsheet applications and presentation software are introduced as management tools. Typically Offered Spring Semester.

Introduction to basic accounting fundamentals and the adaptation of them to a factory-dealership accounting system. Emphasis centers on the preparation of accounting statements and management reports along with an overview of computerized accounting and the importance of strong management control. Also introduces the concept of using accounting fundamentals to start a small industry related business. Typically Offered Spring Semester.
AMGT360 Automotive Management Automotive Culture TE Automotive Undergraduate 3 LEC LAB This course examines the automobile's profound effect on Twentieth Century American culture. For Americans, the car has been this century's dominant symbol - representing freedom, affluence, and power - and the course examines this symbolism. The automobile is also an art form, and the course probes this dimension. Most significantly, the automobile has reshaped American society, and the course studies these effects while also looking at changes likely for the future. Typically Offered Fall Semester.

AMGT401 Automotive Management Management of Fixed Operations TE Automotive Undergraduate 4 LEC LAB This course introduces financial statement analysis as a key to automotive management. Major emphasis is placed on the parts, service, and body shop operations, including PC based dealership management software as a management tool. Includes the preparation of a comprehensive dealer business plan, outlining typical steps and procedures involved in the planning, building, staffing, and financing of a typical dealership. Prerequisites: AMGT 303. Meets General Education requirements for Collaboration. Typically Offered Fall Semester.

AMGT402 Automotive Management Mgmt of Variable Operations TE Automotive Undergraduate 4 LEC LAB This course contains an overview of automotive sales management, focusing on compensation plans, selling techniques, and proper motivation of employees. Team building exercises, presentation skills, and objection handling techniques are also explored, along with financial statement analysis and used vehicle management/marketing. Prerequisites: AMGT 303. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring and Summer Semesters.

AMGT404 Automotive Management Warranty - Customer Relations TE Automotive Undergraduate 3 LEC LAB Identification of product failure and the interaction required between the customer, dealer, and the manufacturer to achieve acceptable solutions to field problems. Includes preparation of warranty and field reports. Typically Offered Spring and Summer Semesters. The identification and development of Internet marketing tools for automotive retailers focusing on the needs of sales, service, and parts. Special emphasis placed on the development of a comprehensive website to effectively market vehicles, service, and parts in the automotive retail environment. Typically Offered Spring and Summer Semesters.

AMGT460 Automotive Management Automotive Internet Marketing TE Automotive Undergraduate 3 LEC LAB Work experience with manufacturers, distributors, or dealers. Written weekly progress reports by the student are required. Prerequisites: Senior Status. Typically Offered Fall, Spring and Summer Semesters.

AMGT493 Automotive Management Automotive Management Internship TE Automotive Undergraduate 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

AMGT497 Automotive Management Special Studies in AMGT TE Automotive Undergraduate 1 TO 4 LEC LAB Students will create, assemble, and present a portfolio demonstrating successful completion of the degree. The portfolio will contain examples from each class - created and detailed in such a way as to demonstrate skills gained from the AMGT program to a potential employer. Students will give an in-class presentation with particular attention paid to the experiences and projects resulting from their internship. Typically offered Summer semester. Prerequisites: Senior status and completion of: AMGT 300, 301, 302, 303, 360, 401, 402, 404, 460.

AMGT499 Automotive Management Automotive Management Capstone TE Automotive Undergraduate 1 LEC LAB

ANTH121 Anthropology Intro Physical Anthropology AS Social and Behavioral Sciences Undergraduate 3 LEC LAB Compares methods, investigates theoretical views and physical evidence about the origin of humans and culture. The evolution of animals, primates, humans and their culture is gained from fossils, artifacts, and studies of human and other animal behavior. This course meets General Education requirements: Social Awareness; Race/Ethnicity/Gender Issues; Social Foundations and new Fall 2017 Self and Society, Self and Society Foundations and U.S. Diversity. Pre-Requisites: Reading score of 17 ACT or Verbal 430 SAT or READ 106 with grade of C/better. Typically Offered Fall, Spring

ANTH122 Anthropology Intro Cultural Anthropology AS Social and Behavioral Sciences Undergraduate 3 LEC LAB Examination of importance of culture for human adaptation and survival. The variations and uniformities within the lifeways of humankind demonstrate the richness of human responses to basic needs to subsist, order behavior, and adjust to change. Systems of meaning which allow humans to make sense of their efforts are studied. A holistic approach to the comparative study of human populations. This course meets General Education requirements: Global Consciousness, Social Awareness and Race/Ethnicity/Gender Issues; Social Foundations and new Fall 2017 Self and Society, Self and Society Foundations and U.S. Diversity. Typically Offered Fall, Spring

ANTH290 Anthropology Special Topics in ANTH AS Social and Behavioral Sciences Undergraduate 1 TO 3 LEC LAB Special topics in ANTH - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
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This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Designed to provide the background for an understanding of the great diversity of cultures and lifeways which developed in North America following the migration of Asians both during and after the Wisconsin glaciations. These "Native Americans" were the ancestors of the peoples contacted by Europeans during the Post Columbian period. These early cultures can only be studied through the application of the theories, methods, and techniques of archaeology and careful assessment of the oral traditions of the native peoples. Also includes the earliest reports of Europeans who first made contact before widespread dispersion, war, and disease obliterated many of the records. This course meets General Education requirements: Social Awareness and Race/Ethnicity/Gender Issues. Pre-Requisites: ANTH 121 or 122 or SOCY 121 or 122 with a grade of D- or better in each course. Typically Offered Spring Only

An ethnohistorical survey of selected Indian groups north of Mexico from the time of in-migration by big game hunters via Beringia to the present. The adaptation of populations to culture areas and then adjustment to settlement and control by European powers and later by the United States and Canada are studied from the perspectives of the first Americans. This course meets General Education requirements: Social Awareness and Race/Ethnicity/Gender Issues. Pre-Requisites: ANTH 121 or 122 or SOCY 121 or 122 with a grade of D- or better in each course. Typically Offered Fall Only

A general survey of the issues, policies, problems, and people pertinent to the existence of American Indians in the United States in the 20th Century. This course meets general education requirements: Social Awareness; Race/Ethnicity/Gender Issues. Pre-Requisites: ANTH 121 or 122 or SOCY 121 or 122 with a grade of D- or better in each course. Typically Offered On Demand

This course will provide a historical, theoretical, and cultural context for studying women in developing countries. Western cultural conceptions of sex, gender, and women will be considered followed by a consideration of the ideology of patriarchy and the evolution of sexual stratification. Several Asian, African, Latin American constructions of femininity, sexuality and womanhood will be studied. The gendering of development and how women have organized and struggled for human and sexual rights will also be studied. This course meets General Education requirements: Social Awareness and Global Consciousness. Pre-Requisites: ANTH 122 or SOCY 121 or SOCY 122 or PSYC 150. Typically Offered Spring Only, Even Ye

Medical anthropology deals with illness and healing in cross-cultural perspective, and raises questions about the nature and cause of illness, the effectiveness of various forms of therapy, and the roles and attributes of different types of healers. Attention will also be directed to the relationship between classical medicine and the religious traditions of Hinduism, Islam, Buddhism and Taoism and to the modern revival of traditional medicine and its role in the health-care delivery. This course meets General Education requirements: Social Awareness and Global Consciousness and new Fall 2017 Global Diversity and Self and Society. Pre-Requisites: ANTH 122 or GEOG 112 or SOCY 121 with a grade of D- or better in each course. Typically Offered Fall Only

Health, healing and learning how their bodies work are issues of concern to women worldwide. In this class students will take a cross-cultural approach to understanding how pregnancy and reproduction are socially and culturally contracted and constrained. Students will experience a radically new way of considering and representing the body. Students will also examine reproductive rights concerns, birth control, and the relation of sexually transmitted diseases to fertility and women's perceptions of their bodies. This course meets General Education requirements: Social Awareness and Global Consciousness and new Fall 2017 Self and Society and Global Diversity. Pre-Requisites: ANTH 122 or GEOG 112 or SOCY 121 with a grade of D- or better in each course. Typically Offered On Demand

An introduction to the culture and society of Japan. Special emphasis will be given to the sociopsychological aspects of Japanese culture, especially in the areas of communication, child-rearing, male-female relationships, reciprocal obligations, persistence, and achievement motivation. Typically Offered Fall Only
ANTH386 Anthropology Japanese Culture and Society 2 AS Social and Behavioral Sciences Undergraduate 3 LEC LAB A continuation of ANTH 385. The effects of prehistoric and historic factors on the cultural context of modern Japanese culture. Special attention will be given to American attitudes about Japanese culture and society. Typically Offered Spring Only

ANTH390 Anthropology Special Topics in ANTH AS Social and Behavioral Sciences Undergraduate 1 TO 4 LEC LAB Special topics in ANTH - 300 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

ANTH397 Anthropology Special Studies in ANTH AS Social and Behavioral Sciences Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

ANTH490 Anthropology Special Topics in ANTH AS Social and Behavioral Sciences Undergraduate 1 TO 3 LEC LAB Special topics in ANTH - 400 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

ANTH497 Anthropology Special Studies in ANTH AS Social and Behavioral Sciences Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

APPS297 Applied Science Special Studies in APPS TE Manufacturing Eng Tech Undergraduate 1 TO 4 LEC LAB This course will introduce students to a range of automation processes used in various manufacturing industries. Students will learn how to utilize automation to optimize manufacturing processes, reduce costs, improve quality, and improve time to market. Students will also learn how to manage an automation project including such topics as project selection, project justification, managing the supply chain and managing new technologies. Typically Offered Fall, Spring

APPS350 Applied Science Automation and Tech Mgmt TE Manufacturing Eng Tech Undergraduate 3 LEC LAB Participants will utilize the five principles of lean thinking (Value, Value Stream, Flow, Pull, and Perfection) to design/redesign a company's production flow and physical layout. Students will learn ways to do more with less - less human effort, equipment, time, and space - while coming closer to providing customers with exactly what they want. Students will be challenged to identify and eliminate various forms of waste. Students will learn the 5S method of visual workplace layout. Recommended to have manufacturing experience. Pre-Requisites: Junior level status with some manufacturing experience. Typically Offered Fall, Spring

APPS351 Applied Science Lean Think Prod Flow and Plant TE Manufacturing Eng Tech Undergraduate 3 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring

APPS397 Applied Science Special Studies in APPS TE Manufacturing Eng Tech Undergraduate 1 TO 4 LEC LAB Course involves national, state and local contemporary issues that affect Industrial Management. Case studies will be used to show the impact on business and the economy. Course also explores competition, quality and cultural differences in industrial management. Typically Offered Fall, Spring

APPS401 Applied Science Contemporary Issues in Ind Mgt TE Manufacturing Eng Tech Undergraduate 3 LEC LAB This course emphasizes the development, maintenance and management issues related to quality, standardization and formal certification, in order to acquaint the student with trends in business practices that assure marketplace acceptance of products and services. Fundamentals of quality management systems and methods used to implement these models will be emphasized. Special attention will be given to total quality management in conjunction with Deming, the Baldrige Award, ISO programs, and emerging trends driven by globalization. Prerequisites: PROJ 320 and APPS 350. Typically Offered Fall, Spring and Summer

APPS420 Applied Science MFGIE Cert - Standardization TE Manufacturing Eng Tech Undergraduate 3 LEC LAB Participants will understand the need for, and practical application of, continuous improvement concepts by identifying and using appropriate tools to contribute to organizational goals. Prepares individuals for manufacturing operations leadership. Students learn cutting edge manufacturing processes including Lean and Agile Manufacturing, Total Quality Management and Continuous Improvement. Students will expand leadership skills and knowledge of essential manufacturing components including work and production system analysis, process and project management, quality systems, innovation management and employee involvement. Recommended to have prior industry experience. Pre-Requisites: MFGIE 341, APPS 351 and APPS 401. Typically Offered Fall, Spring

APPS450 Applied Science Manufacturing Improvement Mgmt TE Manufacturing Eng Tech Undergraduate 3 LEC LAB
<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Title</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>APPS490</td>
<td>Applied Science</td>
<td>Special Topics in APPS</td>
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<tr>
<td>APPS497</td>
<td>Applied Science</td>
<td>Special Studies in APPS</td>
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<tr>
<td>APPS499</td>
<td>Applied Science</td>
<td>Senior Project Capstone</td>
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<tr>
<td>ARCH101</td>
<td>Architectural Technology</td>
<td>Architectural Graphics</td>
<td></td>
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<td>LEC</td>
<td>Lab</td>
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<tr>
<td>ARCH102</td>
<td>Architectural Technology</td>
<td>Architectural Digital Graphics</td>
<td></td>
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<td>LEC</td>
<td>Lab</td>
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<tr>
<td>ARCH109</td>
<td>Architectural Technology</td>
<td>Intro Computer Graphics-ARCH 1</td>
<td></td>
<td>3</td>
<td>LEC</td>
<td>Lab</td>
</tr>
<tr>
<td>ARCH110</td>
<td>Architectural Technology</td>
<td>Computer Graphics-ARCH-HVACR</td>
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<td>Lab</td>
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<tr>
<td>ARCH112</td>
<td>Architectural Technology</td>
<td>Structure Material-System-Code</td>
<td></td>
<td>4</td>
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<td>Lab</td>
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<tr>
<td>ARCH115</td>
<td>Architectural Technology</td>
<td>Interior Exterior Finishes-Sys</td>
<td></td>
<td>3</td>
<td>LEC</td>
<td>Lab</td>
</tr>
<tr>
<td>ARCH119</td>
<td>Architectural Technology</td>
<td>Sustainability in Arch: Intro</td>
<td></td>
<td>1</td>
<td>LEC</td>
<td>Lab</td>
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<tr>
<td>ARCH190</td>
<td>Architectural Technology</td>
<td>Special Topics in ARCH</td>
<td></td>
<td>1 TO 4</td>
<td>LEC</td>
<td>Lab</td>
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<tr>
<td>ARCH203</td>
<td>Architectural Technology</td>
<td>Architectural Documentation</td>
<td></td>
<td>4</td>
<td>LEC</td>
<td>Lab</td>
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<tr>
<td>ARCH204</td>
<td>Architectural Technology</td>
<td>Architectural Detailing</td>
<td></td>
<td>4</td>
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<td>Lab</td>
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<tr>
<td>ARCH216</td>
<td>Architectural Technology</td>
<td>Professional Practice</td>
<td></td>
<td>2</td>
<td>LEC</td>
<td>Lab</td>
</tr>
</tbody>
</table>

**Description:**
- **ARCH101**: Architectural Graphics
  - Taught by faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer
  - A foundation in the graphic methods used to plan and present buildings. Hard line and sketching techniques will be used to develop orthographic, axonometric, pictorial, and model representations of buildings. Emphasis will be placed on drawing layout, graphic communication, and visual enhancement. Prerequisites: Admission into Architecture program. Typically Offered Fall Only

**ARCH102**: Architectural Digital Graphics
- Taught by faculty and may not be offered every semester. Typically Offered Fall
- Introduction to the use of digital graphic media as tools of architectural design, representation and documentation. Includes 2-D documentation and 3-D modeling and rendering techniques. Prerequisites: ARCH 101 and ARCH 112. Typically Offered Spring

**ARCH109**: Intro Computer Graphics-ARCH 1
- Taught by faculty and may not be offered every semester. Typically Offered Fall, Spring
- Development of architectural graphic concepts using microcomputer based CADD (Computer Aided Design/Drafting) systems. Typically Offered Fall, Spring

**ARCH110**: Computer Graphics-ARCH-HVACR
- Taught by faculty and may not be offered every semester. Typically Offered Fall, Spring
- Development of architectural graphic concepts using microcomputer based CADD (Computer Aided Design/Drafting) systems. For HVAC students only. Recommend basic keyboard skills and awareness of Windows and PC systems. Pre-Requisites: Basic keyboard skills and awareness of Windows and PC systems. Typically Offered Fall Only

**ARCH112**: Structure Material-System-Code
- Taught by faculty and may not be offered every semester. Typically Offered Fall Only
- Study of properties, characteristics, limitations, selection criteria and graphical interpretation of concrete, steel, masonry and wood used in foundation, substructure, and superstructure, building systems. Considers aesthetic, performance, maintainability and cost/benefit aspects. Introduces major building codes, material and industry standards, and utilization of manufacturers' catalogs. Typically Offered Fall Only

**ARCH115**: Interior Exterior Finishes-Sys
- Taught by faculty and may not be offered every semester. Typically Offered Fall Only
- Study of properties, characteristics, limitations, selection criteria and graphical interpretation of common interior and exterior finish materials and systems utilized in exterior closure, roofing, interior construction and conveying systems of buildings. Considers aesthetic, performance, code requirements, maintainability and cost/benefit aspects. Pre-Requisites: ARCH 112. Typically Offered Fall Only

**ARCH119**: Sustainability in Arch: Intro
- Taught by faculty and may not be offered every semester. Typically Offered Fall Only
- An overview of the history of sustainability with an emphasis on the built environment. Lecture topics range from the roots of environmental thought to contemporary challenges. Prerequisites: Admission into the ARCH program or permission of instructor. Typically offered Spring

**ARCH190**: Special Topics in ARCH
- Taught by faculty and may not be offered every semester. Typically Offered Fall
- Special topics in ARCH - 100 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

**ARCH203**: Architectural Documentation
- Taught by faculty and may not be offered every semester. Typically Offered Fall
- Introduction to the graphic language, methods, and organizational principles of construction documents. Emphasis is placed on building materials, processes and assemblies and their graphic depiction in working drawings. Additional emphasis is placed on adaptation of standard practices in increase sustainability. Student projects area created in a digital environment following principles of standard practice in the architectural profession. Prerequisites: ARCH 101 and ARCH 112 and ARCH 115. Typically Offered Fall

**ARCH204**: Architectural Detailing
- Taught by faculty and may not be offered every semester. Typically Offered Spring
- Introduction to the process of developing construction details and the assembly of materials that serve both functional and aesthetic requirements of architecture. Emphasis is placed on product research, performance evaluation, cost/benefit studies, and sustainability. Various methods of presentation will be employed to communicate understanding of material relationships and assemblies. Prerequisites: ARCH 203. Typically Offered Spring

**ARCH216**: Professional Practice
- Taught by faculty and may not be offered every semester. Typically Offered Spring
- Overview of legal relationships between owner, architect and contractor, and a study of written contractual documents developed for an architectural project. Office procedures, A.I.A. standard documents and currently accepted formats and systems are discussed. Student develops the technical section content of a specification based upon a previously completed project. Pre-Requisites: Sophomore status. Typically Offered Fall Only
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Type</th>
<th>Department</th>
<th>Level</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH223</td>
<td>Statics and Structures</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>Pre-Requisites: MATH 116 &amp; PHYS 211 &amp; ARCH 112. Typically Offered Fall Only</td>
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</tr>
<tr>
<td>ARCH241</td>
<td>Design Principles</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>An exploration of the principles underlying arch design such as shape; form and space; pattern and texture; scale and proportion; function and circulation; color and light; environment, context and meaning. Students will develop a design vocabulary; skills in public presentation; advanced graphic and model-making skills; and an understanding of the integration of architectural form with complimentary disciplines. Prerequisites: ARCH 203. Typically Offered Fall Only</td>
<td></td>
</tr>
<tr>
<td>ARCH242</td>
<td>Architectural Dgn Principles</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>An introduction to the principles of architectural design and the architectural design process. This course builds upon basic design principles applying them to architectural forms. Emphasis is placed on form, space, proportion, tectonics, and materiality as they apply to architectural design that meets basic programmatic requirements. Prerequisites: ARCH 241. Typically offered Spring.</td>
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</tr>
<tr>
<td>ARCH244</td>
<td>Architectural History 1</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>An investigation of the primary styles and movements in Western and Non-Western architecture from the prehistoric period through the middle Ages. The course will examine cultural, architectural and technological developments during the periods of formation of civilizations, expansion of empires, and developments in religious and governmental structure. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered Fall, Spring</td>
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<tr>
<td>ARCH245</td>
<td>Architectural History 2</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>An investigation of the primary styles and movements in Western and Non-Western architecture from the Renaissance through the 20th Century. The course will examine cultural, architectural and technological developments during the periods of modernization in world history, including the industrial and Technological revolutions. Meets general education requirements for Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ARCH 244. Typically Offered Spring only.</td>
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<tr>
<td>ARCH246</td>
<td>Twentieth Century Architecture</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>An investigation of the primary styles and movements in American and European architecture from the late 19th century to the late 20th century. The course will examine cultural and architectural changes wrought by the Industrial Revolution and responses to them through the Arts and Crafts Movement, the impact of the world wars, the International Style and Modernism, as well as the development of Post-Modern and Deconstructivist architectural theories. Prerequisites: ARCH 245. Typically Offered Spring.</td>
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<tr>
<td>ARCH250</td>
<td>Systems Cost Estimating</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>Basic methodology of construction cost estimating based on a systems approach. Problems will include takeoff and preparation of estimates that would be appropriate for use during the design stage of a project. Pre-Requisites: MATH 116 or MATH 120 and ARCH 203. Typically Offered Spring Only</td>
<td></td>
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<tr>
<td>ARCH270</td>
<td>BIM and Parametric Design</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>An introduction to the fundamentals of computational and parametric design within a BIM environment. The potential for data driven BIM models to aid the architectural design process is examined with emphasis placed on self-directed exploration of advanced parametric and computational tools. Working within Revit generated BIM models, generative scripting, computational methods, and basic parametric tools are used to develop architectural solutions informed by environmental data, performance criteria, code requirements, and/or other contextual factors. Graphical Scripting Interfaces and their ability to generate parametric and computationally derived forms are also introduced. Prerequisites: ARCH 102 and ARCH 115 and ARCH 203. Typically Offered Spring Only</td>
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<tr>
<td>ARCH285</td>
<td>House - An American Evolution</td>
<td>3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>A survey of the development of various housing styles in the USA and their relationship to each other as well as social and economic developments. Students study the essence of architectural elements common in successful residential design. Students will design a house following the design conventions of the style of their choice for a given program. Pre-Requisites: ARCH 203 and ARCH 241 and ARCH 245. Typically Offered Fall, Spring Special topics in ARCH - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
<td></td>
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<tr>
<td>ARCH290</td>
<td>Special Topics in ARCH</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
<td></td>
</tr>
<tr>
<td>ARCH297</td>
<td>Special Studies in ARCH</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>Arch-Facility Mgmt</td>
<td>Undergraduate</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
<td></td>
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</tbody>
</table>
Expansion of general structural principles and methods of analysis from prior course work in statics and strength of materials with advanced analysis and design of steel, concrete, and masonry systems. Material properties and structural behavior of each are examined in terms of safety, sustainability, economy, planning and construction. Prerequisites: ARCH 223. Typically Offered Fall only.

Students will utilize basic architectural design concepts to explore architectural form and space. Program requirements and user needs are addressed in a manner that sustains and enhances the natural and social environment. Prerequisites: Enrollment in program. Typically offered Fall only. Students will explore the constraints and opportunities presented by an existing architectural environment. Projects may include renovation of or addition to an existing building. Solutions will address needs of users in a manner that sustains the natural environment and enhances the social context of the community. Prerequisites: ARCH 341. Meets General Education requirements for Problem Solving. Typically Offered Spring only.

A study of the physical, biological, and cultural aspects of a site and its development, with emphasis placed on connecting a site to its surrounding context through the use of sustainable design principles. Analysis, technical and legal knowledge, and design skills are used to prepare site development plans. Prerequisites: ARCH 204. Typically offered Spring. An exploration of sustainable building strategies and practices. Topics covered include: climate and site analysis, water and energy conservation, sustainable materials, alternative energy sources, rating systems and code requirements for building energy conservation. Prerequisites: PHYS 211, HVAC 337 and enrollment in program. Meets General Education requirements for Collaboration. Typically Offered Fall only.

An exploration of electrical systems, power distribution, communication systems and building controls. Other environmental factors explored include illumination and acoustics. Special emphasis will be placed on sustainable practices. Prerequisites: ARCH 361. Typically Offered Spring only.

An independent study course that allows students to pursue areas of specialized interest in architecture with the supervision and collaboration of a program faculty member. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Enrollment in Architecture and Sustainability program. Typically Offered On Demand. Rooted in a topical, deep reading, this seminar critically considers holistic strategies for sustainability within the built environment and how these strategies contextualize and relate to architectural problem solving. Through independent research, analysis, critical readings, and peer review, students develop and defend in writing - their own professional and personal sustainability ethic. Student led discussion, presentations, and individual research projects will require active student engagement. Prerequisite: ARCH 342. Typically offered Fall.

A seminar that responds to the issues of the day and how they relate to architecture; this course integrates ecology, sociology, history, literature and technology, allowing students to apply what they are learning to the conditions of the times in which we live. Prerequisites: ARCH 342 and SOCY 341. Typically offered Fall only.

A course that addresses a real world architectural problem in its social and environmental context. Students will research and analyze existing conditions and client needs, define project requirements, and develop macro level schematic solutions based on input and feedback of a client community. Emphasis is placed on the analysis, process, and synthesis of architectural problems and their solutions. Prerequisites: ARCH 342. Meets General Education requirements for Collaboration. Typically Offered Fall only.

An independent study course that allows students to pursue areas of specialized interest in architecture with the supervision and collaboration of a program faculty member. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Enrollment in Architecture and Sustainability program. Typically Offered On Demand. A capstone course that comprehensively addresses a real world architectural problem in its social and environmental context. Students will focus on the detailed development of a specific architectural problem integrating knowledge, skill and content gained in previous courses. Projects require students to consider issues of building science, environmental responsibility, and community planning. Prerequisites: ARCH 441. Meets General Education requirements for Problem Solving. Typically Offered Spring only.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Discipline</th>
<th>Level</th>
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<th>Component(s)</th>
<th>Requirements</th>
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<tbody>
<tr>
<td>ARTH110</td>
<td>Art History Prehistory thru Middle Ages</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>The history of art in Western Culture from prehistoric art through the art of the Middle Ages. Emphasizes the Classical Period of Greece and Rome and the Christian art of the Middle Ages. This course meets general education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered On Demand</td>
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<tr>
<td>ARTH111</td>
<td>Art History Renaissance thru 20th Century</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>The history of art in Western Culture from the Renaissance to the 20th Century. Emphasizes Renaissance, Baroque, 19th and 20th Century styles. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered On Demand</td>
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<tr>
<td>ARTH203</td>
<td>Art History African American Art History</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>An introduction to visual art-sculpture, painting, drawings, pottery, textiles- produced by African Americans from the colonial era to the present. Attention will be given to the aesthetic links between African art forms and African American artistic expression. The course also exposes students to the social, political, and economic conditions that impacted the production of visual art by African Americans. This course meets the General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender, and new Fall 2017 Culture and US Diversity. Typically Offered On Demand</td>
</tr>
<tr>
<td>ARTH250</td>
<td>Art History Greek &amp; Roman Art/Archaeology</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course examines the material, visual, and artistic culture of ancient Greece and Rome, two formative cultures in the Western tradition. The Greeks and Romans created monuments of architecture, sculpture, and painting to communicate their values, expressing ideas about society, politics, religion, and philosophy. This course will investigate important works of Greek and Roman art, as well as the source material that helps us to understand these works in their historical and cultural contexts. Within a chronological framework, thematic topics will include patronage, power, identity, memory, and religion, as well as the relationship between public and private art. Students will also develop the skills and vocabulary to discuss works of art, paying careful attention to the formal elements of art and the principles of design. This course meets General Education requirements: Cultural Enrichment; Global Consciousness, and new Fall 2017 Culture, Global Diversity. Typically offered: Fall, Spring, Summer.</td>
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<tr>
<td>ARTH290</td>
<td>Art History Special Topics in ARTH</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
<td>LEC LAB</td>
<td>Special Topics in ARTH - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>ARTH297</td>
<td>Art History Special Studies in ARTH</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
<td>LEC LAB</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered on Demand.</td>
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<td>ARTH310</td>
<td>Art History History of Modern Art</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course examines the history of Modern Art, from the late nineteenth century through present day. Focusing on works of painting, sculpture, architecture, and film, this course will help students to gain an understanding of the technical and stylistic elements of Modern Art. The course will also examine the historical, theoretical, and aesthetic issues often expressed in the art of the modern period. Students will develop skills and vocabulary to discuss and evaluate works of art, paying careful attention to the formal elements of art and the principles of design. (ARTH 110 or ARTH 111 recommended before taking this course.) This course meets general education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ARTH 110 or 111. Typically Offered On Demand</td>
</tr>
<tr>
<td>ARTH311</td>
<td>Art History History of Graphic Design</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>A chronological survey of the development of graphic design from the advent of writing through printing, photography, and computer graphics. This course meets General Education requirement: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ARTH 110 or 111. Typically Offered On Demand</td>
</tr>
<tr>
<td>ARTH312</td>
<td>Art History American Art</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>American Art is a survey of art from the Puritans in the 1600s to the present. This course will examine the major art movements in American culture, including architecture, painting, and sculpture, and trace the development of a uniquely &quot;American&quot; style. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ENGL 250. Typically Offered On Demand</td>
</tr>
<tr>
<td>ARTH325</td>
<td>Art History Women and Art</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Contributions of women in the visual arts of the nineteenth and twentieth centuries. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender Issues and new Fall 2017 Culture and US Diversity. Typically Offered On Demand</td>
</tr>
<tr>
<td>ARTH390</td>
<td>Art History Special Topics in ARTH</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
<td>LEC LAB</td>
<td>Special Topics in ARTH - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>Course Code</td>
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<td>Division</td>
<td>Level</td>
<td>Credits</td>
<td>Type</td>
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<tr>
<td>ARTH397</td>
<td>Art History Special Studies in ARTH</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>LAB</td>
</tr>
</tbody>
</table>

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer

| ARTH590     | Art History Special Topics in ARTH               | Humanities   | Graduate  | 1 TO 6        | LEC     | LAB   |

Special Topics in Art History - 500 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Summer Only

| ARTS101     | Art Studio Basic Art                             | Humanities   | Undergraduate | 3          | LEC     | LAB   |

Fundamental art training, two dimensional art, introduction to various techniques and media. Pencil, pastel, ink, and watercolor will be explored while interpreting a variety of subject matter including still-life, landscape, and the figure. Creative problem solving will be stressed. This course meets general education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered On Demand

| ARTS102     | Art Studio Intermediate Art                      | Humanities   | Undergraduate | 3          | LEC     | LAB   |

Two dimensional art, drawing with various color media; includes color theory, mixing, and composition. Painting experiences range from representational to the abstract. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered On Demand

| ARTS130     | Art Studio Experiments in Painting               | Humanities   | Undergraduate | 3          | LEC     | LAB   |

A studio course exploring the creative aspects of painting. Acquaints students with the media of oil and acrylic and encourages individualistic style in painting. This course meets general education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Spring Only

| ARTS131     | Art Studio Art for the Elementary Teacher        | Humanities   | Undergraduate | 1          | LEC     | LAB   |

An introduction to visual art designed to provide the elementary classroom teacher with introductory art terminology, fundamental art knowledge and the basic hands-on art skills necessary to allow the incorporation of art into general classroom activities. Pre-Requisites: Elementary Education students only. Typically Offered Fall Only

| ARTS220     | Art Studio 3D Design/Beg. Sculpture             | Humanities   | Undergraduate | 3          | LEC     | LAB   |

3D Design/Beg. sculpture introduces the studio art student to the basic elements of 3D Design. This course also serves as a beginning sculpture course that introduces materials, fabrication techniques and content. This course will require the student to be prepared to engage in visual problem solving. This course studies the role of the artist and art in the quality and character of human life and our cultural existence. The challenge this course offers is to bring the forth novel, innovative or imaginative visual solutions. The students in this 3D Design course will participate in the on-going projects of the Aesthetic Engineering concept being developed at FSU. This class is best suited for students with a strong personal work ethic. This course meeting the General Education Requirements for Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ARTS 101 or consent of instructor. Typically offered Spring.

| ARTS290     | Art Studio Special Topics in ARTS                | Humanities   | Undergraduate | 1 TO 3     | LEC     | LAB   |

Special topics in ARTS - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

| ARTS297     | Art Studio Special Studies in ARTS               | Humanities   | Undergraduate | 1 TO 3     | LEC     | LAB   |

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

| ASTR110     | Astronomy Archaeoastronomy                      | Physical Sciences | Undergraduate | 1          | LEC     | LAB   |

Introductory astronomy involving various alignments of the sun and particular stars at special times of the year with buildings, temples and pyramids of ancient archaeological sites. Areas of study include the Egyptian pyramids and temples, Stonehenge, Teotihuacan, Monte Alban, Chichen Itza, and the Jai Singh observatories in India. Typically Offered On Demand

| ASTR120     | Astronomy The Stellar System                     | Physical Sciences | Undergraduate | 4          | LEC     | LAB   |

Introductory astronomy involving distance determination methods, radiation concepts, characteristics of our sun, star types and their evolution, Red Giants, White Dwarfs, Planetary Nebula, Pulsars, Black Holes, multiple and binary star systems, clusters, the Milky Way, other galaxies, and cosmology. Laboratory includes telescope observation. Laboratory contains exercises related to topics covered in lecture. This course meets General Education requirements: Scientific Understanding Lab. Pre-Requisites: MATH 010 with a grade of C- or better or minimum Math score of 15 on ACT or minimum score of 350 on pre 2016 SAT or post 2016 SAT MATH 400. Typically Offered Spring Summer
<table>
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Department</th>
<th>Type</th>
<th>Level</th>
<th>Credit</th>
<th>Term(s)</th>
<th>Description</th>
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<tbody>
<tr>
<td>ASTR130</td>
<td>Astronomy The Solar System</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall</td>
<td>Introductory astronomy involving historical contributions of ancient and early astronomers, Kepler’s and Newton’s laws, ellipse properties and planetary motions, the sun-earth-moon system, geological and meteorological characteristics of each planet and its moons, comet characteristics, and asteroids. Laboratory includes telescope observation. Laboratory contains exercises related to topics covered in lecture. This course meets General Education requirements: Scientific Understanding Lab and new Fall 2017 Natural Sciences Lab. Pre-Requisites:MATH D10 with a grade of C- or better or minimum Math score of 15 on ACT or minimum score of 350 on pre 2016 SAT or post 2016 SAT 400. Typically Offered Fall Only</td>
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<tr>
<td>ASTR140</td>
<td>Astronomy The Sun</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Fall</td>
<td>Introductory astronomy involving ancient shadow and sun positional astronomy, evolution of our sun and similar stars, interior modeling of the sun involving its temperature, pressure and energy transport; magnetic properties associated with sun surface features as sunspots, prominences, and flares; and the effects of the sun on the earth. Solar telescope observation to be arranged. This course meets General Education requirements: Scientific Understanding Lab and Natural Sciences Lab. Pre-Requisites:MATH D10 with a grade of C- or better or minimum Math score of 15 on ACT or minimum score of 350 on pre 2016 SAT or post 2016 SAT 400. Typically Offered Fall Only</td>
</tr>
<tr>
<td>ASTR230</td>
<td>Astronomy Introduction to Astrophysics</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Fall</td>
<td>Concepts of physics will be reexamined in more detail to show how they apply to various areas of astronomy. Appropriate mathematics is used to describe the celestial phenomena observed. Topics include celestial mechanics, electromagnetic spectra, distance determination, binary system, stellar structure, and variable stars. Pre-Requisites:ASTR 120 or 130; and MATH 120. Typically Offered Summer Only</td>
</tr>
<tr>
<td>ASTR290</td>
<td>Astronomy Special Topics in ASTR</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC LAB</td>
<td>Fall</td>
<td>Special topics in ASTR - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>ASTR297</td>
<td>Astronomy Special Studies in ASTR</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC LAB</td>
<td>Fall</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
<tr>
<td>AUTO111</td>
<td>Automotive Manual Transmission-Drivelines</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>Designed to develop skills and knowledge in the area of manual transmissions/transaxles and driveline components. This includes the function, construction, operation, inspection, troubleshooting and servicing of front, rear, and four-wheel drive power transmission devices used in passenger cars and light trucks. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>AUTO112</td>
<td>Automotive Automotive Brake Systems</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>Includes nomenclature, theory of operation and service procedures for conventional and electronic anti-lock brake systems and other related systems. Also included are basic shop practices such as tube flaring, honing operations, and tool application. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>AUTO113</td>
<td>Automotive Auto Electricity - Electronics</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>Provides electrical fundamentals and practical lab activities. Includes electricity, Ohm’s Law, magnetism, inductance, capacitance, basic electronic devices, schematic user’s information, test procedures, test equipment, and batteries. A prerequisite for automotive electrical courses. Typically Offered Fall, Spring</td>
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<tr>
<td>AUTO114</td>
<td>Automotive Automotive Engines</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>In-depth study of design, operation, troubleshooting, and service procedures for modern gasoline and diesel engines. Procedure for disassembly and reassembly of engine units, service, and technical data are presented. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>AUTO115</td>
<td>Automotive Suspen-Steering Alignment Serv</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>Discusses nomenclature, theory of operation, and service procedures for passenger car and light truck suspensions and conventional and power steering systems. Includes instruction on two-wheel and four-wheel electronic systems. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>AUTO117</td>
<td>Automotive Electronic Fuel Mgmt Systems</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>A study of automotive fuel and emission controls with particular emphasis placed on microprocessor control systems. Fuel injection and the operational theory of current emission control devices will be covered in detail. Also, tanks, lines, fuel rails, pumps, filters, and manifolds will be covered. Pre-Requisites:AUTO 113. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>AUTO200</td>
<td>Automotive Service Area 1</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>6</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>Includes field type service work in an instructional setting. Emphasizes vehicle service needs which are most frequently requested in modern commercial service centers. The diagnosis and repair of computerized vehicle systems will be performed. Pre-Requisites:AUTO 111, 112, 113, 114, 115 &amp; 117 with a grade of C- or better. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>AUTO201</td>
<td>Automotive Engine Performance Machine 1</td>
<td>Automotive Service Technology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Fall, Spring</td>
<td>Engine machining with performance applications including cylinder reconditioning, main housing bore, reconditioning, resurfacing and crankshaft balancing. Pre-Requisites:AUTO 114. Typically Offered Fall Only</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Department</td>
<td>Type</td>
<td>Credits</td>
<td>Component</td>
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<tr>
<td>AUTO202</td>
<td>Automotive Service Technology: Engine Performance Machine 2</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO211</td>
<td>Automotive Service Technology: Automatic Transmission</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
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</tr>
<tr>
<td>AUTO213</td>
<td>Automotive Service Technology: Chassis Electrical-Electronics</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO214</td>
<td>Automotive Service Technology: Automotive HVAC</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO290</td>
<td>Automotive Service Technology: Special Topics in AUTO</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO291</td>
<td>Automotive Service Technology: Cooperative Work Experience</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO297</td>
<td>Automotive Service Technology: Special Studies in AUTO</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
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<tr>
<td>AUTO310</td>
<td>Automotive Service Technology: Engine Air Flow Analysis</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
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<td>LEC LAB</td>
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<tr>
<td>AUTO320</td>
<td>Automotive Service Technology: Dynamometer Testing</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO390</td>
<td>Automotive Service Technology: Special Topics in AUTO</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO396</td>
<td>Automotive Service Technology: Forced Induction</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>AUTO450</td>
<td>Automotive Service Technology: Automotive Fuels and Lubes</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
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<td>LEC LAB</td>
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<tr>
<td>AUTO460</td>
<td>Automotive Service Technology: Emissions Systems</td>
<td>Automotive</td>
<td>TE</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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</tbody>
</table>

**AUTO202: Engine Performance Machine 2**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 4 LEC LAB
- **Description:** Engine machining with performance applications including crankshaft reconditioning, rod reconditioning and cylinder head reconditioning. Pre-Requisites: AUTO 114. Typically Offered: Spring, Summer
- **Topics Covered:** Detailed study of the function, construction, operation, servicing, and troubleshooting of rear wheel drive and transaxle automatic transmissions for passenger cars and light trucks.

**AUTO211: Automatic Transmission**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 4 LEC LAB
- **Description:** A detailed study of the function, construction, operation, servicing, and troubleshooting of rear wheel drive and transaxle automatic transmissions for passenger cars and light trucks. Typically Offered: Fall, Spring

**AUTO213: Chassis Electrical-Electronics**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 4 LEC LAB
- **Description:** An in-depth study of the theory, diagnosis, and repair of chassis electrical and electronic systems. Includes the study of lighting circuits, electronic dash circuits, inflatable restraint systems, and electronic cruise control. Pre-Requisites: AUTO 113. Typically Offered: Fall, Spring

**AUTO214: Automotive HVAC**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 4 LEC LAB
- **Description:** In-depth study of automotive, heating, ventilation, and air conditioning systems. The course includes theory of operation, diagnosis, and repair of HVAC systems. Environmental safety issues are stressed including law and regulations, CFC recovery and recycling, ozone depletion, and new, environmentally safe systems. Computerized automatic temperature controlled systems are also covered. Typically Offered: Fall, Spring

**AUTO290: Special Topics in AUTO**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 1 TO 4 LEC LAB
- **Description:** Special Topics in AUTO - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered: Fall, Spring

**AUTO291: Cooperative Work Experience**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 1 TO 6 LEC LAB
- **Description:** Cooperative work experience for students in the Automotive Service Technology program. Under special circumstances students will be allowed to substitute an appropriate number of AUTO 291 credits for AUTO 200 and/or AUTO 250. Work stations and assignments must be appropriate for the student's level of academic preparation and provide suitable "hands on" experience. Each work experience situation must have departmental approval. Typically Offered: Fall, Spring, Summer.

**AUTO297: Special Studies in AUTO**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 1 TO 4 LEC LAB
- **Description:** This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand

**AUTO310: Engine Air Flow Analysis**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 3 LEC LAB
- **Description:** This course is designed to introduce students to the high performance segment of the automotive industry. This course will deal with the design factors that are unique on high output engines and how to modify engines to obtain the desired outcome. Pre-Requisites: AUTO 114 and AUTO 117 and MATH 116. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered: Spring Only

**AUTO320: Dynamometer Testing**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 3 LEC LAB
- **Description:** Introduction to dynamometer testing. This course will introduce students to dynamometer testing as an evaluation tool. This will allow the students to measure actual improvement in performance of the engine as different systems are changed. Pre-Requisites: AUTO 114, AUTO 117 and MATH 116. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered: Fall Only

**AUTO390: Special Topics in AUTO**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 1 TO 4 LEC LAB
- **Description:** Special Topics in AUTO - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester.

**AUTO396: Forced Induction**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 3 LEC LAB
- **Description:** Power output of an engine is determined by the pounds of fuel burned within the engine in a period of time. Fuel delivery is limited by the mass air flow through the engine. Mass air flow through a naturally aspirated engine is limited by the pressure differential between atmospheric pressure and cylinder pressure. Various methods exist to increase this pressure differential, but the currently preferred technology is forced induction. The use of forced induction in passenger cars and light trucks has skyrocketed and continues to grow in popularity as manufacturers seek to produce greater power output from downsized engines. Join us for an in-depth study of these fascinating devices. Pre-Requisites: AUTO 114, AUTO 117, and MATH 116. Typically offered: Fall, Spring

**AUTO450: Automotive Fuels and Lubes**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 3 LEC LAB
- **Description:** The study of automotive fuel and emission control systems, engine combustion characteristics and vehicular lubricants. ASTM testing procedures will be included in the lab to analyze fuels and lubricants. Pre-Requisites: CHEM 114, MATH 126 and Senior Status. Typically Offered: Fall

**AUTO460: Emissions Systems**

- **Department:** Automotive
- **Type:** TE
- **Credits:** 3 LEC LAB
- **Description:** The emphasis will be placed on the testing of the different emission systems and the control of the systems as they apply to the varying types of fuel systems. Pre-Requisites: CHEM 114, MATH 126 and Senior Status. Typically Offered: Spring Only
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Industry (if applicable)</th>
<th>Degree Type</th>
<th>LEC</th>
<th>LAB</th>
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<td>AUTO480</td>
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<td>AUTO493</td>
<td>Automotive Internship</td>
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<td>AUTO497</td>
<td>Automotive Service Technology</td>
<td>TE Automotive</td>
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<tr>
<td>BCTM213</td>
<td>Building Construction Tech Mgmt Wood &amp;</td>
<td>TE Construction Tech</td>
<td>Undergraduate</td>
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<tr>
<td></td>
<td>Steel Framing &amp; Finish</td>
<td>Mgmt</td>
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<tr>
<td>BCTM217</td>
<td>Building Construction Tech Mgmt Virtual</td>
<td>TE Construction Tech</td>
<td>Undergraduate</td>
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<tr>
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<td>Design &amp; Construction</td>
<td>Mgmt</td>
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<tr>
<td>BCTM223</td>
<td>Building Construction Tech Mgmt Mech-Elec</td>
<td>TE Construction Tech</td>
<td>Undergraduate</td>
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<tr>
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<td>Plans and Specs</td>
<td>Mgmt</td>
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<td>BCTM225</td>
<td>Building Construction Tech Mgmt Field</td>
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<td>Building Construction Tech Mgmt Electrical</td>
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<td>BCTM297</td>
<td>Building Construction Tech Mgmt Special</td>
<td>TE Construction Tech</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
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<tr>
<td></td>
<td>Studies in BCTM</td>
<td>Mgmt</td>
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</table>

The emphasis will be placed on the alternate fuel, hybrid, and electrical vehicles as they apply to the varying types of transportation industry. Pre-Requisites: CHEM 114 and MATH 126 and Senior Status. Typically Offered: Spring Only

Student will be placed in a position that is related to their technical degree. Includes a problem centered technology project planned in joint agreement with student, employer and program coordinator to be completed during internship and presented as a written term paper. Pre-Requisites: Senior status. Typically Offered: Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: Fall, Spring, Summer

The study of basic framing and finish techniques and the materials and methods used in the construction industry. Apply the principles of construction mathematics to layout and assembly of structures consisting of wood and steel beams, joists, studs, rafters, stairs and other framing/enclosure components. Pre-Requisites: D- in CONM 112; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or Math ACT 26+/SAT 610+. Typically Offered: Spring and Fall.

Utilizing the emerging computing and information technologies used in the solution of construction problems and in construction management, this course will expose students to the creation and integration of virtual models used in design, construction, estimating, scheduling, and facility management. Pre-requisites: CONM 116, CONM 117, CONM 211. Co-requisites: CONM 222. Typically offered: Fall, Spring

Construction documents used for mechanical and electrical systems of building and process/power plant construction. Drawings and specifications, construction concerns, system isometrics, building codes, specialty diagrams and quantity takeoff. Pre-Requisites: CONM 112. Typically Offered: Spring and Fall

Management of the construction site including planning and layout of temporary site facilities, field engineering, field documentation and regulatory requirements. Introduces CAD applications. Pre-requisites: CONM 122 and CONM 117 and C- in MATH 120. Meets General Education requirements for Collaboration. Typically Offered: Spring and Fall

Interpret construction documents for electrical service and distribution, fire protection, building security, signaling, building automation systems, and site utilities. Identify major materials and construction installation requirements, including basic system design, operation, and code-related information for preparation of construction takeoffs and preliminary estimates. Discuss construction site issues including trade coordination and installation requirements, including equipment, systems installation, codes, and testing. Practice basic construction techniques common to the above systems including preparation of preliminary estimates. Pre-requisites: CONM 111, 112. Co-requisites: CONM 117. Typically offered: Fall, Spring

Interpret construction documents for electrical service and distribution, fire protection, building security, signaling, building automation systems, and site utilities. Identify major materials and construction installation requirements, including basic system design, operation, and code-related information for preparation of construction takeoffs and preliminary estimates. Discuss construction site issues including trade coordination and installation requirements, including equipment, systems installation, codes, and testing. Practice basic construction techniques common to the above systems including preparation of preliminary estimates. Pre-requisites: CONM 111, 112, 117; C- in MATH 120/126 or higher or Math ACT 26+/SAT 610+. Typically offered: Fall, Spring

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand
The emphasis is fundamental genetic principles and concepts and how these apply to individuals within our culture and society as a whole. Topics include transmission of inherited traits, chromosomal abnormalities, gene structure and function, genes in populations and genetic implications of cancer, genetic engineering, evolution, eugenics and bioethics. Designed for non-science majors; not applicable towards biology program requirements. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered Fall, Spring

This course is a broad overview of the field of biology, for non-biology majors. The various fields and levels of biology will be presented with an emphasis on the basic principles underlying all areas and all levels of biology. This course is suitable for students needing a general introduction to biology, for students in elementary education, or for students preparing to take the introductory majors biology courses, BIOL 121 and BIOL 122. This course meets the Scientific Understanding requirement for general education and new Fall 2017 Natural Sciences. Typically Offered Fall, Spring

Introduction to the microbial world with an emphasis on human microbial disease mechanism and the basis of a protective immune response. The laboratory provides practical experience with fundamental techniques and instrumentation. Designed for students in allied health associate degree programs. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered Fall, Spring, Summer

An introductory course designed to provide students with a basic understanding of the structural organization and functions of the major systems of the human body. Laboratories provide opportunities to observe various anatomical parts and investigate physiological phenomena. For non-science students and is not applicable toward the applied biology major. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered Fall, Spring, Summer

The study of the biology of plants and soils as they relate to the turfgrass environment. Includes the growth, care, and management of turf and turfgrass, used on golf courses. Intended for professional golf management majors. Typically Offered Summer Only

Great lakes flora and fauna are studied, with emphasis on ecological relationships and environmental impacts. Fisheries and wildlife management principles are also discussed. Open to recreation and outdoor activities directors, teachers needing updating in natural science, lifelong learning adults and others interested in the out-of-doors. Not applicable towards biology program requirements. Some hiking required. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered Fall, Spring, Summer

The first semester of a year-long sequence in introductory biology designed for the science major and as a prerequisite for advanced biology courses. The topics include an introduction to scientific thinking, ecology, cell division, Mendelian genetics, evolution, and the diversity of the biological kingdoms (Bacteria, Protista, Fungi and Plantae), and plant structure and function. Laboratory exercises are designed to enhance the lecture material with hands-on experiences. Designed for students in science baccalaureate degree programs. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: CHEM 121 (may be taken concurrently). Typically Offered Fall, Spring, Summer
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Type</th>
<th>Hours</th>
<th>Credit</th>
<th>Notes</th>
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<tbody>
<tr>
<td>BIOL122</td>
<td>Biology General Biology 2</td>
<td>AS</td>
<td>4</td>
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<tr>
<td>BIOL190</td>
<td>Special Topics in BIOL</td>
<td>AS</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BIOL205</td>
<td>Human Anatomy-Physiology</td>
<td>AS</td>
<td>5</td>
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<td>BIOL207</td>
<td>Forensic Biology</td>
<td>AS</td>
<td>4</td>
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<td>LEC</td>
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<tr>
<td>BIOL218</td>
<td>Microbial Ecology</td>
<td>AS</td>
<td>3</td>
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<td>LEC</td>
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<tr>
<td>BIOL272</td>
<td>Marine Biology</td>
<td>AS</td>
<td>3</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>BIOL280</td>
<td>Applied Fermentation</td>
<td>AS</td>
<td>3</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>BIOL286</td>
<td>General Microbiology</td>
<td>AS</td>
<td>3</td>
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<td>LEC</td>
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<tr>
<td>BIOL290</td>
<td>Special Topics in BIOL</td>
<td>AS</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>LAB</td>
</tr>
<tr>
<td>BIOL297</td>
<td>Special Studies in BIOL</td>
<td>AS</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>LAB</td>
</tr>
</tbody>
</table>

The second semester of a year-long sequence in introductory biology. The topics covered include molecular biology, cell biology (including bioenergetics and metabolism), molecular genetics, diversity of the Kingdom Animalia, and animal structure and function. Laboratory exercises are designed to enhance the lecture material with hands-on experiences. Designed for students in science baccalaureate programs. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: BIOL 121 with a C- grade or better and CHEM 121 with a C- grade or better. Typically Offered Fall, Spring, Summer

Special Topics in Biology. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

An integrated course in human anatomy and physiology which emphasizes structure and function as they relate to clinical considerations. Basic concepts of structure and function will be discussed at the cellular, tissue and organ system levels. Laboratory will utilize cadavers in anatomical studies. Designed for students in allied health associate and baccalaureate degree programs and science education. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: CHEM 114 or CHEM 121 with a C- grade or better. Typically Offered Fall, Spring, Summer

This course will stress the significance of ecological, entomological, and biotechnological forensic evidence that can be obtained from a crime scene. The course will also stress the field identification, collection and proper handling of the above forensic evidence for submission to a crime lab and the significance of such crime lab information. Meets General Education requirements: Scientific Understanding and Scientific Understanding Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered Fall Only

The course will cover microbial interactions, both intraspecific and interspecific, and the role of microbes in plant and animal ecology; response to abiotic environmental factors and their role in biogeochemical cycling and biodegradation, and the use of microbes to recover metals and petroleum, and how genetically engineered microbes are being used for pest control. Designed for biology education, environmental biology, and environmental health students. Meets General Education requirements: Scientific Understanding Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: BIOL 121 with a grade of C- or better. Typically Offered Spring Only

A survey of the major habitats, organisms, and processes related to the study of marine biology. The specialized adaptations of organisms to the diverse physical conditions found in the marine environment will be discussed with an emphasis on life history traits. The impact of pollution, harvest, and climate change on the marine environment will be discussed in relation to economic and political factors. This course meets the General Education requirements for Scientific Understanding, and new Fall 2017 Natural Sciences. Typically offered Spring, Fall, Summer.

This introductory level course will examine the application of basic concepts of microbiology involved in the production of food by fermentation. The student’s classroom understanding of vinification (wine making) and cheese production will be enhanced by extensive field learning experiences via instructional visitsations of vineyards as well as industrial wine and cheese manufacturing facilities. This course meets General Education requirements: Scientific Understanding, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered Summer only.

Introduction to the microbial world including microbial structure, function, metabolism, classification, genetics, control of microbial growth and immunity. The laboratory provides practical experience with fundamental concepts, techniques and instrumentation. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: CHEM 122 with a C- grade or better. Typically Offered: Fall, Spring, Summer

Special topics in biology - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Credit Hours</th>
<th>Type</th>
<th>Lab</th>
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<tr>
<td>BIOL300</td>
<td>Biology</td>
<td>Pathophysiology</td>
<td>AS Biology</td>
<td>Undergraduate</td>
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<tr>
<td>BIOL301</td>
<td>Biology</td>
<td>Exercise Physiology</td>
<td>AS Biology</td>
<td>Undergraduate</td>
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<tr>
<td>BIOL310</td>
<td>Biology</td>
<td>Nutrition</td>
<td>AS Biology</td>
<td>Undergraduate</td>
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<td>BIOL321</td>
<td>Biology</td>
<td>Human Physiology-Anatomy 1</td>
<td>AS Biology</td>
<td>Undergraduate</td>
<td>4</td>
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<tr>
<td>BIOL322</td>
<td>Biology</td>
<td>Human Physiology-Anatomy 2</td>
<td>AS Biology</td>
<td>Undergraduate</td>
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<tr>
<td>BIOL330</td>
<td>Biology</td>
<td>Zoology</td>
<td>AS Biology</td>
<td>Undergraduate</td>
<td>4</td>
</tr>
<tr>
<td>BIOL340</td>
<td>Biology</td>
<td>Evolution</td>
<td>AS Biology</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>BIOL343</td>
<td>Biology</td>
<td>Ornithology</td>
<td>AS Biology</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>BIOL344</td>
<td>Biology</td>
<td>Entomology</td>
<td>AS Biology</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>BIOL345</td>
<td>Biology</td>
<td>Environmental Regulations</td>
<td>AS Biology</td>
<td>Undergraduate</td>
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A study of general principles and causes of disease and resultant abnormal physiological functions of the organ systems. Included are discussions on cancer, aging, inflammation, stress, cardiovascular, nervous, respiratory, endocrine, excretory, digestive and musculoskeletal system dysfunction. Pre-Requisites: BIOL 205 or BIOL 322 with a grade of C or better and CHEM 214 or CHEM 321 with a grade of C or better. Typically Offered Fall, Spring, Summer

A study of the physiological adaptations that occur during the onset of exercise and the long-term effects of exercise as one engages in systemic physical training. Pre-Requisites: BIOL 205 or BIOL 322 with a grade of C or better. Typically Offered Fall.

A comprehensive course in nutrition that covers energetics and metabolism of carbohydrates, lipids, and proteins as related to dietary recommendations, recommended dietary allowances, and food sources of nutrients in humans and domestic animals. Pre-requisites: BIOL 122 and CHEM 214 or 322. Typically offered Summer.

First of two semesters of a comprehensive, integrated course in anatomy-physiology developing logical correlations between structures and their functions with emphasis on the molecular and cellular basis of organ system structure and function. Topics: cell physiology; control mechanisms; nervous, muscle, and endocrine systems. Laboratories include cadavers in anatomical studies and animal experimentation demonstrating physiological principles. Designed for students in science baccalaureate degree programs. Pre-Requisites: BIOL 122 & CHEM 122 with a grade of C or better. Typically Offered Fall, Summer

Second of two semesters of a comprehensive, integrated course in anatomy-physiology developing logical correlations between structures and their function. Topics: respiratory, digestive, metabolic, cardiovascular, excretory and reproductive systems. Designed for students in science baccalaureate degree programs. Pre-Requisites: BIOL 321 with a grade of C or better. Typically Offered Spring, Summer

Zoology is the study of the diversity of invertebrate and vertebrate animals. This course will examine the evolutionary mechanisms that lead to the diversity of animals on our planet, survey the animal kingdom by comparing the unique structures and functions that are used to classify organisms into major phylogenetic groups, and investigate these organisms in the laboratory. The laboratory portion of the course includes examination of representative organisms using slides, specimens, and dissections. Prerequisites: Earned grade on C- or better in BIOL 122. Typically offered in Spring.

The study of the process of evolution, including the origin of species and fossil evidence in the geological record. Considers evidence of evolutionary relationships, including molecular homologies recently discovered by genome projects, the evolution of metabolic pathways, symbiotic relationships and the evolution of eukaryotes. Prerequisites: BIOL 112 with a grade of C- or better. Typically offered Fall, Spring

The purpose of this course is to gain an understanding of and an appreciation for the biology of birds. Lectures will address various aspects of avian biology, including evolution, behavior, anatomy, physiology, ecology, and biodiversity. Labs will involve examination of preserved specimens, dissections, and field trips for development of field identification skills. Students will be expected to learn the taxonomy and natural history of the avifauna of Michigan. Prerequisites: Earned Grade of C- or better in BIOL 122. Typically offered Fall, even years.

 Morphology, ecology, natural history and identification of the largest group of invertebrates, the insects. Emphasis on ecological, medical and economically important species. Designed for students in baccalaureate degree programs in science education and applied biology. Pre-Requisites: BIOL 122 with a grade of C- or better. Typically Offered Fall Only, Odd Years

A course designed to provide students with initial exposure to the wide variety of regulations that impact human health and the environment in general. Participants will review the key elements of major environmental regulations and how to evaluate activities that may harm or change the environment in some manner. A thorough understanding of local, state, regional and federal regulations will assist the student in managing human activities to protect human health and the environment. Prerequisites: BIOL 122 with a grade of C- or better. Typically Offered Spring only.
<p>| BIOL346 | Biology | Ecological Assessment | AS | Biology | Undergraduate | 3 | LEC | LAB | This is a course that studies the ecological impact of environmental issues through sampling and measurement of those impacts. Students will study sensitive ecological systems then measure, investigate and evaluate the impacts of human and natural events on those ecosystems. In addition to the typical and common human impacts on ecosystems, the hazards of human introduction of invasive species will also be studied. Prerequisites: BIOL 122 with a grade of C- or better. Typically Offered Fall only. |
| BIOL347 | Biology | Environmental Conservation | AS | Biology | Undergraduate | 3 | LEC | LAB | An in-depth study of conservation biology including interrelationships between humans and the environment, historical perspectives, present predicaments and future outlook. Describing, monitoring, and preserving biological diversity is a major theme with emphasis on economic and ethical values, extinction, habitat destruction, overexploitation, as well as, managing, restoring, and protecting areas. Pre-Requisites: BIOL 122 with a grade of C- or better. Typically Offered Fall Only. |
| BIOL348 | Biology | Animal Behavior | AS | Biology | Undergraduate | 3 | LEC | LAB | In this course, we explore the diversity of animal behavior in order to understand how behavior is organized and controlled, how it develops, why it is performed, and why it takes a particular form. Natural selection is a major theme with emphasis on viewing behavior as a species attribute, following the approach of comparative ethology, and as an individual attribute, interpreting behavior to be a &quot;strategy&quot; that contributes to an organism's fitness. Prerequisites: BIOL 122 with a grade of C- or better. Typically Offered: Fall |
| BIOL349 | Biology | Medical Parasitology | AS | Biology | Undergraduate | 3 | LEC | LAB | The basic concepts of parasitology with emphasis on the major types of medically important parasites will be covered, including life cycle, diagnosis, treatment, immunity and control. Laboratory stresses identification of the various developmental stages of these parasites. Designated for students in science baccalaureate degree programs. Pre-Requisites: BIOL 122 with a grade of C- or better. Typically Offered Spring Only, Even Ye |
| BIOL350 | Biology | Plants and Fungi | AS | Biology | Undergraduate | 4 | LEC | LAB | This course will examine the biology of plants and fungi from a systematic perspective. Lectures will address essential aspects of plant and fungal biology, including evolution, morphology, anatomy, physiology, and ecology. Labs will utilize a hands-on approach to taxonomy, plant propagation and microscopy, and field trips will be utilized to demonstrate plant community structure and field identification of Michigan's plants macrofungi. Prerequisites: Earned Grade of C- or better in BIOL 122. Typically Offered Spring. |
| BIOL351 | Biology | Field Botany | AS | Biology | Undergraduate | 3 | LEC | LAB | Collection and identification of Michigan flora including both woody and herbaceous species. Varying plant habitats will be studied. Pre-Requisites: BIOL 122 with a grade of C- or better. Typically Offered Summer Only |
| BIOL370 | Biology | Developmental Biology | AS | Biology | Undergraduate | 4 | LEC | LAB | A study of the fundamental principles of development and the mechanisms responsible. An examination of the morphological changes which occur during development in vertebrates. Pre-Requisites: BIOL 375 with a grade of C- or better. Typically Offered: Spring |
| BIOL373 | Biology | Cell Biology | AS | Biology | Undergraduate | 3 | LEC | LAB | A study of ultra structure and function of cellular components, including major classes of biologically important molecules, energy transformation, membranes, signaling, the role of cytoskeleton, the cell cycle and apoptosis. Pre-requisites: BIOL 122 with a grade of C- or better and CHEM 214 or CHEM 322 with a grade of C- or better. Typically Offered: Fall, Spring |
| BIOL375 | Biology | Principles of Genetics | AS | Biology | Undergraduate | 3 | LEC | LAB | A comprehensive course in genetics including molecular aspects of gene structure, function, and control in prokaryotes and eukaryotes, transmission genetics and genes in populations. Designed for students in science baccalaureate programs. This course meets General Education requirements: new Fall 2017 Problem Solving. Pre-Requisites: BIOL 122 with a grade of C- or better. Typically Offered Fall, Spring, Summer |
| BIOL386 | Biology | Microbiology and Immunology | AS | Biology | Undergraduate | 5 | LEC | LAB | Fundamentals of the microbial world with emphasis on the medical aspects of microbiology, molecular basis of pathogenicity, chemotherapy, and the role of humoral and cellular immune responses in host protection and hypersensitivity. The laboratory provides practical experiences with fundamental concepts, techniques and instrumentation. Designed for students in science baccalaureate degree programs. A prior course in biochemistry is also required. Pre-Requisites: BIOL 322 with a grade of C- or better and CHEM 321 or CHEM 214 with a grade of C- or better. Typically Offered Spring, Summer |
| BIOL390 | Biology | Special Topics in BIOL | AS | Biology | Undergraduate | 1 TO 6 | LEC | LAB | Special topics in biology - 300 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer |
| BIOL397 | Biology | Special Studies in BIOL | AS | Biology | Undergraduate | 1 TO 4 | LEC | LAB | This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer |</p>
<table>
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<th>Course Code</th>
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<th>Degree</th>
<th>Credits</th>
<th>Type</th>
<th>Co-requisites</th>
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<tr>
<td>BIOL407</td>
<td>Biology</td>
<td>Forensic DNA Analysis</td>
<td>Undergraduate</td>
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<td>LEC LAB</td>
<td>Pre-Requisites: BOL 207 with a grade of C- or better and BOL 375 with a grade of C- or better. Typically Offered Spring Only</td>
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<tr>
<td>BIOL421</td>
<td>Biology</td>
<td>Endocrinology</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>An in-depth investigation of vertebrate (particularly human) endocrinology. Topics will include hormone structure, hormone synthesis, the mechanisms of hormone action, endocrine disruptors, and the roles of hormones in calcium metabolism, digestive physiology, reproduction, growth, and the stress and sympathetic responses. The hormones of the major endocrine glands will be investigated. There will also be an introduction to various techniques used in endocrinological research. This course includes the reading and understanding of primary scientific literature. Prerequisites: BOL 205 or BOL 322 with a grade of C- or better. Typically Offered: Fall of even years</td>
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<tr>
<td>BIOL423</td>
<td>Biology</td>
<td>Neurobiology</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course covers the relation of structure and function of the nervous system. Topics covered include the structure and properties of excitable cells, synaptic transmission, neurochemistry, and integration of information in simple systems, centrally programmed behavior, and learning and memory. Prerequisites: BOL 205 or BOL 322. Typically offered Fall odd years.</td>
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<tr>
<td>BIOL438</td>
<td>Biology</td>
<td>Microbiology for Optometry</td>
<td>1st Professional</td>
<td>4</td>
<td>LEC LAB</td>
<td>Medical microbiology and immunology with an emphasis on microbial diseases of the eye and ocular immunology. Pre-Requisites: Optometry students only. Typically Offered Fall Only</td>
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<tr>
<td>BIOL442</td>
<td>Biology</td>
<td>Ecology</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Study of the dynamic relationships between organisms (plant and animal) and their environment. The course is designed for students in baccalaureate programs in science education and applied biology. Pre-Requisites: BOL 122 with a grade of C- or better. Typically Offered Spring, Summer</td>
</tr>
<tr>
<td>BIOL450</td>
<td>Biology</td>
<td>Medical Botany</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Medical Botany explores the intersection of medicine and botany, utilizing integrative and comparative approaches to critically analyze medical systems. Students will learn how plants produce compounds of medical interest, how medicines work in the human body, and how biologists view health and disease. Medical botany will help prepare students going into medical careers understand the benefits, dangers, and history of this fundamental basis for medicine by exploring past and present treatment options. Pre-requisites: BOL 122 (C-) &amp; CHEM 214 (C-) or CHEM 321 (C-). Typically offered: Spring</td>
</tr>
<tr>
<td>BIOL453</td>
<td>Biology</td>
<td>Plant Physiology</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>A study of the basic structure, function, and physiology of vascular plants. Topics include plant anatomy and cell biology, water relations (including waster uptake, xylem transport, and transpiration), nutritional requirements, an in-depth look at photosynthesis, a review of other plant biochemistry, and a study of development and environmental responses, focusing on the detection of stimuli and hormonal and other messengers. Designed for students in baccalaureate programs in science education and biology. Completion of organic chemistry is recommended. Prerequisites: Earned Grades of C- or better in BOL 122 and BOL 350. Typically offered Fall, Odd Years.</td>
</tr>
<tr>
<td>BIOL460</td>
<td>Biology</td>
<td>Current Topics in BIOL</td>
<td>Undergraduate</td>
<td>2</td>
<td>LEC LAB</td>
<td>Students will use published literature to interpret and analyze current topics of biological interest. This is a capstone course for both the BA Biology and BS Applied Biology programs as it requires students to draw on their knowledge acquired throughout previous Biology coursework to complete the major written and oral reports. This course meets General Education requirements: new Fall 2017 Collaboration and Problem Solving. Pre-Requisites: ENGL 311 or ENGL 321 or ENGL 323 with a grade of C- or better. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>BIOL470</td>
<td>Biology</td>
<td>Molecular Genetics</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>An analysis of genetic phenomena at the molecular level. Topics include: structures of DNA; replication, recombination, mutation, repair, genomic sequences, chromatin structure, transcription, processing, translation, and the theory of selected techniques. Emphasis is on regulatory mechanisms. Pre-Requisites: BOL 375 and CHEM 364 with a grade of C- or better. Typically Offered Spring Only Even Years</td>
</tr>
</tbody>
</table>
Practical training in recombinant DNA techniques is provided to students. These include DNA isolation, restriction enzymes, production of recombinant DNA plasmids, bacterial transformation, polymerase chain reaction (PCR), Southern transfer, non-radioactive probe labeling, hybridization, and DNA sequencing. DNA sequence data from internet databases and the use of graphics files to record results are also introduced. This course meets General Education requirements: new Fall 2017 Collaboration and Problem Solving. Prerequisites: BIOL 375 and CHEM 333 with a grade of C- or better. Typically Offered Spring Only.

The theory, molecular mechanisms, and practical aspects of the major techniques used in protein purification. Emphasis is placed on data interpretation and manipulation, trouble-shooting, and prediction of the impact of various errors on the data, for each technique. Included are: enzyme kinetics; buffer design; cell disruption; differential solubility; ion exchange, gel permeation, and affinity chromatography; ultracentrifugation; chromatofocusing; radiisotope use; PAGE; and IEF. Pre-Requisites: BIOL 122 and CHEM 322 with a grade of C- or better. Typically Offered Fall Only, Odd Years.

Hands-on practical experience in protein purification. Term project requires literature search, feasibility evaluation, record keeping and oral presentation of results. Numerous techniques such as enzyme assays, ammonium sulfate precipitation, ion exchange, ultracentrifugation, gel permeation chromatography, and SDS-PAGE electrophoresis will be used. This course meets General Education requirements: new Fall 2017 Collaboration and Problem Solving. Prerequisites: CHEM 333 with a grade of C- or better. Typically Offered Fall Only.

Molecular biology of the cell, including basic genetic mechanisms, cell techniques, membranes and membrane components, cellular compartments, intracellular sorting, cytoskeleton, cell signalling, energy conversions, cell growth and division, differentiation, cell junctions, and others. Pre-Requisites: CHEM 364 and BIOL 375 with a grade of C- or better. Typically Offered Spring Only, Odd Years.

A study of the interface between biotechnology and information technology. Primary focus will be placed on the use of nucleic acid and protein databases to accurately and efficiently analyze genomic and proteomic data. Secondary focus will be placed on investigation of the modern techniques of molecular biology (DNA and RNA sequencing, microarrays, chromatin conformation analysis) used to produce genome, transcriptomic, and epigenomic data. Prerequisites: BIOL 375 with a grade of C- or better. Typically Offered: Spring of odd years.

In this course students will gain practical experience required for conducting animal-based research including the appropriate and humane handling of laboratory animals. In addition each student will: 1) develop and present a research protocol that involves the use of animals, 2) use immunological and other laboratory techniques to test hypotheses, 3) assess proper laboratory design and safety, 4) establish a primary cell culture, and 5) maintain a laboratory notebook. Prerequisites: BIOL 386 and CHEM 333 with a grade of C- or higher. Typically Offered Fall only.

The student will participate in a basic or applied research project in their major or a closely related discipline. The course will be designed to provide the student with hands-on experience in research design, informational gathering and management, analysis, and interpretation. One credit hour equals 45 contact hours per semester. May be repeated for up to 9 credits. Prerequisites: Enrollment in Biology or Biotechnology Major and Consent from professor. Typically Offered On Demand.

Special topics in biology-the level of the course. Prerequisites: BIOL 231, 360, 375, and CHEM 333. Typically Offered Spring and Summer.

Students participate in an external biotechnology internship to gain valuable technical and networking skills. Internship opportunities are generally obtained in academia (undergraduate research programs), in government (research branches of state or federal agencies), or in the biotechnology industry (national and local biotechnology companies). Pre-Requisites: Biotechnology students only. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer.
<table>
<thead>
<tr>
<th>Code</th>
<th>Subject</th>
<th>Title</th>
<th>Degree</th>
<th>Topic</th>
<th>Credits</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL492</td>
<td>Biology</td>
<td>Biology Internship</td>
<td>AS</td>
<td>Biology</td>
<td>Undergraduate</td>
<td>1-6</td>
<td>LEC LAB Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student’s academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 8 weeks with a total hours worked approved by the program coordinator. One credit hour equals 45 contact hours per semester. May be repeated for up to 9 credits. Typically Offered On Demand</td>
</tr>
<tr>
<td>BIOL497</td>
<td>Biology</td>
<td>Special Studies in BIOL</td>
<td>AS</td>
<td>Biology</td>
<td>Undergraduate</td>
<td>1-4</td>
<td>LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>BIOL537</td>
<td>Biology</td>
<td>Anatomy &amp; Physiology for Opt 1</td>
<td>AS</td>
<td>Biology</td>
<td>1st Professional</td>
<td>4</td>
<td>LEC LAB This is the first of a two courses whose subject is structure and function of the human body, with an emphasis on systemic processes which impact the normal function of the eye and its adnexa. The laboratory provides practical experience with the structure and function of several systems. Typically offered Fall.</td>
</tr>
<tr>
<td>BIOL538</td>
<td>Biology</td>
<td>Anatomy &amp; Physiology for Opt 2</td>
<td>AS</td>
<td>Biology</td>
<td>1st Professional</td>
<td>4</td>
<td>LEC LAB This is the second in a series of two courses whose subject is structure and function of the human body, with an emphasis on systemic processes which impact the normal function of the eye and its adnexa. The laboratory provides practical experience with the structure and function of several systems. Typically offered Fall.</td>
</tr>
<tr>
<td>BIOL590</td>
<td>Biology</td>
<td>Special Topics in Biology</td>
<td>AS</td>
<td>Biology</td>
<td>Graduate</td>
<td>1-6</td>
<td>LEC LAB This course covers various topics taught by diverse faculty and may not be offered every semester. Typically offered on demand. Special topics in biology - graduate level.</td>
</tr>
<tr>
<td>BLAW221</td>
<td>Business Law</td>
<td>Elementary Business Law</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB A survey course in business law; covers contracts and sales, business organizations, negotiable instruments, and real and personal property. Not to be taken by College of Business students. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>BLAW297</td>
<td>Business Law</td>
<td>Special Studies in BLAW</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>1-3</td>
<td>LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
<tr>
<td>BLAW301</td>
<td>Business Law</td>
<td>Legal Environment of Business</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB Develops an understanding of the interaction between law and business through a survey of public and private law. Emphasis on understanding business regulation in the areas of competition, labor law, securities regulation, consumer protection, and environmental law. A brief overview of contracts and business organizations is included along with a review of the court system and the constitutional rights of business. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>BLAW321</td>
<td>Business Law</td>
<td>Contracts and Sales</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB Provides an introduction to the law and the legal system in the U.S. as well as a thorough examination of the law of contracts and sales. (Includes a review of articles 2 and 6 of the Uniform Commercial Codes.) Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>BLAW322</td>
<td>Business Law</td>
<td>Commercial Law &amp; Transactions</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB This Commercial Law and Transactions course covers the study of law and issues arising in commercial settings including agency, payment systems, security interests, bankruptcy and additional areas of government regulation such as securities, antitrust and protection of intellectual property. Accountants' ethical responsibility and legal liability will be addressed. The principal emphasis is on the articles of the Uniform Commercial Code (UCC) that deal with commercial paper and secured transactions - Articles 3, 4, 4a and 9 and bankruptcy as covered in the Federal Bankruptcy Code. Pre-Requisites: BLAW 321 or 221. Typically Offered Spring</td>
</tr>
<tr>
<td>BLAW323</td>
<td>Business Law</td>
<td>Agency Partnerships-Corporates</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB Examines the law of business associations to include agency, partnerships, limited partnerships, joint ventures, and corporations. Also includes an overview of antitrust law and securities regulation. Pre-Requisites: BLAW 321 or 221. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>BLAW325</td>
<td>Business Law</td>
<td>Real and Personal Property</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB This course examines a variety of topics essential to the understanding of real and personal property law including the concept and various classifications of property; methods of acquiring, maintaining, conveying and losing ownership real and personal property; rights, duties, risk and liability associated with real and personal property ownership; an Pre-Requisites: BLAW 321 or BLAW 221 or BLAW 301. Typically Offered Spring, Summer.</td>
</tr>
<tr>
<td>BLAW330</td>
<td>Business Law</td>
<td>Insurance Law</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB Students will learn how to apply relevant principles of United States law to the business of insurance and risk management. This course examines both contract and agency law, particularly how it applies to insurance applications. Students are also introduced to insurance relevant concepts of commercial, property, and tort law, and the international legal environment. The course is aligned with CPCU 530 allowing successful students to apply for a CPCU exam waiver. Typically offered: Fall.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Institute</td>
<td>Type</td>
<td>Level</td>
<td>Credits</td>
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<tr>
<td>BLAW390</td>
<td>Business Law</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
<td>LEC</td>
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<tr>
<td>BLAW397</td>
<td>Business Law</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC</td>
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<tr>
<td>BLAW411</td>
<td>Business Law</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BLAW421</td>
<td>Business Law</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BLAW497</td>
<td>Business Law</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BLAW526</td>
<td>Business Law</td>
<td>BU</td>
<td>Management</td>
<td>Graduate</td>
<td>3</td>
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<td>LAB</td>
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<tr>
<td>BUSN122</td>
<td>Business Introduction to Business</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BUSN352</td>
<td>Business Human Factors-Office Automation</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BUSN415</td>
<td>Business Business Edu Teaching Methods</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BUSN497</td>
<td>Business Special Studies in Business</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>BUSN499</td>
<td>Business Integrating Experience</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>CARE100</td>
<td>Career Exploration Career Planning</td>
<td>UN</td>
<td>Developmental Progs-Curr</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
</tr>
<tr>
<td>CARE102</td>
<td>Career Exploration Career and Education Planning</td>
<td>UN</td>
<td>Developmental Progs-Curr</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>CARE190</td>
<td>Career Exploration Special Topics in CARE</td>
<td>UN</td>
<td>Developmental Progs-Curr</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>LAB</td>
</tr>
</tbody>
</table>

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Managers & the Legal Environment introduces students to contemporary legal and ethical issues and concepts and provides a broad understanding of how law and ethics affects daily management decisions and business strategies. It further examines how law can be applied to guide and enhance the decision making process of managers in the complex and changing global economy so managers can create value and effectively manage risk. Prerequisite: BUS graduate student. Typically offered Fall, Spring, Summer.

Surveys the field of business; builds a vocabulary of business terms; offers insight into the managerial decision-making process; provides a background for further business study; informs students about careers in business and other organizations. Typically Offered Fall, Spring, Summer.

Examines the impact that rapidly changing office technology has on the workplace. Stresses the importance of management understanding the issues and the implications of these changes and the importance of management preparation for understanding work force fears and responses. Pre-Requisites:SYS 105 and junior status. Typically Offered On Demand

Introduction to business and marketing teacher techniques for planning and delivering course content. Pricing, research and development, employment levels and compensation, financing the operations, and other aspects of a business competing in a global environment. Pre-Requisites: FINC 322 and MGMT 370 and MKTG 321, and senior status. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.

Introduces the basics of business strategy and policy and moves to use of a computer simulation with students functioning in multidisciplinary teams. The teams have the challenge of developing and executing a strategy that involves production operations, procurement, distribution and marketing, pricing, research and development, employment levels and compensation, financing the operations, and other aspects of a business competing in a global environment. Pre-Requisites: FINC 322 and MGMT 370 and MKTG 321, and senior status. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer.

This course will provide students with the opportunity to explore college programs, career options and employment viability. Students will discover how educational planning can help them with their lifelong career decision making process. Students will develop personal educational and career plans based on interests and skills using strength-based assessment. Typically Offered Fall, Spring.

This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Grades Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>CARE201</td>
<td>Career Exploration</td>
<td>To prepare students to become career ready by developing successful skills and strategies focused on writing resumes and cover letters. In addition, students will be connected with career resources on campus and around the community.</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>CARE202</td>
<td>Career Exploration</td>
<td>To prepare students to become career ready by developing successful skills and strategies focused on interviewing and professional etiquette. In addition, students will be connected with career resources on campus and around the community.</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>CARE203</td>
<td>Career Exploration</td>
<td>To prepare students to become career ready by developing successful skills and strategies focused on creating career portfolios, learning how to network, and learning transferable skills. In addition, students will be connected with career resources on campus and around the community.</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>CARE297</td>
<td>Career Exploration</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>CDTD111</td>
<td>CAD Drafting-Tool Design Tec</td>
<td>Fundamental techniques in drafting and design fundamentals are stressed in this course. Drawing layout, geometric construction, visualization with orthographic projection, descriptive geometry, sectioning, auxiliary views, and pictorial drawing with sketching is required. National standards and drafting applications will be an integral part of the activity.</td>
<td>Pre-Requisites: CDTD Drafting &amp; Tool Design students only. Co-Requisites: CDTD112.</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>CDTD112</td>
<td>CAD Drafting-Tool Design Tec</td>
<td>The course is designed to introduce students to the operation of a CAD system and reinforce drafting and design standards. Students will demonstrate a thorough understanding of CAD option, setup and command structure. Two dimensional geometry creation reinforcing drawing standards will be required. Students will manage, manipulate and edit geometry. The course also includes application in geometric construction, projection skills, and standards. Dimensioning and 3D modeling techniques will be introduced.</td>
<td>Pre-Requisites: CDTD Drafting &amp; Tool Design students only. Co-Requisites: CDTD111.</td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>CDTD114</td>
<td>CAD Drafting-Tool Design Tec</td>
<td>This course is an applied approach to understanding the concepts and operation of parametric solid modeling applications used in the mechanical design field. It uses a computer graphics system for creation of two and three dimensional geometry. The student will learn file creation, file management, and graphics generation. The student will also learn how to edit and manipulate geometry using the graphics system. The major focus is 3-D model creation along with its assembled components.</td>
<td>Prerequisites: Must be part of the TBAISD cohort and have departmental approval.</td>
<td>Fall and Spring</td>
</tr>
<tr>
<td>CDTD121</td>
<td>CAD Drafting-Tool Design Tec</td>
<td>A lecture/lab course designed to develop technical skill in detailing, tolerancing, product applications and processes. Students analyze product applications with functional relationships and the importance of correct product definition for production, inspection, and customer satisfaction. A fundamental understanding in geometric dimensioning and tolerancing with applications is attained. Assemblies, subassemblies with bill of materials will be introduced.</td>
<td>Pre-Requisites: CDTD111 and CDTD112 with a grade of D or better.</td>
<td>Spring</td>
</tr>
<tr>
<td>CDTD122</td>
<td>CAD Drafting-Tool Design Tec</td>
<td>A lecture/CAD lab course designed to develop technical skills in solid modeling with parametric technology. Students are taught the skills needed for feature-based solid modeling, part detailing and assemblies. Industrial applications are provided for students to evaluate functional relationships, processes and assemblies. Students are given the opportunity to use rapid prototyping to create prototyped models.</td>
<td>Pre-Requisites: CDTD111 and CDTD112 with a grade of D or better.</td>
<td>Spring</td>
</tr>
<tr>
<td>CDTD130</td>
<td>CAD Drafting-Tool Design Tec</td>
<td>A lecture/CAD lab course designed to provide students with a basic understanding of tool terminology, tool function and geometry by detailing tool components. Tool assemblies, bill of materials and standard components will be analyzed.</td>
<td>Pre-Requisites: CDTD111 and CDTD112 with a grade of D or better.</td>
<td>Spring</td>
</tr>
<tr>
<td>CDTD150</td>
<td>CAD Drafting-Tool Design Tec</td>
<td>For first year manufacturing tooling students. Print layout of information, tolerance block, revision block, do not scale block, notes, bill of material and product detail layout are covered. Students sketch drawings of simple details from selected shop drawings to include dimensioning, tolerancing, and notes as related to the understanding of reading a: part, detail, tool, mold, or die blueprint. Projection, sectioning, and alternative dimensioning will be covered with an emphasis on shop floor communication.</td>
<td></td>
<td>Spring</td>
</tr>
</tbody>
</table>
CDTD211 CAD Drafting-Tool Design Tec Die Design TE Mechanical Design Undergraduate 6 LEC LAB
Provides the knowledge and ability to design various types of stamping dies. Operations such as blanking, forming, cam, piercing, drawing, and trimming will be included in the design of single operation and progressive dies utilizing standard and special components. Press accessories and feeding mechanisms are studied as they relate to the design problems, and safety standards are applied to all assignments. Drawing boards, and CAD systems, will be utilized for the assignments. Pre-Requisites: CDTD 121 and CDTD 122 with a grade of D or better. Typically Offered Fall, Spring

CDTD212 CAD Drafting-Tool Design Tec Tool Design TE Mechanical Design Undergraduate 3 LEC LAB
Develops skills in two and three dimensional cad tool design applications. The student designs various tooling concepts including jig and fixture and special machine components. Includes detailing, bill of material, and other related projects. Pre-Requisites: CDTD 121 and CDTD 122 with a grade of D or better. Typically Offered Fall, Spring

CDTD221 CAD Drafting-Tool Design Tec Mold Design TE Mechanical Design Undergraduate 6 LEC LAB
Students design and detail single and multiple cavity plastic injection molds and products using drawing boards and computer aided design systems. Analysis of mold cavity fill, gate location(s), size, runner size, and balance will be evaluated with computer aided mold fill programs. Instruction on the theory, application and practices of: plastic materials, forming and molding methods/machines, mold: bases, venting, cooling, ejectors, materials, heat treatments, fabrication, and finishing practices. Pre-Requisites: CDTD 121. Typically Offered Fall, Spring

CDTD222 CAD Drafting-Tool Design Tec Computer Aided Engineering TE Mechanical Design Undergraduate 3 LEC LAB
Students using computer aided moldflow analysis programs will review material databases, determine the optimum process feasibility, balance runner systems, create and mesh finite-element models, perform three-dimensional computer analysis, and read and interpret the data displayed. Static analysis of mechanical products and systems will also be performed by creating models to be investigated with finite element analysis software. The application of finite element modeling and analysis to tooling and plastic products will be emphasized. Pre-Requisites: CDTD 121 and 122. Typically Offered Fall, Spring

CDTD290 CAD Drafting-Tool Design Tec Special Topics in CDTD TE Mechanical Design Undergraduate 1 TO 3 LEC LAB
Special Topics in CDTD - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

CDTD297 CAD Drafting-Tool Design Tec Special Studies in CDTD TE Mechanical Design Undergraduate 1 TO 4 LEC LAB
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

CDTD390 CAD Drafting-Tool Design Tec Special Topics in CDTD TE Mechanical Design Undergraduate 1 TO 3 LEC LAB
Special Topics in CDTD - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

CENG220 Civil Engineering Engineering Surveying TE Surveying Undergraduate 3 LEC LAB
A continuation of SURE 110. Engineering surveying theory and techniques. Subject areas include horizontal, vertical, easement curve calculations, and layout, slope staking, earthworks, introduction to GPS, and aspects of hydrographic, tunnel and mine surveying. Prerequisites: SURE 110. Typically Offered Fall only.

CENG240 Civil Engineering Engineering Statics TE Surveying Undergraduate 3 LEC LAB
This first course in mechanics for engineers focuses on rigid bodies and more specifically, statics. Statics is the study of rigid bodies at rest. Using vector mechanics as appropriate the principles of mechanics and their application to the solution of engineering problems are explored. Prerequisites: MATH 230C or equivalent. PHYS 211 Typically Offered: Fall Term

CENG321 Civil Engineering Hydraulics Engineering TE Surveying Undergraduate 4 LEC LAB
Combined presentation of hydrology and hydraulics. Course shall include the natural occurrence of water on the earth and the study of fluid mechanics, kinematics of fluid flow, energy and momentum relating to the movement of water. Open channel flow and pressure conduits leading to gravity drainage design and pressure water supply systems. Prerequisites: PHYS 242 and MATH 230. Typically Offered Spring only.

CENG421 Civil Engineering Soils Engineering TE Surveying Undergraduate 4 LEC LAB
Introductory course in soils engineering. Topics include engineering characteristics, classifications, weight-volume relationships, permeability, flow nets, dams, lateral earth pressures, shear stresses, loads on buried conduits, slope stability, and foundations. Prerequisites: CENG 240 and CENM 121 and MATH 220. Typically Offered Spring.

CENG490 Civil Engineering Special Topics in CENG TE Surveying Undergraduate 1 TO 3 LEC LAB
Special Topics in CENG - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
<table>
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<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Type</th>
<th>Level</th>
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<tr>
<td>CENG499</td>
<td>Civil Eng'g</td>
<td>Applied Research-Survey Engr</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
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<tr>
<td>CETM214</td>
<td>Civil Eng'g Tech Mgmt</td>
<td>Adv Mat's Properties&amp;T Testing</td>
<td>TE</td>
<td>Construction Tech-Mgmt</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>CETM215</td>
<td>Civil Eng'g Tech Mgmt</td>
<td>Construction Equip &amp; Operation</td>
<td>TE</td>
<td>Construction Tech-Mgmt</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>CETM226</td>
<td>Civil Eng'g Tech Mgmt</td>
<td>Highway Technology</td>
<td>TE</td>
<td>Construction Tech-Mgmt</td>
<td>3</td>
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<tr>
<td>CETM230</td>
<td>Civil Eng'g Tech Mgmt</td>
<td>MDOT Certification Preparation</td>
<td>TE</td>
<td>Construction Tech-Mgmt</td>
<td>2</td>
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<td>CETM290</td>
<td>Civil Eng'g Tech Mgmt</td>
<td>Special Topics in CETM</td>
<td>TE</td>
<td>Construction Tech-Mgmt</td>
<td>1 TO 3</td>
<td>LEC LAB</td>
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<td>CETM297</td>
<td>Civil Eng'g Tech Mgmt</td>
<td>Special Studies in CETM</td>
<td>TE</td>
<td>Construction Tech-Mgmt</td>
<td>1 TO 4</td>
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<td>CHEM103</td>
<td>Chemistry</td>
<td>Preparatory Chemistry</td>
<td>AS</td>
<td>Physical Sciences</td>
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<tr>
<td>CHEM104</td>
<td>Chemistry</td>
<td>Chemistry and Food</td>
<td>AS</td>
<td>Physical Sciences</td>
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<tr>
<td>CHEM114</td>
<td>Chemistry</td>
<td>Intro to General Chemistry</td>
<td>AS</td>
<td>Physical Sciences</td>
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<td>LEC LAB</td>
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</table>

This is a senior capstone course. Students as individuals or as small teams upon faculty approval undertake a research project involving a topic of application in Survey Engineering. Professional collaboration as well as regular consultation with a faculty advisor is required. Course will culminate with a presentation of project report and the results addressing goals, expectations, methodology employed, and findings to the faculty and the invited guests. Multidisciplinary approaches are encouraged. Prerequisites: SURE 420, Department Permissions only. Meets General Education Requirements for Collaboration and Problem Solving. Typically offered Spring.

An advanced course in the application of aggregate characteristics, specifications, and testing and the design, analysis and application of hot mix asphalt and concrete. Michigan Department of Transportation specifications, testing procedures, and technician certification programs are emphasized. Pre-requisites: D- in CONM 121; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26/+SAT 610+. Typically offered: Fall only

Fundamentals of construction equipment ownership and operation. Topics include ownership and operating costs, earthwork fundamentals, productivity rates for construction equipment. Pre-Requisites: D- in CONM 121; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26/+SAT 610+. Typically Offered Fall Only

Basic techniques and procedures of highway design and pavement structural analysis. Planning processes for highway projects. Plan development utilizing current industry standard software emphasized. Pre-Requirements: D- in the following courses: CONM 112, 117, 122; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26/+SAT 610+. Typically Offered Spring


Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Intended as preparation for CHEM 114 or CHEM 121 and should be taken by students with weak prior background in chemistry. It will emphasize the general process skills necessary for chemistry and introduce students to fundamental principles of chemistry, including observations and analysis; matter and atoms; periodic properties; the mole concept; chemical reactions; and states of matter. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites:MATH 110 with a grade of C- or better or 19 on ACT or 460 on pre 2016 SAT or post-2016 SAT 500. Typically Offered Fall, Spring, Summer

The underlying chemistry of food preparation and nutrition is discussed. A foundation of fundamental concepts in chemistry such as periodicity, bonding, solution behavior, changes in state, and chemical reactions is developed within the context of working with and eating food. This course meets General Education requirements: Scientific Understanding Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites:MATH 010 or minimum Math score of 15 on ACT or minimum score of 350 on pre 2016 SAT or post 2016 SAT 400. Typically Offered Spring Only

A survey course covering the major topics of general chemistry relevant for biological or allied health applications, including atomic structure, chemical bonding, interpretation of equations, solution chemistry, and an introduction to acids and bases. Concurrent laboratory sessions will include experiments illustrating the principles discussed in lecture. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. A year of HS chemistry substitutes for CHEM103 Pre-Requisites:CHEM103 with a grade of C- or better or yr of HS Chem & MATH120 with a grade of C- or better or ACT 19 or pre 2016 SAT 460 or post 2016 SAT 500. Typically Offered Fall, Spring, Summer
<table>
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<tr>
<th>Code</th>
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<th>LEC/LAB</th>
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<td>General Chemistry 1</td>
<td>AS</td>
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<td>CHEM122</td>
<td>Chemistry</td>
<td>General Chemistry 2</td>
<td>AS</td>
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<td>CHEM124</td>
<td>Chemistry</td>
<td>Intro Organic-Biochemistry</td>
<td>AS</td>
<td>P</td>
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<td>CHEM140</td>
<td>Chemistry</td>
<td>Orient to Industrial Chem Tech</td>
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<td>CHEM145</td>
<td>Chemistry</td>
<td>Safety- The Chemical Lab</td>
<td>AS</td>
<td>P</td>
<td></td>
<td>2</td>
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<td>CHEM190</td>
<td>Chemistry</td>
<td>Special Topics in CHEM</td>
<td>AS</td>
<td>P</td>
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<tr>
<td>CHEM207</td>
<td>Chemistry</td>
<td>Science and Crime</td>
<td>AS</td>
<td>P</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CHEM211</td>
<td>Chemistry</td>
<td>Fund Organic-Polymer Chemistry</td>
<td>AS</td>
<td>P</td>
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<td>4</td>
</tr>
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</table>

**CHEM121 Chemistry General**

Fundamental principles, laws and theories of general chemistry, including stoichiometry, gas laws, thermochrometry, atomic structure, chemical bonding, periodicity, liquids and solids, solution chemistry, and theories of acids and bases. Concurrent laboratory-workshop sessions will include exercises illustrating the principles discussed in lecture. Students who anticipate enrolling in chemistry courses at the 200 level or higher should take this course. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. A year of HS chemistry substitutes for CHEM103. Pre-Requisites: MATH115 with a grade of C- or better or ACT 24 or pre 2016 SAT 560 or post 2016 SAT 580; CHEM103 with a grade of C- or better or yr of HS Chem. Typically Offered Fall, Spring, Summer

**CHEM122 Chemistry General**

Continuation of CHEM 121, including oxidation-reduction reactions, electrochemistry, chemical equilibrium, chemical kinetics, nuclear chemistry, thermodynamics, and descriptive chemistry of metals and nonmetals. Laboratory will involve some experiments illustrating topics discussed in lecture along with several sessions devoted to the qualitative analysis of common cations and anions. Is a prerequisite for most 200-level or higher classes in chemistry. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: CHEM121 with a grade C- or better. Typically Offered Spring, Summer

**CHEM124 Chemistry Intro Organic-Biochemistry**

Study of properties, preparations, and reactions of organic compounds as they relate to living organisms and life processes. The structure and metabolism of biomolecules such as amino acids, polypeptides, proteins and enzymes, carbohydrates, lipids, and nucleic acids will be emphasized. Concurrent laboratory sessions include exercises in fundamental lab techniques, demonstrations, and workshops. Pre-Requisites: CHEM 114 with a grade of C- or better. Typically Offered Fall, Summer

**CHEM140 Chemistry Orient to Industrial Chem Tech**

Overview of the chemical industry, including its development and practical applications of chemistry in an industrial setting. The role of the industrial chemist and/or technologist is discussed. Emphasis is also placed on use of the scientific literature available and the study of patents. Typically Offered Fall Only

**CHEM145 Chemistry Safety- The Chemical Lab**

Introduction to the chemical lab and the safety related responsibilities of the practicing chemist and/or technologist. Emphasis is placed on the safe handling and storage of hazardous materials, recognizing non-compatible materials, understanding and interpreting safety documents such as MSDS sheets, and in general becoming a safety conscious lab worker. Pre-Requisites: CHEM 121 with a grade of C- or better. Typically Offered Spring Only

**CHEM190 Chemistry Special Topics in CHEM**

Special Topics in Chemistry - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

**CHEM207 Chemistry Science and Crime**

A cross-disciplinary course covering the application of the natural sciences to the analysis of physical evidence used in the investigation of crime. Incorporates lecture and laboratory sessions for the study and analysis of crime evidence, such as the recognition, identification and evaluation of fibers, hairs, chemicals, blood, narcotics, glass, soil, fingerprints, firearms, DNA. May be used as a general education natural science laboratory course. Sophomore status or higher. This course meets General Education requirements: Scientific Understanding and Scientific Understanding Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: Sophomore Status. Typically Offered Fall, Spring

**CHEM211 Chemistry Fund Organic-Polymer Chemistry**

Introduction to the functional group approach to cover structures, preparations, and reactions of important commercial organic compounds. Includes the study of polymerization processes, addition polymers, the stereochemistry of polymers, copolymers, condensation polymers, and the structure and properties of polymers. Concurrent laboratory sessions include exercises in basic lab techniques, demonstrations, and workshops. Designed for students majoring in plastics. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: CHEM 121 with a grade of C- or better. Typically Offered Spring Only
<table>
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<th>Course Code</th>
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<th>Credits</th>
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<td>Fund of Organic Chemistry</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>LEC LAB</td>
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<td>CHEM231</td>
<td>Quantitative Analysis</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>LEC LAB</td>
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<td>CHEM240</td>
<td>Industr. Chemical Calculations</td>
<td>Physical Sciences</td>
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<td>CHEM245</td>
<td>Chem Manufacturing-Analysis</td>
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<td>CHEM307</td>
<td>Forensic Chemistry</td>
<td>Physical Sciences</td>
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<td>CHEM311</td>
<td>Polymer Analysis</td>
<td>Physical Sciences</td>
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<td>CHEM317</td>
<td>Instrumental Analysis</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>LEC LAB</td>
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<td>CHEM321</td>
<td>Organic Chemistry 1</td>
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<td>CHEM322</td>
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<td>Physical Sciences</td>
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<td>CHEM324</td>
<td>Fund of Biochemistry</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>LEC LAB</td>
<td>3</td>
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</table>

A survey course in organic chemistry which uses the functional group approach to cover the important preparations and reactions which organic compounds undergo. Also provides an introduction to organic compounds of biological significance. Concurrent laboratory sessions include exercises in basic lab techniques, demonstrations, and workshops. Designed for students who do not anticipate further studies in organic chemistry. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: CHEM 114 or CHEM 121 with a grade of C- or better. Typically Offered Spring Only

Introduction to classical quantitative and modern instrumental methods of analysis, including data handling, statistics, volumetric and gravimetric techniques, potentiometry, spectroscopy, and liquid chromatography. Concurrent laboratory includes the topics referred to above. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences, Natural Sciences Lab. Pre-Requisites: CHEM 122 with a grade of C- or better. Typically Offered Fall Only

A review of the stoichiometric and weight relations in the chemical industry with an emphasis on problem solving. This course also covers statistical process control, as well as statistical techniques for evaluating experimental results. Scale-up problems and the use of industrial units are emphasized. Pre-Requisites: CHEM 122 with a grade of C- or better. Typically Offered Fall Only

A laboratory intensive course stressing the preparation and analysis of various materials including plastics, pesticides, and petroleum products, as well as a variety of pure substances. Characterization by instrumental methods, testing by use of American Society tests and materials methods, and notebook keeping are also emphasized. Lecture topics include polymer synthesis and characterization as well as special topics in analysis. Pre-Requisites: CHEM 211 and CHEM 231 with a grade of C- or better. Typically Offered Fall Only

Special Topics in Chemistry - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This course will center on the application of the physical sciences to gain an appreciation for and an understanding of the methods involved in the analysis of physical evidence present at a crime scene. Pre-Requisites: CHEM 207 with a grade of C- or better and BIOL 207. Typically Offered Spring Only

Designed to present analytical topics in polymer science for students who have completed an introductory organic chemistry course. The methods utilized to characterize the structure-property relationships in polymers will be presented. Pre-Requisites: CHEM 211 or 322. Typically Offered Spring Only

The theory and instrumentation of modern analytical techniques will be explored, including potentiometry, infrared (IR) spectroscopy, nuclear magnetic resonance (NMR) spectroscopy, atomic absorption (AA) spectroscopy, and gas chromatography. Concurrent laboratory work includes projects involving these techniques. Pre-Requisites: CHEM 231 with a grade of C- or better. Typically Offered Spring Only

Modern bonding theory in organic molecules, theory of reactions, stereochemical principles, chemistry of alkanes, cycloalkanes, alkenes, dienes, alkynes, aromatics, and alcohols, with special emphasis on reaction mechanisms. Concurrent laboratory includes basic laboratory techniques, synthesis, TLC and GC, stereochemistry and spectroscopy workshops. Pre-Requisites: CHEM 211 or 322 with a grade of C- or better. Typically Offered Fall, Summer

Study of ethers and epoxides, carbonyl-containing compounds, aldehydes, ketones, carboxylic acids and their derivatives, carbanion chemistry, aliphatic and aromatic nitrogen-containing compounds, with special emphasis on bioorganic compounds, amino acids and polypeptides, carbohydrates and lipids. Concurrent laboratory includes multistep synthesis, spectroscopic analysis, and the systematic identification of organic compounds with emphasis on chemical separation and purification techniques. Pre-Requisites: CHEM 321 with a grade of C- or better. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring, Summer

An introductory course that examines the dependence of living systems on interactions of biological compounds such as proteins, carbohydrates, lipids, and nucleic acids at the molecular level. Credit will not be given for both CHEM 324 and CHEM 364. Pre-Requisites: CHEM 214 or 322 with a grade of C- or better. Typically Offered Fall Only
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Type</th>
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<td>CHEM332</td>
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<td>Fermentation Chemistry</td>
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<td>CHEM381</td>
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<td>LAB</td>
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<td>CHEM451</td>
<td>Intro to Physical Chemistry</td>
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<td>CHEM390</td>
<td>Special Topics in CHEM</td>
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<td>Undergraduate</td>
<td>1-5</td>
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<td>LAB</td>
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Laboratory theory and techniques of biochemistry are introduced. Experiments focus on the application of spectrophotometry, chromatography, electrophoresis and activity assays to the isolation and analysis of biomolecules such as amino acids, proteins, enzymes and nucleic acids. Pre-Requisites: CHEM 322 with a grade of D- or better. Co-Requisites: CHEM 364. Typically Offered Fall Only

Biochemistry laboratory techniques and theory are continued. Experiments will include the isolation of sub-cellular systems such as chloroplasts, mitochondria and microsomes. The metabolic properties of these systems, including chemiosmotic coupling, electron transport and substrate preference will be examined. Pre-Requisites: CHEM 332 and 364 with a grade of D- or better. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only

An introduction to the science of fermentation and the use of microorganisms for the synthesis and production of chemical compounds. Topics will include the role of raw materials, control of temperature and sanitation in both aerobic and anaerobic environments, stylistic differences in beer, wine, and cheese, and the production of other chemical synthesis starting materials via a fermentation process. Concurrent laboratory sessions will include experiments illustrating the principles discussed in lecture. Pre-requisites: CHEM 364 and BIOL 122 with a C- or better with each course. Typically offered Spring.

A laboratory intensive course building on the principles and skills developed in CHEM 245 that covers foods, steroids, isotopic labeling, antibiotics, monomers, polymers, rubbers, dyes, medicines, and insecticides. Lab work involves assays in addition to common instrumental forms of analysis. The course will develop proficiency in the theory and application of the following instruments: FT-IR, H-NMR, 13C-NMR, GC, GC-MS, Refractometry, UV-Vis, HPLC, and AAS. The course will further develop proficiency in technical writing abilities, lab safety and documentation protocols, and the safe use and disposal of advanced chemical reagents. Prerequisites: CHEM 245 and CHEM 317 with C- or better in each course. Typically offered Spring.

A rigorous course in the chemistry of such biomolecules as amino acids, polypeptides, proteins and enzymes, carbohydrates, lipids and nucleic acids. The structure/function relationships of these biomolecules will be stressed and the biosynthetic and biodegradative pathways discussed. Credit will not be given for both CHEM 324 and CHEM 364. Pre-Requisites: CHEM 322 with a grade of C- or better. Typically Offered Fall Only

On overview course covering the fundamental principles and theories of inorganic chemistry, with emphasis on the chemistry of the d block elements. Included topics are molecular structure, electronic structure and spectra, bonding descriptions and reaction mechanisms of coordination complexes along with an introduction to organometallic compounds of d block elements and an introduction to molecular symmetry and point groups. Students who plan to pursue graduate study in chemistry are recommended to take this course. Prerequisite: CHEM 321 with a C- or better. Typically offered Spring, even years.

Special Topic in Chemistry - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

A survey of the analytical chemical and biological methods used in monitoring and maintaining a fermentation production facility. Topics will include assessment of raw materials, in-stream production monitoring, post production analysis and adherence to style guidelines, industry standards (ASBC Methods of Analysis), and product stability. Concurrent laboratory sessions will include experiments illustrating the principles discussed in lecture. Prerequisites: CHEM 317 and either BIOL 218 or BIOL 286 with a C- or better in each course. Typically offered Fall.

An overview course covering some of the fundamental topics, of physical chemistry including the gas state, the first and second laws of thermodynamics, free energy, physical and chemical equilibrium, electrochemistry, chemical kinetics, reaction mechanisms, and the solid state. This is the capstone course for the Chemistry BA degree. Pre-Requisites: PHYS 212 or 242, & MATH 220 & CHEM 322 with a grade of D- or better in each course. Typically Offered Spring Only, Odd Year.
CHEM474 Chemistry Advanced Biochemistry AS Physical Sciences Undergraduate 3 LEC LAB Builds on the introduction to biochemistry presented in CHEM 364. Metabolism will be examined in greater detail, stressing mechanisms, regulation, and research implications. A significant component of the course is literature driven, requiring research analysis and discussion of current topics in biochemistry. This is the capstone course for the Biochemistry BA degree. Pre-Requisites: CHEM 231 or 451; & CHEM 364 & BIOL 375 with a grade of D- or better in each course. Typically Offered Spring Only

CHEM490 Chemistry Special Topics in CHEM AS Physical Sciences Undergraduate 1 TO 3 LEC LAB Special Topics in CHEM - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

CHEM491 Chemistry Chemistry Internship AS Physical Sciences Undergraduate 3 LEC LAB The student will participate in an external internship, generally at either an industrial chemistry, academic research, or governmental laboratory site. The internship will reinforce essential technical skills and provide for networking and application opportunities. Prerequisites: CHEM 245 and CHEM 317 with a C- or better in each course. Typically offered Fall, Spring, Summer.

CHEM497 Chemistry Special Studies in CHEM AS Physical Sciences Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated joint between the faculty member and the student. Typically Offered On Demand

CITS150 Computer Information Tech Sys A+ Certification 1 BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides preparation for the CompTIA A+ exams. The class will step through the core objectives of the certification exams including: personal computer components; laptop and portable devices; operating systems; and printers and scanners. Recommended students complete both CITS 150 and CITS 160 courses before sitting for A+ exams. Typically Offered Fall, Spring.

CITS160 Computer Information Tech Sys A+ Certification 2 BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides preparation for the CompTIA A+ exams. The class will step through the core objectives of the certification exams including: networks; security; safety and environmental issues; and communication and professionalism. Recommended students complete both CITS 150 and CITS 160 courses before sitting for A+ exams. Co-requisites: CITS 150. Typically Offered Fall, Spring.

CITS250 Computer Information Tech Sys Windows Client Administration BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides preparation for the Microsoft's Windows client Administration exam. Students will study and prepare for certification exam covering topics such as: installation and upgrading Windows client; implementing and conducting administration of resources; implementing, managing, monitoring, and troubleshooting hardware devices and drivers; monitoring and optimizing system performance and reliability; configuring and troubleshooting the desktop environment; implementing, managing, and troubleshooting network protocols and services; and configuring, managing, and troubleshooting security. Prerequisites: ISYS 105 competency, or ISYS 105, or ISIN 200, or CITS 160, w/C grade or higher. Typically Offered Fall only.

CITS255 Computer Information Tech Sys Windows Server 1 BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides an overview of the Microsoft Windows Server Operating System environment to include configuration, performance monitoring, command execution, policy development, networking and user administration tasks. Aligned with current Microsoft certification testing standards. Prerequisites: CITS 250 w/C grade or higher. Typically Offered Fall only.

CITS260 Computer Information Tech Sys Windows Server 2 BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides the opportunity to more deeply examine and evaluate features of the Microsoft Windows Server Operating System environment. Specifically the course will address multi-tiered deployment, patching and security, file and print services, advanced network services, and policy protection. Students will design specific solutions and ensure that appropriate monitoring and performance controls exist. Aligned with current Microsoft certification testing standards. Prerequisites: CITS 250 w/C grade or higher. Typically offered Spring.

CITS270 Computer Information Tech Sys Network + BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides preparation for the CompTIA's Network+ exam. A study of networking hardware and software including transmission media, communication and security protocols, the Open System Interconnection (OSI) model, and distributed networking/processing. The hardware and software utilized in LANs, MANs, WANS, WLANs and VLANs networks along with appropriate terminology and concepts utilized in networking standards, addressing schemes, network services, and NOS connectivity requirements are introduced. The class will include hands-on experiences with designing, planning, installing and troubleshooting a Local Area Network. Prerequisites: CITS 160 or ISIN 200 w/C grade or higher. Typically Offered Spring, Fall.
CITS280 Computer Information Tech Sys Linux Administration BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides a comprehensive overview of the Linux operating system through exploration of various distributions in both CLI and GUI shells. Various system administration tasks will be performed, including file management, permissions, and system security. Best practices will be incorporated, including fault tolerance, standardization, and documents. Students will explore licensing agreements and the impact of Open Source Software. Prerequisites: ISYS 105 competency, or ISYS 105, or CITS 160, or ISIN 200, w/C grade or higher. Typically Offered Spring.

CITS291 Computer Information Tech Sys Internship BU Account, Finance, Info Systems Undergraduate 1 TO 3 LEC LAB Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student's academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 12 weeks. Credits awarded base on total hours worked during the internship. 1 credit minimum 30 hours, 2 credits minimum 160 hours, 3 credits minimum 240 hours. Detailed summary report of work experience required at end of internship. Prerequisites: Sophomore standing and 30+ earned credits in program. Typically offered Fall, Spring and Summer.

CITS297 Computer Information Tech Sys Special Studies in CITS BU Account, Finance, Info Systems Undergraduate 1 TO 3 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

CITS320 Computer Information Tech Sys Security + Administration BU Account, Finance, Info Systems Undergraduate 3 LEC LAB The class will step through the core objectives of the certification exam including: General security concepts and practices including nonessential services and attacks; communication security and online vulnerabilities; infrastructure security including intrusion detection, security baselines; and basics of Cryptography including deploying cryptography. Prerequisites: CITS 270 or ISYS 325 or ECNS 115, w/C grade or higher. Typically offered Fall.

CITS360 Computer Information Tech Sys Windows Server 3 BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides preparation for the Microsoft®’s Windows Server Administrator exam. Students will study and prepare for certification exam covering topics such as: planning for Server Deployment; planning for Server Management; monitoring and maintaining servers; planning Application and Data Provisioning; and planning for Business Continuity and High Availability. Prerequisites: CITS 155 and CITS 260, both w/C grade or higher. Typically offered Fall.

CITS370 Computer Information Tech Sys Virtual System Administration BU Account, Finance, Info Systems Undergraduate 3 LEC LAB The course will provide an analysis and integration of a variety of system platforms and the manner in which they can be controlled in a virtualized or distributed computing environment. Topics will include system design and development, monitoring and benchmarking, as well as hardware and network management requirements. Prerequisites: CITS 270 and CITS 280 and CITS 360, all w/C grade or higher. Typically offered Spring.

CITS380 Computer Information Tech Sys Linux+ Administration 2 BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Provides preparation for the CompTIA’s Linux+exam. Building on CITS 280, students will learn to setup network resources and properly configure the server and client to provide various services such as DNA, DHCP, SAMBA, Apache, remote access, printing, and e-mail. The course will also cover server/network management skills such as scheduling jobs, securing the server and client, and monitoring the network for intrusion detection including how to properly use log files. Prerequisites: CITS 280 or Permission of Instructor. Typically offered Fall.

CITS390 Computer Information Tech Sys Computer Information Tech Sys Special Topics in CITS BU Account, Finance, Info Systems Undergraduate 1 TO 6 LEC LAB Special Topics in CITS-300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

CITS397 Computer Information Tech Sys Computer Information Tech Sys Special Studies in CITS BU Account, Finance, Info Systems Undergraduate 1 TO 3 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

CITS480 Computer Information Tech Sys Senior Project and Capstone BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Students will work with an external partner agency or organization to develop and implement a computing solution which incorporates the knowledge acquired throughout the course of the CIT program. The project will include strong integration of effective communication strategies including proper system documentation, stakeholder communication, and development of user training materials. The course will include a written research component on a topic of current relevance. Prerequisites: CITS 320, CITS 360 and PROJ 320, all w/C grade or higher. Typically Offered Spring only.

CITS490 Computer Information Tech Sys Computer Information Tech Sys Special Topics in CITS BU Account, Finance, Info Systems Undergraduate 1 TO 3 LEC LAB Special Topics in CITS-300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

CITS497 Computer Information Tech Sys Computer Information Tech Sys Special Studies in CITS BU Account, Finance, Info Systems Undergraduate 1 TO 3 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

CITS498 Computer Information Tech Sys Computer Information Tech Sys Senior Project and Capstone BU Account, Finance, Info Systems Undergraduate 3 LEC LAB Students will work with an external partner agency or organization to develop and implement a computing solution which incorporates the knowledge acquired throughout the course of the CIT program. The project will include strong integration of effective communication strategies including proper system documentation, stakeholder communication, and development of user training materials. The course will include a written research component on a topic of current relevance. Prerequisites: CITS 320, CITS 360 and PROJ 320, all w/C grade or higher. Typically Offered Spring only.
CITS491 Computer Information Tech Sys CIT Internship BU Account, Finance, Info Systems Undergraduate 1 TO 6 LEC LAB Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student's academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 12 weeks with a minimum of 240 total hours worked. Detailed summary report of work experience required at end of internship. Prerequisites: Junior standing and 60+ earned credits in program. Typically Offered Fall, Spring and Summer.

CLLS101 Clinical Lab Sciences Clinical Lab Science Orient HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Introduction to the profession of clinical laboratory science to include curricula, roles of laboratory science professionals, career and employment opportunities, and standards and ethics of the profession. Typically Offered Fall, Spring.

CLLS122 Clinical Lab Sciences Intro Specimen Collection HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB An introduction to the knowledge and behaviors required to collect, process and transport specimens used for laboratory analysis. Co-Requisites: CLLS 122. Prerequisites: Enrollment in MEDT, MLT, PMT or PMLT program required. Typically Offered Spring only.

CLLS123 Clinical Lab Sciences Specimen Collection Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Students gain experience in safe practices of venipuncture, dural puncture, and specimen processing. Co-Requisites: CLLS 122. Prerequisites: Enrollment in MEDT, MLT, PMT or PMLT program required. Typically Offered Spring only.

CLLS216 Clinical Lab Sciences Clinical Chemistry HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 3 LEC LAB Introduction to methods commonly used in clinical chemistry, including disease correlations and quality control. Pre-Requisites: BIOL 205 and CHEM 214 with C or better. Co-Requisites: CLLS 217. Typically Offered Fall Only.

CLLS217 Clinical Lab Sciences Clinical Chemistry Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Directed practice with the methodology and instrumentation in common use in clinical chemistry. Pre-Requisites: BIOL 205 and CHEM 214 with a grade of C or better. Co-Requisites: CLLS 216. Typically Offered Fall Only.

CLLS218 Clinical Lab Sciences Body Fluid Analysis HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Theories in Body fluid analysis (urine, cerebrospinal fluid, and semen), and their correlation with patient health. Pre-Requisites: BIOL 205 with a grade of C or better. Co-Requisites: CLLS 219 and CLLS 220. Typically Offered Summer Only.

CLLS219 Clinical Lab Sciences Hemostasis HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Theories and techniques in hemostasis and their correlation with patient health. Prerequisites: BIOL 205 with a grade of C or better. Co-Requisites: CLLS 218 and CLLS 220. Typically Offered Summer Only.

CLLS220 Clinical Lab Sciences Body Fluid-Hemostasis Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Directed practice in the tests and techniques in common use in the body fluids and hemostasis laboratory. Pre-Requisites: BIOL 205 with a grade of C or better. Co-Requisites: CLLS 218 and CLLS 219. Typically Offered Summer Only.

CLLS231 Clinical Lab Sciences Hematology HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB Introduction to the theories and techniques in blood cell analysis, and concepts of blood cell pathology. Pre-Requisites: BIOL 205 and CHEM 214 with a grade of C or better. Co-Requisites: CLLS 232. Typically Offered Fall Only.

CLLS232 Clinical Lab Sciences Hematology Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Directed practice in the tests and techniques in common use in the hematology laboratory. Pre-Requisites: BIOL 205 and CHEM 214 with a grade of C or better. Co-Requisites: CLLS 231. Typically Offered Fall Only.

CLLS236 Clinical Lab Sciences Diagnostic Microbiology HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB A course designed to introduce students to clinically significant bacteria. Particular attention is given to specimen collection and processing, key biochemical identifying characteristics, and susceptibility testing of many human pathogens. Pre-Requisites: BIOL 108 or BIOL 286 with grade of C or better, BIOL 205 and CHEM 214 with a grade of C or better. Co-Requisites: CLLS 237. Typically Offered Fall Only.

CLLS237 Clinical Lab Sciences Diagnostic Micro Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB Directed practice in the tests and techniques in common use in the clinical microbiology laboratory. Prerequisites: BIOL 108 or BIOL 286 with grade of C or better; BIOL 205 and CHEM 214 with a grade of C or better. Co-Requisites: CLLS 236. Typically Offered Fall Only.

CLLS241 Clinical Lab Sciences Virology-Mycology-Parasitology HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB An introduction to clinically significant viruses, fungi, and parasites. Pre-Requisites: BIOL 108 or BIOL 286 with grade of C or better. Co-Requisites: CLLS 242. Typically Offered Spring Only.

CLLS242 Clinical Lab Sciences Virology-Mycology-Parasitology HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Directed practice in the tests and techniques in common use for the identification of clinically significant viruses, fungi, and parasites. Prerequisites: BIOL 108 or 286 with grade of C or better. Co-Requisites: CLLS 241. Typically Offered Spring Only.

CLLS252 Clinical Lab Sciences Intro Clinical Immunology HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB An introduction to the immune system with emphasis on development and function of the immune cells antibodies and their interactions and antigens, immune disorders, immunization, and the immunological basis for tissue transplants. Pre-Requisites: BIOL 205 with a grade of C or better. Co-Requisites: CLLS 253. Typically Offered Summer Only.

CLLS253 Clinical Lab Sciences Intro Clinical Immunology Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Directed practice in the tests and techniques in common use in the clinical immunology laboratory. Prerequisites: BIOL 205 with grade of C or better. Co-Requisites: CLLS 252. Typically Offered Summer Only.
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<th>Prerequisites</th>
<th>Credits</th>
<th>Type</th>
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<td>CLLS459</td>
<td>Clinical Lab Sciences Adv Immunohematology Lab</td>
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<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>Laboratory problem solving, including resolution of typing discrepancies, complex antibody identification and resolution of positive direct antiglobulin tests. Pre-Requisites: CLLS 258 and CLLS 259 with a grade of C or better. Co-Requisites: CLLS 458. Typically Offered Spring Only</td>
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<td>CLLS465</td>
<td>Management Clinical Lab</td>
<td>3</td>
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<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>Evaluation and quality improvement of clinical laboratory operations. Application of management theory and techniques. Meeting regulatory, accreditation, and compliance requirements. Pre-Requisites: CLLS 356, CLLS 431, CLLS 436 and CLLS 458 with a C or better. Typically Offered Fall Only</td>
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<td>CLLS480</td>
<td>Clinical Lab Sciences Clinical Theory for MLS</td>
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<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>During clinical experience in an affiliated laboratory, the student will review and apply knowledge of testing methods, clinical significance of test results, method selection and evaluation, and laboratory practice in preparation for national certification examinations. Pre-Requisites: CLLS 456 with a grade of C or better. Corequisite: CLLS 491. Typically Offered Spring</td>
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<td>CLLS490</td>
<td>Special Topics in CLLS</td>
<td>1-3</td>
<td>LEC</td>
<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>Special Topics in CLLS - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<td>CLLS491</td>
<td>Clinical Experience for MLS</td>
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<td>LEC</td>
<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>Application of theories and techniques in immunohematology, clinical immunology, clinical chemistry, clinical microbiology, hematology, coagulation, and body fluid analysis with an emphasis on correlation of test results and problem solving skills in a clinical laboratory setting for 18 weeks. Pre-Requisite: CLLS 456 with a grade of C or better. Co-requisites: CLLS 480. Typically Offered Spring Only</td>
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<td>CLLS494</td>
<td>Mgmt Practice in Clin Lab Sci</td>
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<td>LEC</td>
<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>A problem solving management project for the baccalaureate degree intern. Each student will identify a problem or project, write a proposal, modify the proposal as needed, obtain approval, carry out the assigned project, and write a paper describing the project, its results, and recommendations for future action. Pre-Requisites: CLLS 465 with a grade of C or better. Meets General Education Requirements for Collaboration. Typically Offered Spring Only</td>
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<td>CLLS497</td>
<td>Special Studies in CLLS</td>
<td>1-6</td>
<td>LEC</td>
<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<td>CLLS499</td>
<td>Clinical Lab Science Seminar</td>
<td>1</td>
<td>LEC</td>
<td>Clinical Lab-Resp Care-Hlth Ad Undergraduate</td>
<td>A course assessing students' comprehension of clinical laboratory science and general education concepts, which will be accomplished through papers, projects, and examinations. Pre-Requisites: Enrollment in final on-campus semester of CLS program. Typically Offered Fall Only</td>
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<td>COAS100</td>
<td>College of Arts and Sciences Integ Lrng: Knowledge-Analysis</td>
<td>2</td>
<td>LEC</td>
<td>College of Arts and Sciences Undergraduate</td>
<td>One of two required courses for the associate degree in Integrative Studies. COAS 100 is a writing intensive course intended to assist students in transitioning into college life while discovering connections across the new content they gain in their classes. The course will introduce the concept of integrative learning while supporting students' acquisition of new knowledge. In addition to meeting the outcomes for FSUS 100, the course will introduce students to multiple strategies for retaining information, posing questions for deep learning and transferring knowledge among disciplines. The course will be taken twice (semesters 1 and 2) for a total of 4 credits. Pre-requisite: Open only to majors in AA or BS in Integrative Studies. Typically offered: Fall, Spring, Summer</td>
</tr>
<tr>
<td>COAS291</td>
<td>College of Arts and Sciences Cptsn in INST: Synthesis-Eval</td>
<td>3</td>
<td>LEC</td>
<td>College of Arts and Sciences Undergraduate</td>
<td>This is a second-year capstone in integrative learning. Students will enroll for two semesters. During the first semester, students will synthesize what they have learned, formulate a research question or problem to investigate, select elective courses to support their research, and deliver a research proposal that outlines their plans. During the second semester, students will conduct their research with the support and integration of the learning in their coursework, publically present their findings, develop a career plan including the selection of a four-year degree, and compile an electronic portfolio summarizing their experience in the program demonstrating their mastery of the program outcomes. Pre-requisites: COAS 100, ENGL 150, C- or better. Typically offered: Fall, Spring, Summer</td>
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<td>COAS390</td>
<td>Special Topics in COAS</td>
<td>1-6</td>
<td>LEC</td>
<td>College of Arts and Sciences Undergraduate</td>
<td>Special Topics in COAS - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<td>COAS490</td>
<td>Special Topics in COAS</td>
<td>1-3</td>
<td>LEC</td>
<td>College of Arts and Sciences Undergraduate</td>
<td>Special Topics in COAS - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<td>1 TO 4</td>
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<td>1 TO 4</td>
<td>LEC</td>
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<td>CDHP100</td>
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<td>CDHP101</td>
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<td>HP</td>
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<td>CDHP102</td>
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<td>CDHP190</td>
<td>College of Health Professions Special Topics in CDHP</td>
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<td>1 TO 4</td>
<td>LEC</td>
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<td>CDHP205</td>
<td>College of Health Professions Child Care Food and Nutrition</td>
<td>HP</td>
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<td>CDHP213</td>
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<td>CDHP221</td>
<td>College of Health Professions Menu Planning for Healthcare</td>
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<td>1 TO 3</td>
<td>LEC LAB</td>
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<td>Hlth &amp; Physical Aspects - Aging</td>
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COMM340 Communication Communicator: Public Advocate AS Humanities Undergraduate 3 LEC LAB Students will examine communication theories and strategies associated with advocacy, activism and social movements. They analyze messages from these theoretical frameworks, giving special attention to cultural clash and to issue of gender and race. Prerequisites: COMM 105 or COMM 121 or COMM 221, all with C or better. Typically Offered Spring.

COMM341 Communication Political Communication AS Humanities Undergraduate 3 LEC LAB Students examine the evolution of western democracies, focusing on the impact of media on political candidates and their campaigns. Students participate in a political campaign. Prerequisites: COMM 105 or COMM 121 or COMM 221 or COMM 222, all with C or better. Typically Offered: Fall, every even years.

COMM352 Communication Direct Speech Activities AS Humanities Undergraduate 3 LEC LAB Students prepare to direct secondary programs in debate, forensics and journalism. Legal, economic and political issues that confront the debate/forensics coach and the journalism advisor in Michigan schools; managing a competitive forensics program including coaching students, managing a budget, scheduling a tournament and networking with state and national sanctioning bodies: legal constraints for the journalism advisor; and strategies for managing newspaper and yearbook activities are studied. Prerequisites: COMM 105 or COMM 121 or COMM 212 or COMM 221; with C or better. Typically offered Spring odd years.

COMM365 Communication Intercultural Communication AS Humanities Undergraduate 3 LEC LAB Global cultural differences as they affect communication between individuals and groups. Communication strategies and techniques as they are influenced by cultural relativity and value systems. This course meets General Education Requirements for Global Consciousness and Social Awareness and New Fall 2017 Global Diversity and Self and Society. Prerequisites: COMM 105 or COMM 121 or COMM 212 or COMM 221; with C or better. Typically Offered Fall, Spring, Summer.

COMM366 Communication Diversity and Communication AS Humanities Undergraduate 3 LEC LAB This course focuses on examining how elements of diversity in the US: including ethnicity, race, sex, sexual orientation/gender, religion, socio-economic status and ability; affect the ability of parties to communicate effectively and appropriately. Students apply their reading to experiences interacting with â€œdifferentâ€ others throughout the semester and journal these experiences to monitor their growth in understanding and adapting their communication behaviors. This course meets general education requirements for Social Awareness, and Race-Ethnicity-Gender and new Fall 2017 U.S. Diversity and Self and Society. Prerequisites: COMM 105 or COMM 121 or COMM 212 or COMM 221 or COMM 221, all with C or better. Typically Offered: Fall, Spring, Summer.

COMM370 Communication Communication and Conflict AS Humanities Undergraduate 3 LEC LAB The constructive management of interpersonal conflict. Methods of handling conflict will be identified and practiced. Topics include power, conflict styles, problem-solving, conflict issues, bargaining and negotiation, and third party intervention. Prerequisites: COMM 105 or COMM 121 or COMM 212 or COMM 221; with C or better. Typically Offered Spring.

COMM380 Communication Organizational Communication AS Humanities Undergraduate 3 LEC LAB Interpersonal, small and large group communication studied within the context of formal and informal organizations. Pre-Requisites: COMM 105 or COMM 121 or COMM 221, with C or better. Typically Offered Fall, every even years.

COMM381 Communication Comm in Sports Organizations AS Humanities Undergraduate 3 LEC LAB Students explore theories and principles of interpersonal, group, and mass and social media communication within the context of sports organizations, including applications of communication concepts to organizational structures, the roles of participants in and consumers of sport (fans), and the messages exchanged between sports organizations and the cultural contexts in which they operate. Students participate in and critically examine sports organizations’ activities. Prerequisites: COMM 105 or COMM 121 or COMM 221 or COMM 121, with C or better. Typically offered Fall.

COMM383 Communication Mass and Social Media Comm AS Humanities Undergraduate 3 LEC LAB Examination of prominent and current trends in research and theory in the field of mass communication. By exploring the role of mass communication in business and society, this course provides an understanding of the form, content, and consequences of mass communication. Specific topics include the intended and unintended consequences as well as the evolution of mass communication; from print to traditional broadcasting, convergent electronic media, and social media. Prerequisites: COMM 105 or COMM 121 or COMM 221, with C or better. Typically offered Fall.

COMM387 Communication Broadcast Presentation AS Humanities Undergraduate 3 LEC LAB Broadcast announcing, whether for radio or television, requires a unique knowledge base and a special set of skills. Vocal quality, word flow, camera presence (kinesics or body movement), timing to the second, the ability to attend to information from several sources simultaneously, and script writing are some of the skills that are needed. The knowledge base and practice in these skills are provided in the course. Prerequisites: COMM 121 or COMM 121. Typically Offered Spring Only, Odd Years
 COMM389 Communication Sports Communication AS Humanities Undergraduate 3 LEC LAB

Students examine how participants in and observers of *sports* communicate. They analyze how the sports industry has evolved, maintains itself, and continues to grow as a cultural phenomenon. They analyze how sports organizations function through integration of athletes, managers, and audiences. This course features guest speakers from the sports industry. Prerequisites: COMM 105 or COMM 121 or COMM 221 or COMH 121 and ENGL 250 all at C or better. Meets General Education Requirements for Collaboration and Problem Solving.

 COMM390 Communication Special Topics in COMM AS Humanities Undergraduate 1 TO 6 LEC LAB
Special topics in COMM - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

 COMM396 Communication Cross-Cultural Communication AS Humanities Undergraduate 3 LEC LAB

Students journal their travel to a country or countries outside of the United States to meet with the people and to explore their culture. Students prepare for the experience by attending seminars and completing assignments on the history and culture of the country(ies), cross-cultural communication theories and ethnomethodological assumptions and strategies. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Prerequisites: Instructor approval. Typically Offered Summer Only.

 COMM397 Communication Special Studies in COMM AS Humanities Undergraduate 1 TO 3 LEC LAB

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer.

 COMM400 Communication Analysis-Asmnt of Organization AS Humanities Undergraduate 3 LEC LAB
A study of factors which distort and block communication, and of the techniques that minimize distortion and overcome communication blockage in a variety of organizational settings. Students conduct in-depth organizational case audits, study communication audit instruments, and examine ethical implications of organizational assessments. Pre-Requisites: COMM 380. Typically Offered Spring Only

 COMM421 Communication Leadership and Communication AS Humanities Undergraduate 3 LEC LAB
Leadership expectations and responsibilities, leadership emergence and leadership techniques for meeting task and social needs of group members within a larger organization. Typically offered Fall semester. Pre-Requisites: COMM 105 or COMM 221, with C or better. Typically Offered Fall Only Freedom of speech as it applies to human communication. Students study legal and ethical responsibilities. Prerequisites: COMM 105 or COMM 121 or COMM 212 or COMM 221, with grade of C or higher. Typically offered Spring.

 COMM445 Communication Communication Research AS Humanities Undergraduate 1 TO 6 LEC LAB
The student will participate in a basic or applied research project in their major or a closely related discipline. The course will be designed to provide the student with hands-on experience in research design, informational gathering and management, analysis and interpretation. One credit hour equals 45 contact hours per semester. May be repeated for up to 12 credits. Pre-Requisites: Communication students only. Typically Offered On Demand

 COMM489 Communication Seminar in Sports Comm AS Humanities Undergraduate 3 LEC LAB
This course is the capstone for the Sports Communication major. Students read essays, lead class discussion and write essays analyzing the Sports industry in the United States and around the globe. They complete projects in teams and present their conclusions to clients in the Sports industry. They complete and present a portfolio demonstrating how they have improved their communication skills in preparation for career entry. Prerequisites: COMM 389, with C or better. Meets General Education Requirements for Collaboration and Problem Solving. Typically offered Spring.

 COMM490 Communication Special Topics in COMM AS Humanities Undergraduate 1 TO 3 LEC LAB
Special topics in COMM - 400 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

 COMM493 Communication Practicum in Communication AS Humanities Undergraduate 1 TO 8 LEC LAB
Work experience or research with a cooperating employer or supervisor in organizations in business, government, non-governmental organizations, or education. The work or research experience is designed to be relevant to the student's academic pursuits, personal development, and professional preparation. The intern or researcher must record 40 hours of work for each credit hour. Enrollment may be repeated for a maximum of 8 credits. Prerequisites: COMM 299 and COMM 300, all with C or higher, and Instructor Permit. Typically offered Fall, Spring, Summer.

 COMM497 Communication Special Studies in COMM AS Humanities Undergraduate 1 TO 3 LEC LAB
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand
COMM499 Communication Senior Seminar, AS Humanities Undergraduate 3 LEC LAB

Reviews and explores contemporary and significant viewpoints about human communication in the following contexts: interpersonal, small group, public and organizational. As part of the requirements for the course, students will complete major projects which may, in part, be based on their internship experiences. Pre-Requisites: COMM 299 and COMM 300. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered: Spring

CONM100 Construction Management, Orien to Const Tech - Mgmt, TE Construction Tech-Mgmt Undergraduate 1 LEC LAB

The purpose of this course is to provide first year construction students with personal connections, knowledge and resources that will enhance their potential for learning, safety, satisfaction and graduation. The goal is to facilitate student's transition from high school to university life and thus improve each student's academic performance and retention. This course will serve as an internal model for interactions with program professors. Pre-requisites: BCTM, CETM, Pre-BCTM, Pre-CETM students. Typically Offered: Fall

CONM110 Construction Management, Construction Practices, TE Construction Tech-Mgmt Undergraduate 3 LEC LAB

Exposure to materials, methods and equipment used on heavy and commercial construction projects. Site layout, foundations, structural components of a project, material takeoff, material ordering and basic construction codes are introduced. Prerequisites: C in MATH 110 or 115 or 116 or 120 or 126 or 130 or 132 or 220 or 230 or math ACT 19+SAT 500+. Typically Offered: Spring

CONM112 Construction Management, Plans and Specifications, TE Construction Tech-Mgmt Undergraduate 3 LEC LAB

Introduction to the interpretation of plans, specifications, and building codes for commercial/industrial buildings and major civil projects. The design process and how plans and specifications are developed and interrelated is explained. Basic quantity takeoff methods are introduced. Pre-Requisites: CONM 116; C in MATH 115 or 116 or 120 or 126 or 130 or 132 or 220 or 230 or math ACT 24+ or math SAT 580+. Typically Offered: Fall, Spring

CONM116 Construction Management, Construction Graphics, TE Construction Tech-Mgmt Undergraduate 2 LEC LAB

A foundation course utilizing basic and complex construction graphics methods used to: communicate; understand ideas and concepts found in construction; and solve graphical representations required to explain the details of building a project. This course familiarizes the student with fundamental principles of construction graphics and drafting using hard line, freehand sketching, three-dimensional modeling, and basic computer modeling techniques. This course includes the development of orthographic presentations, isometric drawings, perspectives, graphical techniques, freehand drawings, dimension clarity, and three-dimensional models. Prerequisites: C in MATH 110 or 115 or 116 or 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 19+ SAT 500+. Typically Offered: Fall, Spring

CONM117 Construction Management, Construction Building Inf Tec, TE Construction Tech-Mgmt Undergraduate 3 LEC LAB

This course will review basic micro application software including windows type operating systems, word processing, spreadsheets, and presentation software and will introduce the basic principles of Building Information Technology. Students will examine geometry, spatial relationships, geographical information, quantities and properties of building components. Prerequisites: D in CONM 116; C in MATH 115 or 116 or 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 24+/SAT 580+. Typically offered: Fall, Spring

CONM121 Construction Management, Materials Properties-Testing, TE Construction Tech-Mgmt Undergraduate 3 LEC LAB

Application and properties of construction materials. The sampling, testing and application of the physical properties of aggregates and Portland cement concrete; bituminous materials, metals, and wood. Prerequisites: C in MATH 115 or 116 or 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 24+/SAT 580+. Typically Offered: Fall

CONM122 Construction Management, Const Surveying-Layout, TE Construction Tech-Mgmt Undergraduate 3 LEC LAB

Fundamentals of construction surveying, including distance measurement, leveling, angular measurement, traversing, topographic surveying, volume calculations, circular curves, building and roadway layout and grading. Pre-Requisites: C in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 OR math ACT 26+/SAT 610+. Typically Offered Fall, Spring

CONM211 Construction Management, Construction Estimating I, TE Construction Tech-Mgmt Undergraduate 3 LEC LAB

The study of the elements involved in the preparation of the contractor's bid proposal. Determine quantity takeoff, crew sizes, daily outputs, unit costs and organization of the bid packages into general contracted and subcontracted work. Discuss the ethics of bidding and prepare a bid proposal. Incorporate industry technology into the estimating process. Pre-Requisites: D in the following courses: CONM 111 or ARCH 115, CONM 112 or ARCH 102, C in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26+/SAT 610+. Typically Offered: Fall, Spring

CONM212 Construction Management, Soils and Foundations, TE Construction Tech-Mgmt Undergraduate 3 LEC LAB

An introduction to the principles of soil mechanics including soil compaction and load bearing. The origin and engineering characteristics of soil, soil classification systems, the strength of soil masses, control of structural embankments and an introduction to the design of foundations will be emphasized. Pre-Requisites: D in CONM 121 or ARCH 112; C in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26+/SAT 610+. Typically Offered: Fall, Spring
CONM221 Construction Management Statics and Structures TE Construction Tech-Mgmt Undergraduate 3 LEC LAB Static's, strength of materials and basic structural design fundamentals of steel and wood as they relate to beams, columns, and open-web joints. Topics include equilibrium, bending, shear and deflection, centroids, moments of inertia, truss analysis and thermal properties. Prerequisites: CONM 121 and MATH 120 or a pre 2016 SAT of MATH score of 560 or post 2016 SAT of 580. Corequisite: PHYS 211. Typically Offered Fall and Spring.

CONM222 Construction Management Construction Administration TE Construction Tech-Mgmt Undergraduate 3 LEC LAB An introduction to project documentation and on-site administration procedures for construction projects. Apply construction documents and project planning methods. Acquire knowledge of the structure of the construction industry and project delivery systems. The importance of project administration procedures for time, cost, and quality control during the construction process is emphasized. Prepare documentation for changes in the construction process. Pre-Requisites: CONM 111, 112, 211 or ARCH 101, 102, 115; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26+/SAT 610+. Typically offered: Fall, Spring.

CONM225 Construction Management Field Engineering TE Construction Tech-Mgmt Undergraduate 3 LEC LAB Management of the construction site, including planning and layout of temporary and permanent site facilities, field engineering calculations, project documentation, regulatory requirements and sustainable construction practices. Meets General Education requirements for Collaboration. Pre-requisites: CONM 117, 122. Typically offered: Fall, Spring.

CONM290 Construction Management Special Topics in CONM TE Construction Tech-Mgmt Undergraduate 1 TO 4 LEC LAB Special Topics in CONM - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring.

CONM297 Construction Management Special Studies in CONM TE Construction Tech-Mgmt Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

CONM311 Construction Management Formwork-Temp Structures TE Construction Tech-Mgmt Undergraduate 3 LEC LAB Design, erection, use and removal of temporary structures used in the construction industry with an emphasis on concrete formwork. Basic rigging operations introduced. Pre-Requisites: D- in the following courses: CONM 211, 221, 222, 225; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26+/SAT 610+. D- in PHYS 211. Typically Offered: Fall, Spring.

CONM312 Construction Management Construction Scheduling TE Construction Tech-Mgmt Undergraduate 3 LEC LAB Develop construction planning and scheduling techniques, including work breakdown, crew analysis and productivity, activity time-cost relationships, project time-cost relationships, resource leveling, overlapping activity relationships and lag, and project cash flow. Computer application is used as a scheduling tool throughout the course. Pre-Requisites: D- in the following courses: CONM 222, 225; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26+/SAT 610+. Typically Offered: Fall, Spring.

CONM321 Construction Management Construction Estimating II TE Construction Tech-Mgmt Undergraduate 3 LEC LAB The development of unit prices for estimating labor, material and equipment, productivity adjustment factors, overhead and profit, cash flow and interest calculations, conceptual estimating methods, and cost variance analysis. Develop conceptual estimate using various methodology and statistical techniques. Pre-Requisites: D- in the following courses: CONM 211, 221, 222, 225; C- in MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26+/SAT 610+. Typically Offered: Fall, Spring.

CONM324 Construction Management Adv Const Comp Techniques/Tech TE Construction Tech-Mgmt Undergraduate 3 LEC LAB Understanding emerging technologies used in the solution of construction problems and in construction management. This will include PC-based office software; project management software; and new industry technologies. Pre-Requisites: D- in the following courses: CONM 117, 122, 211, 222, 225. Typically Offered: Fall, Spring.

CONM330 Construction Management CDT Certification Preparation TE Construction Tech-Mgmt Undergraduate 1 LEC LAB Prepares the student for taking the Construction Specification Institute’s examination to become a Certified Document Technologist (CDT). Prerequisites: CONM 112 or ARCH 102. Typically offered Fall or Spring.

CONM390 Construction Management Special Topics in CONM TE Construction Tech-Mgmt Undergraduate 1 TO 3 LEC LAB Special Topics in CONM - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall Only.

CONM397 Construction Management Special Studies in CONM TE Construction Tech-Mgmt Undergraduate 1 TO 3 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

CONM412 Construction Management Construction Contracts TE Construction Tech-Mgmt Undergraduate 3 LEC LAB The study of the construction contract as it relates to the administration of the construction project. Review of standard documents used in the construction industry. Interpretation of required administrative procedures and the evaluation of contractual risk. Pre-Requisites: CONM 222, 225, 312, 321; D- in BLAW 301; D- in ENGL 311. Typically Offered: Fall, Spring.
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<td>CPSC200</td>
<td>Object Oriented Programming</td>
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<td>Mathematics</td>
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<td>CPSC300</td>
<td>Data Structures and Algorithms</td>
<td>AS</td>
<td>Mathematics</td>
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<td>LEC</td>
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Economic and financial factors in the construction industry environment to be considered in managerial decision making. Emphasizes the time value of money concept. (mixed delivery). Prerequisites: D- in the following courses: CONM 222, 225, 321; C - MATH 120 or 126 or 130 or 132 or 216 or 220 or 230 or math ACT 26+/SAT 610+. Typically Offered: Fall, Spring.

The major management issues facing construction organizations. Topics include value engineering, professional ethics, quality assurance and quality control, productivity, partnering, total quality management, risk allocation, and current management issues of timely concern to the construction industry. Prerequisites: CONM 222, ENGL 311, MATH 120 with a grade of C- or better. Typically Offered Spring or Fall.

Construction Safety and Management techniques used to manage people, resources and safety at the construction site. Safety topics, professional ethics, productivity, motivation, communication styles, leadership, time management and team building skills addressed. Prerequisites: D- in the following courses: CONM 222, 225, 311; D- in ENGL 311. Meets General Education requirements for Problem Solving. Typically offered: Fall, Spring.

Study of the construction and basic engineering design of power generating plants and process plants. Review of major equipment and facility requirements with plant layout and arrangement. Emphasis on construction of power and process plants including field construction materials and methods as well as on-site management of the construction process. Prerequisites: BCTM 223, HVAC 337, CONM 311 and ENGL 311. Typically Offered Fall or Spring.

Special topics in CONM - 400 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

The Construction Management program capstone course leading to the award of an ACCE accredited Bachelor of Science degree in Construction Management. Students explore the roles and tasks of the professional construction manager. Student work is intended to be applied in a holistic manner using all previously developed construction program coursework. Project management issues within a decision making and problem solving context are included in a semester-long simulation of an actual construction project in a student team environment. Assessment of the student team projects include a professional presentation to industry standards conducted by a team of faculty and several construction industry representatives. Pre-Requisites: D- in the following courses: CONM 311, 312, 321, 324, 373, 413, 424; D- in ENGL 311. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered: Fall, Spring.

An introduction to programming and problem solving for students with little or no programming background. Topics include problem specification and algorithm design, and fundamental procedural programming concepts (including variables, assignment, conditional and iterative control structures, arrays or lists, and functions). Prerequisites: MATH 116 or MATH 120 or 24 ACT or SAT 580. Typically Offered Fall, Spring, Summer.

Special Topics in CPSC - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer.

This course introduces programming and software engineering. The methodology is based on object oriented analysis. Discussion of fundamental algorithms and elementary data structures is included, focusing an ADT’s throughout. User interfaces are covered in the specification of programming tasks. Prerequisites: MATH 126 or MATH 130: and CPSC 130 or permission of instructor. Typically Offered: Fall, Spring.

This course covers data structures and object-oriented design in some depth. Topics covered include data structure, a formal treatment of recursion, an introduction to basic problem solving strategies, an introduction to complexity analysis and theory of computability. Sorting and searching algorithms are presented in the light of the presentation of problem-solving strategies and complexity issues. Finally, object-oriented design methodologies are studied. Pre-Requisites: CPSC 200 with a grade of C- or better. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered: Fall.
CPSC320 Computer Science Computer Simulation AS Mathematics Undergraduate 3 LEC LAB An introduction to discrete and continuous processes including queues, and population dynamics. Examples will be modeled using Pascal and/or simulation languages such as Dynamo, and SIMSCRIPT. Pre-Requisites: MATH 216 or MATH 220; and CPSC 200 and MATH 251 all courses with a grade of C- or better. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only, Even Years.

CPSC326 Computer Science Computer Graphics AS Mathematics Undergraduate 3 LEC LAB An overview of graphics hardware, representation of curves and surfaces, transformations and hidden line removal. Pre-Requisites: CPSC 200 and MATH 322 with a grade of D- or better, or instructor approval. Typically Offered Spring Only, Odd Year.

CPSC328 Computer Science Discrete Structures AS Mathematics Undergraduate 3 LEC LAB Discrete Mathematics topics for Applied Mathematics and Computer Science, including: Sets, Algorithms, Recursion, Combinatorics, and Graph Theory. Students cannot receive credit for both CPSC 328 and MATH 328. Pre-Requisites: MATH 216 or 220 with a grade of D- or better. Typically Offered Fall Only, Even Year.

CPSC330 Computer Science Parallel Programming AS Mathematics Undergraduate 4 LEC LAB Introduction to the parallel computing landscape and a parallel programming language. Overview of processes, synchronization, and the use and implementation of semaphores. Introduction to distributed programming techniques (including message passing, RPC and rendezvous), process interaction paradigms and scientific computing (including heartbeat algorithms, pipeline algorithms, broadcast algorithms, grid computations and particle computations). Prerequisites: MATH 216 or MATH 220 and CPSC 200 or ECNS 311. Typically Offered: On Demand

CPSC340 Computer Science Computer Organization AS Mathematics Undergraduate 4 LEC LAB Digital logic and digital systems, machine-level representation of data, assembly-level machine organization and instruction sets, memory system organization, Input/Output and interrupts, multiprocessing and an introduction to systems software. Prerequisites: CPSC 130 or CPSC 200 or ECNS 311. Typically Offered Spring Only

CPSC390 Computer Science Special Topics in CPSC AS Mathematics Undergraduate 1 TO 3 LEC LAB Special Topics in CPSC - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer.

CPSC397 Computer Science Special Studies in CPSC AS Mathematics Undergraduate 1 TO 6 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

CPSC442 Computer Science Programming Language Concepts AS Mathematics Undergraduate 3 LEC LAB This course covers the syntax and semantics of programming languages and provides an introduction to compiler construction. Topics that may be covered include: formal specification of syntax, declarations, binding, allocation, data types, control structures, control and data flow, and the implementation and execution of programs. The type of programming methodologies that may be covered include: functional programming, imperative programming, logic programming, and object-oriented programming. Programming projects will provide experience in a number of languages. Prerequisites: CPSC 300 and MATH 328. Typically Offered Spring Only, Even Year.

CRIM110 Criminal Justice Introduction to Crim Justice ED Criminal Justice Undergraduate 3 LEC LAB General survey of the field of criminal justice. Special emphasis given to examining the crime problem, history of the criminal justice system, constitutional limitations of criminal justice, and the U.S. police system. Typically Offered Fall, Spring.

CRIM111 Criminal Justice Introduction to Corrections ED Criminal Justice Undergraduate 3 LEC LAB Tracks the correctional process from the prosecutorial stage to release from correctional supervision. History of corrections, modern day correctional ideology, various correctional philosophies, correctional goals, existing problems, future correctional goals, and components of corrections. Meets M.C.O.T.C. certification requirements. Typically Offered Spring Only.

CRIM112 Criminal Justice Intro to U.S. Legal Systems ED Criminal Justice Undergraduate 3 LEC LAB This course shall explore the historical development, power/jurisdictions and current issues pertaining to the courts in the United States. Further, this course will analyze the effectiveness of traditional techniques used by the courts, prosecution and defense in the judiciary process at both the state and federal levels. Typically Offered: Spring.

CRIM113 Criminal Justice Intro to Law Enforcement ED Criminal Justice Undergraduate 3 LEC LAB This course shall explore the historical development, power/jurisdictions and current issues pertaining to law enforcement in the United States. Further, this course will analyze the effectiveness of traditional and non-traditional techniques of law enforcement and control of crime in urban and rural settings from a state and federal level. Typically Offered: Spring.

CRIM190 Criminal Justice Special Topics in CRIM ED Criminal Justice Undergraduate 1 TO 3 LEC LAB Special Topics in CRIM - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

CRIM197 Criminal Justice Special Studies in CRJU ED Criminal Justice Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.
CRIM220 Criminal Justice Supervision-Management in CJ  ED Criminal Justice Undergraduate 3 LEC LAB The fundamental principles of supervision and management as they are applied to the agencies of the criminal justice system. Pre-Requisites: Pre-Criminal Justice or Criminal Justice Students. Typically Offered Fall Semester.

CRIM260 Criminal Justice Delinquency Prevention-Control  ED Criminal Justice Undergraduate 3 LEC LAB Analysis of juvenile delinquency theories of causation and current prevention programs. Role of police agencies in prevention programs and their relationship to juvenile courts and institutional treatment centers. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only

CRIM290 Criminal Justice Special Topics in CRIM  ED Criminal Justice Undergraduate 1 TO 3 LEC LAB Special Topics in CRIM - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

CRIM297 Criminal Justice Special Studies in CRJU  ED Criminal Justice Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

CRIM301 Criminal Justice CJ Investigation Issues  ED Criminal Justice Undergraduate 3 LEC LAB A survey course of the basic principles of modern criminal investigation. The course will cover areas of current criminal investigative techniques, interview and interrogation issues, crime scenes, evidence collection, preservation, and analysis, evidentiary standards, and current and future issues and developments in the field of criminal investigation. Pre-Requisites: CRIM 110 and Criminal Justice Corrections or Criminal Justice Generalist students. Typically Offered Spring Only

CRIM302 Criminal Justice Creating Safe Schools  ED Criminal Justice Undergraduate 1 LEC LAB This course will enhance awareness and understanding of research regarding school violence, current statistics, laws, critical issues and effective approaches in managing violence. Students will gain insight and develop strategies to prevent violence and promote safe schools. Identification of characteristics of potentially violent situations and the role of educators in the development and implementation of policies and procedures will be explored. Typically Offered Spring Only

CRIM305 Criminal Justice Ethical Issues in Crim Justice  ED Criminal Justice Undergraduate 3 LEC LAB Explore selected issues in criminal justice organizations with emphasis on the role of practitioners and relationships with the public. Students will evaluate issues surrounding their personal value systems, as well as ethical and moral development within criminal justice organizations. The foundation of this study will be a structured debate of moral dilemmas from ethical perspectives. Pre-Requisites: Criminal Justice students only or department approval. Typically Offered Fall Only

CRIM310 Criminal Justice Corrections and Society  ED Criminal Justice Undergraduate 3 LEC LAB In this course the student will examine history, philosophy, legal process, performance and outcomes of juvenile and adult correctional systems. Pre-Requisites: Criminal Justice students only or department approval. Typically Offered Fall Only

CRIM311 Criminal Justice Police and Society  ED Criminal Justice Undergraduate 3 LEC LAB In this course the student will examine development, organization, policies, and performance of the police in society as well as community and selected social institutional factors as related to their influence on police systems. Pre-Requisites: Criminal Justice students only or department approval. Typically Offered On Demand

CRIM319 Criminal Justice Conflict Mgmt In Corrections  ED Criminal Justice Undergraduate 3 LEC LAB The dynamics involved when dealing with the public and inmates. An in-depth analysis of the following: culture and minorities, formation of attitudes and prejudices, understanding human relations, conflict intervention, special needs inmates, domestic situations and suicide. Meets M.C.O.T.C. certification requirements. Pre-Requisites:Junior status and Criminal Justice students only. Typically Offered Spring Only

CRIM321 Criminal Justice Police Report Writing  ED Criminal Justice Undergraduate 3 LEC LAB Writing an effective report by analyzing the use of vocabulary, sentence structure, utilization of mechanics specific to law enforcement, use of notes and field notebook, understanding the various styles of writing and preparing reports pertaining to the criminal justice field. Meets COLES certification requirements. This course meets General Education requirements: Writing Intensive Course and new Fall 2017 Comm Across the Curriculum. Pre-Requisites: Junior status and Criminal Justice students only. Typically Offered Summer Only

CRIM322 Criminal Justice Report Writing for Corrections  ED Criminal Justice Undergraduate 3 LEC LAB Writing an effective report analyzing the use of vocabulary, sentence structure, utilization of mechanics specific to corrections, using notes, case notebook, interviewing methods, understanding the various styles of writing and preparing specific corrections reports. Meets MCOTC certification requirements. This course meets General Education requirements: Writing Intensive Course and new Fall 2017 Comm Across the Curriculum. Pre-Requisites:Junior status and Criminal Justice variety majors students only. Typically Offered Summer Only
CRIM 355 Criminal Justice Precision Driving ED Criminal Justice Undergraduate 3 LEC LAB
Basic police training which covers police pursuit/precision driving techniques, driving policies, procedures and liabilities. Meets COLES certification requirements. Pre-Requisites: Junior status & Criminal justice students only. Typically Offered Summer Only

CRIM 356 Criminal Justice Firearms ED Criminal Justice Undergraduate 3 LEC LAB
Basic police training in orientation to firearms. Policies, procedures and liabilities of firearms use and firearms range techniques. Meets COLES certification requirements. Pre-Requisites: Senior status and Criminal justice students only. Typically Offered Fall, Summer

CRIM 357 Criminal Justice Firearms for Correct-General ED Criminal Justice Undergraduate 3 LEC LAB
Basic firearms marksmanship, competence in safe handling, and lawful discharge of pistols, rifles, and shotguns for non-law enforcement students within the School of Criminal Justice. This course will be taught in accordance with general firearms guidelines. This course will be taught by an instructor licensed to provide CCW Pistol Safety training course certificates which will then be provided to successful students. Pre-requisites: Junior/Senior status in generalist or corrections in Criminal Justice. Typically Offered Summer only.

CRIM 358 CRIM 358S Criminal Justice Correctional Institutions ED Criminal Justice Undergraduate 3 LEC LAB
Examines federal, state, county and local correctional facilities. Topical issues include: the purpose of correctional institutions, historical and philosophical developments, management and organizational principles, security operations, treatment issues, classification issues, analysis of women's facilities, types of institutions and the role of staff. Meets M.C.O.T.C. certification requirements. Pre-Requisites: Criminal Justice Corrections students only or department approval. Typically Offered Fall Only

CRIM 385 Current Issues in CI ED Criminal Justice Undergraduate 3 LEC LAB
A dynamic course studying various contemporary problems or issues impacting the criminal justice system such as alcohol and other drugs of abuse, AIDS, crime trends, drunk driving, etc. Topics addressed in this course change to reflect the most current issues facing the criminal justice system. Pre-Requisites: Criminal Justice students only or department approval. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only

CRIM 390 CRIM 391 Criminal Justice Internship ED Criminal Justice Undergraduate 4 LEC LAB
The student serves 216 hours as an observer or participant in a criminal justice agency picked by the student and approved by the program. Pre-Requisites: Junior status in Criminal Justice or department approval. Students must pass CRIM 322 (Report Writing) prior to taking an internship. Typically Offered Summer Only

CRIM 397 CRIM 397 Special Studies in CRIM ED Criminal Justice Undergraduate 1 TO 4 LEC LAB
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

CRIM 401 CRIM 401 Defense Tactics-Corrections ED Criminal Justice Undergraduate 3 LEC LAB
Provides effective guidelines for the corrections officer to make defensive decisions in the field regarding the reasonable use of physical force. Credit may not be received for both CRIM 400 and CRIM 401. Pre-Requisites: Junior status & corrections concentration & criminal justice students only. Typically Offered Fall Only

CRIM 402 Physical Fitness Conditioning ED Criminal Justice Undergraduate 1 LEC LAB
Introduces the basic components of fitness: cardiovascular, flexibility, body composition, nutrition, plyometric exercises and muscular strength. Pre-Requisites: Senior Status & Criminal Justice students only. Typically Offered Fall Only

CRIM 403 Physical-Defensive Tactics ED Criminal Justice Undergraduate 5 LEC LAB
Provides effective guidelines for the law enforcement officer to make defensive decisions in the field regarding the reasonable use of physical force. Included is the state certified Pressure Point Control Tactics Management System. Meets MCOLES certification requirements. Pre-Requisites: Senior Status & Criminal Justice students only. Typically Offered Fall Only

CRIM 411 Crime Control Policy ED Criminal Justice Undergraduate 3 LEC LAB
This course will provide an analysis of historical, legal ideologies and assumptions, and performance of crime control policies. Pre-Requisites: Junior status & Criminal Justice students only or Department approval. Typically Offered Fall Only

CRIM 420 Conflict Mgmt in Crim Justice ED Criminal Justice Undergraduate 4 LEC LAB
Designed to enhance student’s understanding of the dynamics of communication involved in interaction with the public or prisoners. Topics include: Culture and minorities, formation of attitudes and prejudices, the human relations process, techniques for handling crisis and conflict situations, and developing interpersonal communications. Meets MCOLES certification requirements. Pre-Requisites: Senior Status & Criminal Justice students only. Typically Offered Fall Only
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<tr>
<th>CRIM425</th>
<th>Criminal Justice</th>
<th>Michigan Criminal Law</th>
<th>ED</th>
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<td>Analysis of substantive criminal law emphasizing crimes against persons and property; includes an overview of juvenile law and basic principles and definitions of evidence law. Meets MCOLES certification requirements. Pre-Requisites: Junior or Senior Status &amp; Criminal Justice students only. Typically Offered Fall Only</td>
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<th>Michigan Criminal Procedure</th>
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<td>Legal procedures governing the police and courts, due process, Bill of Rights, right to counsel, search and seizure, confessions, identification procedures. The study of court functions and civil law, emphasizing theories of tort liability. Meets MCOLES certification requirements. Pre-Requisites: Junior or Senior Status &amp; Criminal Justice students only. Typically Offered Spring Only</td>
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<th>CRIM435</th>
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<td>Constitutional law as it pertains to the functions, operations and responsibilities of corrections. The court process, prisoner's rights, liability issues involved in corrections and pertinent cases. Through examination of how the law impacts on corrections decisions. Meets M.C.O.T.C. certification requirements. Pre-Requisites: Senior status &amp; Criminal Justice students only or Department approval. Typically Offered Spring Only</td>
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<td>Police laboratory techniques, preliminary investigation, crime scene process, follow-up investigation, auto theft, fingerprinting, receiving and booking process, and special investigations. Meets COLES certification requirements. Pre-Requisites: Senior status &amp; Law Enforcement &amp; Criminal Justice students only. Typically Offered Spring Only</td>
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<td>Basic police training which covers patrol operations, patrol techniques, civil disorders, stopping vehicles and occupant control, arrest procedures, and emergency preparedness and disaster control. Meets MCOLES certification requirements. Pre-Requisites: Senior Status &amp; Criminal Justice students only. Typically Offered Spring Only</td>
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<td>Basic police training which covers motor vehicle law, driver licensing, OUI/L enforcement, motor vehicle accident investigation, traffic direction and control techniques and methods of traffic law enforcement. Meets MCOLES Pre-Requisites: Senior Status &amp; Criminal Justice students only. Typically Offered Spring Only</td>
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<td>This course offers instruction in a jail corrections officer curriculum that includes such topics as booking and intake, suicide awareness, prisoner behavior mental health, and workplace harassment. The instruction is delivered in a para-military academy setting. Prerequisite: Instructor Permission. Typically offered Fall</td>
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<td>This course offers instruction in a jail corrections officer curriculum that includes such topics as Correctional Law, Report Writing, CPR/First Aid, Fire Safety, The instruction is delivered in a para-military academy setting. Prerequisites: CRIM 460. Typically offered Spring</td>
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<td>The human behavior process. Includes: Impact of the environment and psychological influences on behavior, criminal behavior and lifestyles, the role of substance abuse and behavior, the role of the family on behavior, personality development, emotional, social and psychotic disorders and treatment alternatives. Meets M.C.O.T.C. certification requirements. Prerequisites: Senior standing in corrections option or department approval. Typically Offered Fall only.</td>
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<td>Special Topics in CRIM 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<th>CRIM498</th>
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<th>Criminal Justice</th>
<th>Undergraduate</th>
<th>1</th>
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<td>Assessment of the Law Enforcement student's mastery of the curriculum. Pre-Requisites: Senior status &amp; Law Enforcement &amp; Criminal Justice students only. Typically Offered Spring Only</td>
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<th>CRIM499</th>
<th>Criminal Justice</th>
<th>CJ Assessment Course</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Undergraduate</th>
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<td>Assessment of the student's mastery of the curriculum. Pre-Requisites: Senior status and Criminal Justice students only. Typically Offered Spring Only</td>
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<th>CRIMS97</th>
<th>Criminal Justice</th>
<th>Special Studies in CRIM</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
<th>1 to 6</th>
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<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<td>CRIM605</td>
<td>Legal Issues in CJ</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>Designed to provide the student with a basic understanding of legal issues surrounding the role of an administrator and a line worker. Subjects to be addressed include civil liability under state tort law, civil liability under federal law, criminal liability, and the impact of recent court decisions. Students will acquire a working knowledge of their legal role and responsibility and will learn risk management strategies to reduce the risk of exposure to liability. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered Fall Only</td>
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<tr>
<td>CRIM608</td>
<td>Organizational Leadership</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course is designed for graduate students interested in identifying and enhancing their leadership styles and skills in preparation for management careers in the field of criminal justice. Students will be exposed to related theories, concepts and issues, and will apply these theories and skills through selected projects and experiential exercises. Pre-Requisites: Graduate status &amp; Criminal Justice students only. Typically Offered Fall, Spring, Summer</td>
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<tr>
<td>CRIM610</td>
<td>CJ System Overview</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course examines the overall effectiveness of the criminal justice system in the United States, with some comparison of other criminal justice systems. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered On Demand</td>
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<tr>
<td>CRIM615</td>
<td>Nature of Crime</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course will examine the theory and research on the nature and correlates of crime. The relationship between explanations of and the policies proposed to reduce crime will be covered. The most recent contributions to understanding the nature of crime will be reviewed. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered Fall Only</td>
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<tr>
<td>CRIM620</td>
<td>CJ Agency Evaluation</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course is designed as a graduate level seminar for students interested in understanding the theory of evaluation of criminal justice systems and developing program evaluation skills. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered Spring Only</td>
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<tr>
<td>CRIM630</td>
<td>Seminar in Law Enforcement</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course is designed for graduate students with an interest in the knowledge of contemporary policing and will explore the role of police in American society. Attention is given to the origin of policing, the nature of police organizations and police work, and patterns of relations between police and the public. The values of a democratic society as they affect the law enforcement role are also discussed. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered Spring Only</td>
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<tr>
<td>CRIM640</td>
<td>Seminar in Corrections</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course is designed to give an analytical perspective to the history, development, current practices, critical issues and future of corrections. Primary focus will be directed towards an exploration of the various theoretical and practical approaches to corrections and the research intended to support or refute these perspectives. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered Spring Only</td>
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<tr>
<td>CRIM645</td>
<td>Quantitative Inquiry</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course provides an introduction to quantitative research methods and statistical concepts. Students will gain an understanding of the stages of quantitative research design. The course is focused on the basics of descriptive and inferential statistics. The students will learn various techniques that are used in describing and interpreting quantitative data from empirical studies. Students will gain hands-on experience in data collection, analysis, program evaluation, and grant writing. The overarching intent is to prepare graduates to appropriately assess the efficacy of published empirical studies to better inform their decision making as criminal justice practitioners. Pre-requisite: Criminal Justice graduate student status. Typically offered: Fall.</td>
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<tr>
<td>CRIM655</td>
<td>Qualitative Inquiry</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course provides an introduction to qualitative research methods. Students will gain an understanding of the stages of qualitative research design. The focus of the course is on the basics of various qualitative methodological approaches. The students will learn various techniques that are used in describing and interpreting qualitative data from empirical studies. Students will gain hands-on experience in data collection and analysis. The overarching intent is to prepare graduates to appropriately assess the efficacy of published empirical studies to better inform their decision making as criminal justice practitioners. Pre-requisite: Criminal Justice graduate student status. Typically offered: Spring.</td>
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<tr>
<td>CRIM660</td>
<td>Criminal Justice Thesis</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>6</td>
<td>LEC</td>
<td>This is a directed studies course which will require the student to apply research methods learned in the curriculum in solving a criminal justice problem or resolving an issue in the criminal justice system. The focus will be on the application of scientific technique to problem solving and the preparation of a written thesis.</td>
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<tr>
<td>CRIM661</td>
<td>Criminal Justice</td>
<td>CJ Policy Paper</td>
<td>ED</td>
<td>Criminal Justice</td>
<td>Graduate</td>
<td>3</td>
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<td>This course is designed to be a report on the culminating experience of the master's internship (CRIM 691). The paper should represent a policy study or problem-solving aspect of the student's criminal justice agency internship, requiring the student to apply the knowledge, skills and abilities learned in the master of science program to an actual agency problem or issue. Pre-Requisites: Graduate status and Criminal Justice students only. Co-Requisites: CRIM 691. Typically Offered: On Demand</td>
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<tr>
<th>CRIM665</th>
<th>Criminal Justice</th>
<th>Financial Management</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
<th>3</th>
<th>LEC</th>
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<tr>
<td>This course introduces professionals in the criminal justice field to the basic principles of accounting and financial management, including the preparation of budgets, the use of external and internal audits, and the working relationship between accounting personnel and other administrators. Special emphasis will be placed on governmental accounting and its unique considerations. Pre-Requisites: Graduate status &amp; Criminal Justice students only. Typically Offered: Fall, Spring</td>
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<tr>
<th>CRIM670</th>
<th>Criminal Justice</th>
<th>Graduate Topics in CJ</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
<th>3</th>
<th>LEC</th>
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<tr>
<td>This course offers a concentrated study of selected critical issues in the criminal justice system. Topics that are timely and of concern to both academicians and practitioners will be chosen for study. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered: Fall, Spring, Summer</td>
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<tr>
<th>CRIM673</th>
<th>Criminal Justice</th>
<th>Human Resource Management</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
<th>3</th>
<th>LEC</th>
<th>LAB</th>
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<tr>
<td>This course takes a problem solving/decision-making approach to human resource management. Students will overview and integrate such topics as: legal aspects of personnel management, job analysis, employee selection and performance evaluation, training and development, compensation systems, and labor relations. Pre-Requisites: Graduate status &amp; Criminal Justice students only. Typically Offered: Fall, Spring, Summer</td>
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<th>CRIM680</th>
<th>Criminal Justice</th>
<th>Special Studies in CJ</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
<th>1 TO 6</th>
<th>LEC</th>
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<tr>
<td>Special Studies in CJ is for students who have completed all the required courses and are working on the completion of their thesis. This continuing credit allows the student to remain active in the program. Pre-Requisites: CRIM 660 &amp; Graduate status &amp; Criminal Justice students only. Typically Offered: On Demand</td>
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<tr>
<th>CRIM690</th>
<th>Criminal Justice</th>
<th>Special Topics in CRIM</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
<th>1 TO 4</th>
<th>LEC</th>
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<tr>
<td>Special Topics in CRIM 600 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered: On Demand</td>
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<tr>
<th>CRIM691</th>
<th>Criminal Justice</th>
<th>CJ Internship</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
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<th>LEC</th>
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<tr>
<td>Under the guidance of criminal justice program faculty, students are required to acquire an agreement between the student and a criminal justice agency for the purpose of conducting a research project for the agency for which the agency has a need, or conduct a study of an issue being faced by the agency. Pre-Requisites: Graduate status and Criminal Justice students only. Co-Requisites: CRIM 661. Typically Offered: On Demand</td>
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<th>CRIM697</th>
<th>Criminal Justice</th>
<th>Special Studies Graduate CRIM</th>
<th>ED</th>
<th>Criminal Justice</th>
<th>Graduate</th>
<th>1 TO 6</th>
<th>LEC</th>
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<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand</td>
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<th>CRIM699</th>
<th>Criminal Justice</th>
<th>Comprehensive Critique</th>
<th>ED</th>
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<th>Graduate</th>
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<td>Designed to review key areas of concentration taught in the program including criminal justice core courses, research and evaluation, and managerial skills. By reviewing the key concepts of these major areas, the student will be prepared for the end of the term comprehensive exam. Pre-Requisites: Graduate status and Criminal Justice students only. Typically Offered: On Demand</td>
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<tr>
<th>DAGD100</th>
<th>Digital Animation and Game Des</th>
<th>3D Modeling - Animation 1</th>
<th>ED</th>
<th>School of Digital Media</th>
<th>Undergraduate</th>
<th>3</th>
<th>LEC</th>
<th>LAB</th>
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<tr>
<td>Students use 3D computer software to learn the fundamentals of modeling, texturing, lighting, animation, and rendering. Students are expected to read, write, discuss, research, and explore the application of 3D modeling and animation to a wide range of industries and projects. This is a heavily project-based class that builds to a short animated video. Typically Offered: Spring</td>
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<tr>
<th>DAGD101</th>
<th>Digital Animation and Game Des</th>
<th>2D Visualization - Storyboards</th>
<th>ED</th>
<th>School of Digital Media</th>
<th>Undergraduate</th>
<th>3</th>
<th>LEC</th>
<th>LAB</th>
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<td>Foundations of two-dimensional graphic communication are explored in what is primarily a traditional media (pen and paper) and design course. Students will learn and demonstrate fundamental design concepts, research ideas for visualization, create and manipulate images for presentation, develop concept art for production, and compile elements into a presentable format. Typically Offered: Fall</td>
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<th>DAGD102</th>
<th>Digital Animation and Game Des</th>
<th>Story Devel for Film - Gaming</th>
<th>ED</th>
<th>School of Digital Media</th>
<th>Undergraduate</th>
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<th>LEC</th>
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<td>This course explores the basics of story telling and screen writing. Topics included are character development, beat outlining, concept pitching, and conversations with industry professionals. Students will be required to read supporting material, view media for discussion, create and pitch story concepts, and develop a final screenplay. Typically Offered: Fall</td>
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<td>Course Title</td>
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<td>Level</td>
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<tr>
<td>DAGD103</td>
<td>Digital Animation and Game Des</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course covers the fundamentals of creating a 3D project. Topics included are 3D computer applications, 2D visualization and drawing, traditional modeling techniques, spatial design, temporal influence, development tools, image and animation formats, and delivery solutions. Typically Offered Spring.</td>
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<tr>
<td>DAGD104</td>
<td>Digital Imaging</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course focuses on building a solid foundation with contemporary digital imaging techniques, centering on applications important to successful 3D development. Typically offered Fall, Spring.</td>
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<tr>
<td>DAGD150</td>
<td>Digital Animation and Game Des</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course explores and analyzes games from anthropological, psychological, and design perspectives. Student will study game pleasures, demographics, mechanics, game balancing, level design, morality, censorship, aesthetics, communities, pitches, game design documents, and more. Typically Offered Spring.</td>
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<td>DAGD180</td>
<td>Intro Digital Video</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course covers the fundamentals of constructing and editing a digital-based video. Topics included are cinematography, video storytelling techniques, pacing, editing, compression/decompression techniques ( codecs), video file formats, soundtracks and sound effects, title screens and overlays, menu systems, and DVD authoring. Prerequisites: VISD 216 or GRDE 216 with a grade of D- or better. Typically Offered Spring.</td>
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<td>DAGD185</td>
<td>Digital Audio Production</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This is a basic course in the fundamentals of audio production as it relates to game design and animation. Topics include basic digital audio theory, midi production, audio tracking, mixing and mastering. Typically Offered Fall and Spring.</td>
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<tr>
<td>DAGD197</td>
<td>Special Studies in DAGD</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC LAB</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer.</td>
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<tr>
<td>DAGD201</td>
<td>Animation Preproduction</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>In this course, students will discover preproduction techniques for animation and storytelling. Students will examine animation production pipelines, story structure, storyboarding concepts, character development, scriptwriting, concept art, and animatic development. Prerequisites: DAGD 103 with C or higher. Typically offered: Spring.</td>
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<tr>
<td>DAGD204</td>
<td>Digital Imaging for 3D</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course focuses on building a solid foundation with contemporary digital techniques, centering on applications important to successful 3D development. Prerequisites: DAGD 104 with grade of C or better. Typically offered Fall, Spring.</td>
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<tr>
<td>DAGD230</td>
<td>3D Modeling - Animation 2</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Students use 3D modeling and animation to articulate and communicate ideas and concepts. Students produce a series of fully rendered 3D animated models. Using 3D modeling software, students work with timing, effects, creation of 3D projects from a 2D plane, materials editing, reflection mapping, and various other 3D animation operations. Prerequisites: DAGD 100, Minimum Grade of C. Typically Offered Fall and Spring.</td>
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<tr>
<td>DAGD255</td>
<td>Game Programming 1</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course introduces students to programming for game development. Topics include game loops, vector math, camera systems, input, content pipelines &amp; rendering, collision detection, state machines, and game states. Prerequisites: SENG 100 with a grade of C or better. Typically Offered Fall.</td>
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<tr>
<td>DAGD260</td>
<td>Multimedia Design</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course covers the fundamentals of designing cohesive communication across multiple mediums. Course topics include design methodologies, visual communication, interaction design, branding, and delivery solutions. Students will produce print, video, and interactive media. Prerequisites: DAGD 104 with C or higher. Typically offered: Spring and Fall.</td>
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<tr>
<td>DAGD280</td>
<td>Digital Sculpting</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This is an advanced course in digital modeling, sculpting, and texturing for animation and game design. Pre-requisites: DAGD 100 and DAGD 104, both with a C or higher. Typically offered: Spring and Fall.</td>
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<tr>
<td>DAGD290</td>
<td>Special Topics in DAGD</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC LAB</td>
<td>Special Topics in DAGD - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered on Demand.</td>
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<tr>
<td>DAGD297</td>
<td>Special Studies in DAGD</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC LAB</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer.</td>
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<td>Course Code</td>
<td>Course Title</td>
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<td>Department</td>
<td>Level of Study</td>
<td>Credits</td>
<td>Type</td>
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<tr>
<td>DAGD300</td>
<td>Digital Animation and Game Design</td>
<td>Level Design</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td></td>
</tr>
<tr>
<td>DAGD301</td>
<td>Digital Animation and Game Design</td>
<td>Animation Techniques</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD302</td>
<td>Digital Animation and Game Design</td>
<td>Procedural Animation Technique</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD305</td>
<td>Digital Animation and Game Design</td>
<td>Portfolio</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD310</td>
<td>Digital Animation and Game Design</td>
<td>Interaction Design</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD315</td>
<td>Digital Animation and Game Design</td>
<td>Digital Media Productions</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD320</td>
<td>Digital Animation and Game Design</td>
<td>Multiplayer Game Program</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD335</td>
<td>Digital Animation and Game Design</td>
<td>3D Modeling - Animation 3</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD340</td>
<td>Digital Animation and Game Design</td>
<td>Junior Project</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD345</td>
<td>Digital Animation and Game Design</td>
<td>Contemporary Tools/Techniques</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD355</td>
<td>Digital Animation and Game Design</td>
<td>Game Programming 2</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td></td>
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<tr>
<td>DAGD375</td>
<td>Digital Animation and Game Design</td>
<td>Advanced 3D - Character</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td></td>
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<tr>
<td>DAGD385</td>
<td>Digital Animation and Game Design</td>
<td>Adv Mod-Anim-Vehicle-Structure</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
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<tr>
<td>DAGD390</td>
<td>Digital Animation and Game Design</td>
<td>Special Topics in DAGD</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC LAB</td>
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</table>

In this course, students will be introduced to designing game levels for specific player types and solving gameplay related problems. Students will use an industry standard game engine to design 3D spaces, scripted gameplay, lighting, materials, and more. Level and environmental design are vital parts of game design, so focus will be on creating spaces that enable desirable gaming experiences. Prerequisites: DAGD 230 and DAGD 150 with a grade of C or better in each. Meets General Education requirements for Problem Solving. Typically offered: Fall and Spring.

Students will develop animation skills through exercises in the 12 principles of animation, traditional and digital animation techniques, and the creation of short, animated stories. Prerequisites: DAGD 201 and DAGD 230 with a grade of C or better for both. Typically offered: Fall, Spring.

Students will develop skills for animating objects procedurally. This includes using code to drive animation, building hierarchical rigs, developing particle system behavior, and leveraging mathematics. Prerequisites: DAGD 201 and SENG 100 with a grade of C or better for both. Typically offered: Fall, Spring.

An introduction to the concepts and practices associated with the preparation of portfolio creation. During this course students have the opportunity to enhance their design skills by developing a visual identity. Multimedia career development, resume building and industry research will also be addressed. Prerequisites: DAGD 230, DAGD 204, and TDMP 243, each with a grade of C or higher. Typically offered: Fall, Spring.

An introduction to the concepts and practices associated with interaction design, user interfaces, and input/output devices. Students will design and develop a user interface as their final project. Prerequisites: DAGD 104 and DAGD 260 with Grade of C or better in each. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer.

This is a course in researching, planning, and managing productions related to Digital Animation and Game Design. Topics include quoting, proposal documents, budgets, schedules, business plans and production pipelines. Prerequisites: DAGD 150 and DAGD 260 with Grade of C or better in each. Typically offered Fall and Spring.

This course explores writing games that play across the internet, intranet, and network, focusing on online gaming technology. A thorough understanding of OOP is important. Prerequisites: DAGD 255 with a grade of C or better. Typically Offered Fall, Spring, Summer.

Along with building on learned 3D modeling and animation techniques, this course emphasizes the student of computer rendering, lighting, and materials. Topics include techniques for light, shadow, texture, composition, advanced materials and their proper use. Prerequisites: DAGD 204 and DAGD 230 with grade of C or better in each. Typically Offered Fall and Spring.

Students will prepare a successful Rich Media project from concept to completion. Prerequisites: DAGD 315 with grade of C or higher; and either DAGD 335 or DAGD 355 with a grade of C or higher. Meets General Education requirements for Collaboration. Typically Offered Fall, Spring.

One of the challenges with working in digital animation and game design are that the tools and approaches are constantly evolving with the fast pace of technology. This course focuses on contemporary topics in digital media with an emphasis on working with the latest in software (usually focusing on one particular application). Please review the description line for this course as the tools and techniques explored will tend to change each time the course if offered. Generally offered Fall, Spring.

Students will design, program, and debug games in a modern, industry-standard game engine. Prerequisites: DAGD 255 with a grade of C or better. Typically Offered Spring.

This course covers advanced issues in 3D computer graphics. Topics included are modeling, texturing, rigging, animation, and 3D character development. Prerequisites: DAGD 335.

This course emphasizes advanced modeling, texturing, and animation techniques for rigid body objects such as vehicles and buildings. Prerequisites: DAGD 335, minimum Grade of C. Typically Offered Spring and Fall.

Special Topics in DAGD - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered on Demand.
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer.

Students will explore the theory, mathematics, and algorithms behind: rendering, game mathematics, shaders, audio visualization, pathfinding, collision detection, cameras, physics, procedural content generation, and emergence. An understanding of object-oriented programming is necessary. Prerequisites: DAGD 255 with a grade of C or higher. Typically Offered Fall, Spring.

This is an advanced course exploring techniques for creating Digital FX with a focus on merging 3D and live video. Prerequisites: DAGD 335, Minimum Grade of C. Typically Offered Spring and Fall.

The programming of advanced and modern multimedia productions is explored with an emphasis on creating cross-platform, interactive projects for the web. Prerequisites: DAGD 255 with a grade of C or better. Typically Offered Fall, Spring.

Special Topics in DAGD - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered on Demand.

Intended to be completed between the Junior and Senior year, the internship shall be setup and approved by means of an internship contract, including approval by the University and employer in a related interactive or animation field, paid or otherwise. Students are required to complete 400 hours of service for their internship. Pre-Requisites: DAGD 340 with a grade of C or better. Typically Offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer.

The focus is on helping each student prepare a commerically marketable final project portfolio. Students will explore employment opportunities including seeking a posted position, working freelance, and establishing a business. Meets General Education requirements for Problem Solving. Pre-Require: DAGD 498 with a grade of C or higher. Typically offered: Fall, Spring.

This course covers advanced digital forensic techniques to include deleted data recovery, internet forensics, encryption, and Windows Registry Artifacts. Students will learn concepts related to mobile device evidence seizure, analysis, and reporting. Pre-require: DFOR 310 with C or better. Typically offered: Fall Spring, Summer.

This course teaches the theory and techniques needed to produce diagnostic radiographs which includes; radiation characteristics, x-ray production, properties and safety and the recognition of radiographic landmarks, pathology and dental materials. Prerequisites: DHYG students only. Typically offered Fall.

The student will learn to produce quality dental radiographic images in the laboratory setting through the use of dental manikins and clinical patients. An emphasis is placed on the types of traditional film used in dentistry, film holding devices, film developing, film mounting and digital radiography. Prerequisites: DHYG students only. Typically offered Fall.

Introduction to dental equipment, patient/operator positioning, aseptic technique, instrumentation skills, patient assessment procedures, dental deposits and the dental hygiene process of care. Prerequisites: DHYG students only. Typically offered Fall.

Pre-Clinical application of procedures introduced in DHYG 104. Prerequisites: DHYG students only. Typically offered Fall.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Prerequisites</th>
<th>Offered Terms</th>
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</thead>
</table>
| DHYG107     | Dental Hygiene                    | Oral Science A  
Dental Hygiene-Medical Imaging  
Undergraduate  
2 LEC LAB  
Introduction to dental nomenclature, anatomic form, eruption and exfoliation of human primary and permanent teeth. A comprehensive study of the histology and anatomy of the head and neck, including skeletal, epithelial, glandular and lymph tissues of the oral cavity. Prerequisites: DHYG students only. Typically offered Fall. | -                                                                           | Spring                  |
| DHYG108     | Dental Hygiene                    | Oral Sciences A Lab  
Dental Hygiene-Medical Imaging  
Undergraduate  
1 LEC LAB  
In the lab setting, students will learn dental nomenclature, anatomic form, eruption and exfoliation of human primary and permanent teeth. A comprehensive study of the histology and anatomy of the head and neck, including skeletal, epithelial, glandular and lymph tissues of the oral cavity. Prerequisites: -  
DHYG students only. Typically offered Fall. | -                                                                           | Fall                    |
| DHYG117     | Dental Hygiene                    | Oral Science B  
Dental Hygiene-Medical Imaging  
Undergraduate  
1 LEC LAB  
A continuation of the comprehensive study of the histology and anatomical structures of the head and neck including muscular, blood and nerve systems. This course includes emphasis on embryonic development of the face, oral cavity and dental tissues. Prerequisites: DHYG 107 and DHYG 108. Typically offered Spring. | -                                                                           | Fall                    |
| DHYG118     | Dental Hygiene                    | Oral Science B Lab  
Dental Hygiene-Medical Imaging  
Undergraduate  
1 LEC LAB  
-                                                                           | -                                                                           | Fall                    |
| DHYG123     | Dental Hygiene                    | General and Oral Pathology  
Dental Hygiene-Medical Imaging  
Undergraduate  
2 LEC LAB  
Examination of the cause and nature of both systemic and oral diseases. Discussion of significant diseases of the body's systems. Special emphasis will be on oral pathology, including developmental disturbances, infection, lesions and physical injuries to the oral and parorastric structures. Prerequisites: DHYG 107. Typically Offered Spring Only | -                                                                           | Spring                  |
| DHYG124     | Dental Hygiene                    | Dental Hygiene Theory 2  
Dental Hygiene-Medical Imaging  
Undergraduate  
3 LEC LAB  
Content in this course will provide a theoretical framework for dental hygiene diagnostic and therapeutic regimens as a basis for evidence-based clinical decision making. This course will provide structured activities that increase the knowledge of dental hygiene theory, enhance professionalism and gain an understanding for evidence-based clinical decision making and application. Prerequisites: DHYG 104 and DHYG 105. Typically offered Spring. | -                                                                           | Spring                  |
| DHYG126     | Dental Hygiene                    | Dental Hygiene Practice 2  
Dental Hygiene-Medical Imaging  
Undergraduate  
2 LEC LAB  
Clinical application of procedures introduced in DHYG 124. Prerequisites: DHYG 104 and 105. Typically offered Spring. | -                                                                           | Spring                  |
| DHYG127     | Dental Hygiene                    | Dental Materials  
Dental Hygiene-Medical Imaging  
Undergraduate  
1 LEC LAB  
The chemistry and physical properties of dental materials will be identified. Dental specialties will be introduced as well as the laboratory and restorative materials used in the dental profession such as: composites, resins, sealants, amalgam, dental cements, impression materials, gypsum products, bleaching materials, fabrication of removable appliances and fixed restorations. Prerequisites: DHYG 107 and DHYG 108. Typically offered Spring. | -                                                                           | Spring                  |
| DHYG129     | Dental Hygiene                    | Dental Materials Lab  
Dental Hygiene-Medical Imaging  
Undergraduate  
1 LEC LAB  
Directed laboratory practice allows students times to understand dental material product properties and skills necessary for manipulation of laboratory and restorative materials used in the dental profession such as: composites, resins, sealants, amalgam, dental cements, impression materials, gypsum products, bleeding materials, fabrication of removable appliances and fixed restorations. Prerequisites: DHYG 107 and DHYG 108. Typically offered Spring. | -                                                                           | Spring                  |
| DHYG197     | Dental Hygiene                    | Special Topics in DHYG  
Dental Hygiene-Medical Imaging  
Undergraduate  
1 TO 3 LEC LAB  
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer | -                                                                           | Spring                  |
| DHYG208     | Dental Hygiene                    | Perio/Path Review  
Dental Hygiene-Medical Imaging  
Undergraduate  
2 LEC LAB  
This course focuses on Periodontology and Pathology involvement in patient treatment. Critical thinking skills will be used to compile and present clinical perio/path case study project. Prerequisites: DHYG 123 and DHYG 213. Typically offered Fall. | -                                                                           | Fall                    |
| DHYG212     | Dental Hygiene                    | Dental Hygiene Theory 3  
Dental Hygiene-Medical Imaging  
Undergraduate  
3 LEC LAB  
A continuation of Dental Hygiene Theory 2 this course introduces comprehensive periodontal patients assessments and management for a diverse patient populations utilizing non-surgical periodontal therapy, advanced instrumentation techniques, chemotherapeutic agents, pain management, maintenance of dental implants, treatment planning and evaluation using the dental hygiene process of care. Prerequisites: DHYG 124 and DHYG 126. | -                                                                           | Fall                    |
| DHYG213     | Dental Hygiene                    | Periodontics  
Dental Hygiene-Medical Imaging  
Undergraduate  
2 LEC LAB  
Examination of the structures of the periodontium and the etiology, pathology, recognition, control, treatment, prevention and ramifications of diseases of those structures. Prerequisites: DHYG 107. Typically Offered Spring | -                                                                           | Fall                    |
<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
<th>Classroom</th>
<th>Description</th>
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<tr>
<td>DHYG214</td>
<td>Dental Hygiene Clinic Dental Hygiene Theory 3</td>
<td>Undergraduate</td>
<td>3</td>
<td>HP</td>
<td>LEC LAB</td>
<td>A continuation of clinic theory which introduces the student to advanced instrumentation techniques, automated instrument devises, soft tissue curetage, suture removal techniques, case studies, practice management issues, and management of patients with special needs. Prerequisites: DHYG 124 AND 125. Typically Offered Fall Only.</td>
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<tr>
<td>DHYG217</td>
<td>Dental Hygiene Community Dentistry A</td>
<td>Undergraduate</td>
<td>2</td>
<td>LEC</td>
<td>LAB</td>
<td>Community Dentistry will explore the role of the dental hygienist in the community. Students will be introduced to principles of public health, health education and health promotion programs and resources for culturally appropriate materials. Prerequisites: DHYG 124 students only. Typically offered Fall.</td>
</tr>
<tr>
<td>DHYG218</td>
<td>Pharmacology for Dent Hygiene</td>
<td>Undergraduate</td>
<td>2</td>
<td>HP</td>
<td>LEC LAB</td>
<td>Course concerned with the action(s) and the fate of drugs commonly used in dentistry as well as their possible interaction(s) with drugs being taken by the patient. Prerequisites: DHYG 124. Typically Offered Fall.</td>
</tr>
<tr>
<td>DHYG222</td>
<td>Dental Hygiene Practice 3</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>This course is a continuation of Dental Hygiene Practice 2 with students providing oral services to clients I a supervised clinical setting. Students will demonstrate skills in periodontal patient assessment and non surgical periodontal therapy methods including advanced instrumentation, patient treatment planning, evaluation of care, and radiographic interpretation. Prerequisites: DHYG 124 and DHYG 126. Typically offered Fall.</td>
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<tr>
<td>DHYG227</td>
<td>Community Dentistry A Lab</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
<td>Community Dentistry A is an Academic Service Learning course which will focus on identifying potential community partners for addressing local oral health issues. Students will create, implement, and evaluate health education and health promotion programs for community groups. Prerequisites: DHYG students only. Typically offered Fall.</td>
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<tr>
<td>DHYG229</td>
<td>Pain Management</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
<td>Concepts in the administration of local anesthesia and nitrous oxide/oxygen sedation as methods for pain management. Anatomy, physiology, pharmacology, client assessment, indications contraindications, selection of anesthetic agents, complications and emergency management will be discussed. Prerequisites: DHYG 124 and DHYG 126. Typically offered Fall.</td>
</tr>
<tr>
<td>DHYG231</td>
<td>Pain Management Lab</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
<td>Clinical application of local anesthesia and nitrous oxide/oxygen sedation administration. Prerequisites: DHYG 124 and DHYG 126. Typically offered Fall.</td>
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<tr>
<td>DHYG232</td>
<td>Dental Hygiene Theory 4</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>A continuation of Dental Hygiene Theory 3, this course continues with the management of the advanced periodontal patient, nutritional counseling, tobacco cessation counseling, ethical and legal issues in dentistry, professional organizations, practice management, professional credentialing, and career planning. Prerequisites: DHYG 212 and DHYG 222. Typically offered Fall.</td>
</tr>
<tr>
<td>DHYG233</td>
<td>Dental Hygiene Practice 4</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
<td>This course is a continuation of Dental Hygiene Practice 3 with students providing a variety of oral services to patients in a supervised clinical setting, including nutritional counseling and tobacco cessation counseling. Students will continue to increase proficiency in all dental hygiene skills, and will perform patient screenings to select a patient for the North East Regional Board (NERB) licensure examination. Prerequisites: DHYG 212 and DHYG 222. Typically offered Spring.</td>
</tr>
<tr>
<td>DHYG237</td>
<td>Community Dentistry B</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
<td>Community Dentistry B will cover epidemiologic and research principles or oral health. The students will analyze scientific literature and describe statistical concepts. This course will describe current methods of payment for dental care. The students will review current dental research articles and create professional presentations. Prerequisites: DHYG 217. Typically offered Spring.</td>
</tr>
<tr>
<td>DHYG239</td>
<td>Community Dentistry B Lab</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
<td>Community Dentistry B is an Academic Service Learning course which will focus on creating community health education and health promotions programs for the local area. Students will conduct service learning programs which will include assessment, planning, implementation and evaluation. Community Dentistry B is a continuation of Community Dentistry A. Prerequisites: DHYG 227. Typically offered Spring.</td>
</tr>
<tr>
<td>DHYG250</td>
<td>Pain Control for DHYG Practice</td>
<td>Undergraduate</td>
<td>2</td>
<td>LEC</td>
<td>LAB</td>
<td>Intended to enhance knowledge of the concepts, principles and techniques of dental pain and it's control. Topics include pain management, local and topical anesthesia -its physiology, anatomy, and pharmacology. Anesthetic choices, contraindications, and risk factors will be discussed. The optional laboratory will involve contact with various agents and equipment, including electronic anesthesia, local and topical anesthesia, and dentin desensitizing. This course does NOT include clinical experience delivering (injection of) local anesthetics. This course is NOT required for graduation. Pre-Requisites: DHYG 216 AND 223. Typically Offered Spring Only.</td>
</tr>
<tr>
<td>DHYG280</td>
<td>Comprehen Patient Assessment</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
<td>This course focuses on patients case studies designed to further student critical thinking skills for advanced patient treatment decision-making. Prerequisites: DHYG 212 and DHYG 222. Typically offered Spring.</td>
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<td>Course Code</td>
<td>Course Title</td>
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<td>Credits</td>
<td>Type</td>
<td>Description</td>
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<tr>
<td>DHYG290</td>
<td>Dental Hygiene Special Topics in DHYG</td>
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<td>Special topics in DHYG - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
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<tr>
<td>DHYG291</td>
<td>Dental Hygiene Practicum</td>
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<td>Students will expand their knowledge by participating in an off campus clinical or professional enrichment experience. Student will work directly with a preceptor in an approved clinical or professional setting. Prerequisites: DHYG 222. Typically Offered Spring only.</td>
</tr>
<tr>
<td>DHYG297</td>
<td>Dental Hygiene Special Studies in DHYG</td>
<td></td>
<td></td>
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<td></td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.</td>
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<tr>
<td>DHYG300</td>
<td>Dental Hygiene Role Transition</td>
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<td>This course is an overview of the transition from the associate degree program to the Bachelor of Science degree in Dental Hygiene. The course will focus on dental hygiene theory development, critical thinking skills and decision making, alternative career opportunities and professionalism through leadership opportunities. Prerequisites: Admission to the DHYG BS Program. Typically Offered Fall only.</td>
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<tr>
<td>DHYG315</td>
<td>Dental Hygiene Health Promotion and Wellness</td>
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<td>Students will develop an understanding of the promotion of oral health and the prevention of oral disease over the human life span through application of specific knowledge about the patient’s emotions, values, family, and culture. This course defines the connection between oral health and systemic health through the examination of prevalent diseases. Prerequisites: Admission to DHYG BS program. Meets General Education requirements for Collaboration. Typically Offered Fall only.</td>
</tr>
<tr>
<td>DHYG320</td>
<td>Dental Hygiene Informatics</td>
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<td>Students will develop an understanding of the American Dental Association’s standards for Dental Informatics which provides a seamless information exchange throughout all facets of oral health care. This course examines the relationship between patient care and oral health through the application of information technology. Topics explored include: computerized dental clinical work stations, electronic technologies used in dental practices, software products, digital radiography, and electronic dissemination of dental information and online/web based learning. Prerequisites: Admission to the DHYG BS Program. Typically Offered Fall only.</td>
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<tr>
<td>DHYG330</td>
<td>Inst Role of Dental Hygienist</td>
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<td>This course will offer students the methodologies of teaching, both clinic and didactic. Students will examine the accreditation process. Instructional strategies used in the classroom, lab and clinic will be discussed. Prerequisites: Admission to the DHYG BS program. Typically Offered Spring only.</td>
</tr>
<tr>
<td>DHYG390</td>
<td>Special Studies in DHYG</td>
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<td></td>
<td>Special Topics in DHYG - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
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<tr>
<td>DHYG400</td>
<td>Comm Program Assessment/Plan</td>
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<td>In this course, students will evaluate community oral health based programs in the areas of assessment, planning, implementation and evaluation. Students will investigate current policy on oral health programs and report on findings. Prerequisites: Admission to the DHYG BS program. Meets General Education requirements for Problem Solving. Typically Offered Spring only.</td>
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<tr>
<td>DHYG415</td>
<td>Gerontology in Dental Hygiene</td>
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<td>This course is intended to provide the dental hygienist with the knowledge and skills to address the issues of the aging population. Students will examine the sociopsychological, environmental and physiologic aspects of aging and how aging impacts oral health care. Prerequisites: Admission to the DHYG BS program. Typically Offered Spring.</td>
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<tr>
<td>DHYG491</td>
<td>Dental Hygiene Practicum</td>
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<td>This practicum experience provides students the opportunity to engage in field work within one or more of the advanced roles of the dental hygienist. Field work in this course may include; management, marketing, education, leadership in associations and government, public health and advancement in clinical practice. Field work required for successful completion of this course. Prerequisites: Admission to the BS in DHYG and completion of all DHYG courses or with instructor approval. Typically Offered Spring only.</td>
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<tr>
<td>DHYG499</td>
<td>Dental Hygiene Capstone</td>
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<td>This course provides the opportunity for students to analyze, synthesize and develop solutions to oral health care issues. Students will choose a current topic in dental hygiene and use an interdisciplinary approach in finding solutions. Prerequisites: Admission to the DHYG BS program and completion of all DHYG courses or with instructor approval. Typically Offered Summer only. Developing strategies for managing the changes that impact Directed Studies students in order to enhance their opportunity for college success. For Directed Studies students only. Typically Offered Fall, Spring, Summer.</td>
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<tr>
<td>DIST100</td>
<td>Directed Studies Directed Studies Seminar 1</td>
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<td>aversal in Dentistry laboratory. Typically Offered Fall, Spring, Summer.</td>
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Undergraduate 1 LEC LAB Directed Studies Directed Studies Seminar 2 UN Developmental Progs Curr Undergraduate 1 LEC LAB Developing strategies that promote student connections to the university community, their academic program and their career paths. For Directed Studies students only. Typically offered Fall Spring. Introduction to the profession of clinical laboratory science to include curricula, roles of laboratory science professionals, career and employment opportunities, and standards and ethics of the profession. Typically offered: Fall, Spring, Summer

DMOL101 Molecular Diagnostics Molecular Diagnostics Orient. HP Clinical Lab Resp Care Hlth Ad Undergraduate 1 LEC LAB This course will cover basic molecular laboratory techniques such as pipetting, specimen collection, quality control, calibration and laboratory mathematics. The course will also cover extraction techniques and determination of DNA purity using a spectrophotometer. Typically Offered Fall only.

DMOL110 Molecular Diagnostics Lab Tech Molecular Diagnostics HP Clinical Lab Resp Care Hlth Ad Undergraduate 2 LEC LAB This course will introduce advanced molecular laboratory skills including microscopy, extraction and purification of nucleic acids, cell culture, immunology techniques, laboratory record-keeping, and clinical applications of molecular testing. DMOL 110 with a grade of C or better. Typically Offered Spring only.

DMOL210 Molecular Diagnostics Adv Lab Tech Mole Diagnostics HP Clinical Lab Resp Care Hlth Ad Undergraduate 2 LEC LAB Introduction to the study of bacteria associated with infectious diseases, including organism characteristic, isolation techniques, identification and antimicrobial susceptibility testing with emphasis on traditional and molecular techniques in the clinical laboratory. Prerequisites: DMOL 110 with C or better and either BIOL 108 or BIOL 286. Typically offered: Spring

DMOL236 Molecular Diagnostics Techniques in Microbiology HP Clinical Lab Resp Care Hlth Ad Undergraduate 2 LEC LAB Special Topics in DMOL - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

DMOL390 Molecular Diagnostics Special Topics in DMOL HP Clinical Lab Resp Care Hlth Ad Undergraduate 1 TO 4 LEC LAB This course will provide an integrative overview of traditional, current, and cutting-edge molecular diagnostic technologies available in modern clinical and research laboratories. This integrative approach will describe molecular diagnostics as an evolving scientific discipline, incorporating profiling, fingerprinting, and technology cross-validation utilizing data obtained from DNA, RNA, protein, and tissue. This will be used to distinguish between normal and disease states, determine genetic abnormalities and cancers, and provide insight into personalized medicine. Fundamentals of DNA and RNA isolation, amplification, hybridization and analysis will also be reviewed. Laboratory exercises will illustrate these principles in the co-requisite DMOL 411 lab course. Prerequisites: DMOL 110 and DMOL 210 with a C or better. Co-requisite: DMOL 411. Typically offered: Fall only.

DMOL410 Molecular Diagnostics Principles of Molecular Diagos HP Clinical Lab Resp Care Hlth Ad Undergraduate 2 LEC LAB This course will provide directed laboratory practice using advanced microscopic techniques, qRT-PCR and next-generation sequencing for the purpose of integrating key diagnostic methods and technologies. This will include sample processing, patient profiling, fingerprinting, and technology cross-validation utilizing data obtained from patient DNA, RNA, protein, and tissue. Fundamentals of DNA and RNA isolation, amplification, hybridization and analysis will also be reviewed. Prerequisites: DMOL 110 and DMOL 210 with a C or better. Co-requisite: DMOL 410. Typically offered: Fall only.

DMOL411 Molecular Diagnostics Prin of Molecular Diag Lab HP Clinical Lab Resp Care Hlth Ad Undergraduate 2 LEC LAB This course will cover topics in molecular methods for detection of various viruses, bacteria, fungi and parasites. Prerequisites: DMOL 410 and 411 with C grade or better. Meets General Education Requirements for Problem Solving. Typically offered in Spring.

DMOL420 Molecular Diagnostics Molecular Diag of Infect Dis HP Clinical Lab Resp Care Hlth Ad Undergraduate 2 LEC LAB Directed practice utilizing methodology and instrumentation commonly used in molecular infectious disease laboratory. Molecular methods used to detect and phenotype infectious disease organisms such as viruses, bacteria, and fungi will be demonstrated. Techniques used to indentify resistance in microorganisms will also be discussed and demonstrated. Prerequisites: DMOL 410 and DMOL 411 with C grade or better. Co-requisites: DMOL 420. Meets General Education Requirements for Problem Solving. Typically offered in Spring.

DMOL421 Molecular Diagnostics Molec Diag of Infect Dis Lab HP Clinical Lab Resp Care Hlth Ad Undergraduate 1 LEC LAB This course will cover topics related to the molecular pathogenesis of human cancer, diagnosis of lymphoma, classification of neoplasms and genetic abnormalities in acute and chronic leukemias. This course will also cover molecular diagnostics in coagulation. Prerequisites: DMOL 410 and DMOL 411 with a C grade or better. Typically offered in Spring.

DMOL430 Molecular Diagnostics Molecular Hemmatology/Oncology HP Clinical Lab Resp Care Hlth Ad Undergraduate 2 LEC LAB Directed practice utilizing methodology and instrumentation commonly used in molecular hematology/oncology laboratory. Fluorescence in situ hybridization (FISH) and other techniques. Prerequisites: DMOL 410 and 411 with C grade or better. Co-requisites: DMOL 430. Typically offered in Spring.

DMOL431 Molecular Diagnostics Molec Hematology/Oncology Lab HP Clinical Lab Resp Care Hlth Ad Undergraduate 1 LEC LAB This course will provide an overview of molecular genetics, genetic basis for neurologic and neuromuscular diseases, endocrine disorders, markers for cardiovascular disease, prenatal genotyping. Prerequisites: DMOL 410 and 411 with C grade or better. Typically offered in Fall.
DMOL 441 Molecular Diagnostics Molecular Genetics Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Directed practice utilizing methodology and instrumentation commonly used in molecular genetics laboratory. Prerequisites: DMOL 410 and 411 with C grade or better. Co-requisites: DMOL 440. Typically offered in Fall.

DMOL 450 Molecular Diagnostics Molec Foren/Ident Bsd Tstng HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB This course will provide an overview of HLA typing, forensic casework, parentage testing, bone marrow transplant engraftment and use of DNA for identity testing. Prerequisites: DMOL 410 and 411 with C grade or better. Typically offering in Spring.

DMOL 451 Molecular Diagnostics Mol Frnsc/Ident Bsd Tstng Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB Directed practice utilizing methodology and instrumentation that are commonly used in molecular forensics and identity based testing laboratories. Case studies of bone marrow graft implant will be discussed and reviewed. Prerequisites: DMOL 410 and 411 with C grade or better. Co-requisites: DMOL 450. Typically offered in Spring.

DMOL 460 Molecular Diagnostics Mgmt and Reg in Molec Diag HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC LAB This course will cover the framework of quality assurance, quality system essentials, instrumentation maintenance, calibration and verification of molecular assays. Standards and guidelines set by the College of American Pathologists (CAP), Clinical and Laboratory Standards Institute (CLSI) and the Centers for Disease Control or Prevention (CDC) will be discussed. Proficiency testing and lab design will also be covered. Prerequisites: DMOL 410, DMOL 411, DMOL 420, DMOL 421, DMOL 430, DMOL 431, DMOL 440, DMOL 441, DMOL 450, and DMOL 451. Meets General Education Requirements for Collaboration. Typically offered in Spring.

DMOL 470 Molecular Diagnostics Molecular Diagnostics Research HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 4 LEC LAB Students work closely with a faculty member to engage in an original research project using current and emerging molecular diagnostics technology. Hypothesis development, designing a feasible experimental study, conducting the proposed research plan, problem solving, and scientific writing within a research context will be emphasized. Data collected during laboratory sessions will be analyzed and integrated into a final written research report. Students will build and associate these individual methodologies as a cohesive process of molecular research. Pre-requisite: DMOL 210 with C or better. Typically offered: Spring

DMOL 491 Molecular Diagnostics Molecular Diagnostics Intnship HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 6 LEC LAB This course requires the student to demonstrate previously learned knowledge to: Application of theories and techniques in molecular diagnostics with an emphasis on correlation of test results and problem solving skills in a clinical laboratory setting for 12 weeks. Prerequisites: DMOL 420, DMOL 421, DMOL 430, DMOL 431, DMOL 440, DMOL 441, DMOL 450, and DMOL 451. Typically offered in Summer.

DMOL 499 Molecular Diagnostics Molecular Diagnostics Sem HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 1 LEC LAB A course assessing students’ comprehension of molecular diagnostics and general education concepts, which will be accomplished through papers, projects, and examinations. This is a capstone course of the Molecular Diagnostics program. Prerequisites: DMOL 420, DMOL 421, DMOL 430, DMOL 431, DMOL 440, DMOL 441, DMOL 450, and DMOL 451. Typically offered in Summer.

DSGN 100 Graphic Design Design Foundations BU Marketing Undergraduate 3 LEC LAB Design Foundations is intended to introduce the student to the design profession. It does so with a cursory review of the history of the profession, an introduction to the skill sets required, the rigor and responsibilities, and impact the design field has in society and business. Students will be introduced to “user-centered design,” principles of design, knowledge of the application of visual literacy, and design technology, resources and craft. Typically offered: Fall

DSGN 110 Graphic Design Type & Technology BU Marketing Undergraduate 3 LEC LAB This course is intended to introduce graphic design students to the history and effective use of type in visual communications. It will present organized processes to disseminate multiple typographic factors and employ them in technically and aesthetically structured methods. This course is intended to balance basic design principles with the current industry technology as it concerns typography and its use in visual communication. Prerequisites: DSGN 100; Co-requisites: DSGN 120 Typically offered Spring

DSGN 120 Graphic Design Image & Technology BU Marketing Undergraduate 3 LEC LAB This course will emphasize simplification, abstraction and categorization of imagery. Students will be aware of the mood, style and emotional qualities of imagery and their appropriate application. Additionally, students will apply best practices of appropriation, creation and manipulation of images for effective communication. This course will convey best practices for the production of image systems. Prerequisites: DSGN 100; Co-requisites: DSGN 110. Typically offered Spring
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
<th>Lab</th>
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<tr>
<td>DSGN210</td>
<td>Graphic Design Type &amp; Visual Interfaces</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
<td>3</td>
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<td>DSGN212</td>
<td>Graphic Design Visual Communication</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
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<td>LAB</td>
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<td>DSGN220</td>
<td>Graphic Design Interactivity &amp; Development</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>DSGN222</td>
<td>Graphic Design Principles - Experience Design</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
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<td>LAB</td>
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<tr>
<td>DSGN224</td>
<td>Graphic Design Web Design and Planning</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
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<td>LEC</td>
<td>LAB</td>
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<tr>
<td>DSGN297</td>
<td>Graphic Design Independant Study</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
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<td>LAB</td>
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<td>DSGN300</td>
<td>Graphic Design Producing Design Systems</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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<tr>
<td>DSGN301</td>
<td>Graphic Design Interaction Design Development</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
<td>LAB</td>
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This course will introduce the concepts of readability, legibility and usability as they relate to typography across multiple media formats. Assignments allow students to apply typography principles while considering basic interaction principles necessary for navigation and wayfinding. The course stresses the importance of technical prototyping skill through the execution of exercises and assignments. Prerequisites: DSGN 110 and DSGN 120; Co-requisites: DSGN 212. Typically offered Fall.

This course introduces students to specific methods in the creation and development of concepts that address visual problem solving. It focuses on creating multiple initial design concepts, the evaluation and refinement of those, and the development of iterations on a choosen direction. The course will investigate narrative in visual information delivery. It will review research methods relevant to visual problem solving. It will also introduce and oversee the professional development of a portfolio and its presentation. Prerequisites: DSGN 110 and DSGN 120. Co-requisites: DSGN 210. Typically offered Fall.

This course will introduce students to current web-based interactive technologies and standards, content and technical execution in order to create good experiences. Students will also gain a practical understanding of interface development, site organization, hosting, and management techniques. Students will gain experience in applying user-centered principles to the process of creating interactive experiences. Students will also demonstrate a working knowledge of current interactive technologies and standards. Prerequisites: DSGN 210 and DSGN 212; Co-requisites: DSGN 222. Typically offered Spring.

This course will introduce students to the principles of designing effective, engaging and efficient user experiences incorporating user research and the idea of a repeatable design process along with principles of visual communication. It uses current communication technologies and explores execution strategies, establishing the environment for a user-centered approach to design. This course provides the foundation for deeper understanding of the user experience model. Prerequisites: DSGN 210 and DSGN 212; Co-requisites: DSGN 220

This course introduces the planning and production of interactive content using current industry standards and technology to non Graphic Design majors. Students will create, publish, and test interactive content using modern technology and best practices. The process of organizing and publishing interactive content based on user-centered principles will be the primary focus. Typically offered: Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialization interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered as needed.

This course introduces students to the role of technical specifications, processes and methodology of content management and delivery in the production of visual communication solutions across multiple media. Students will explore content management systems, resources, and interact with vendors and industry. Students will apply a variety of systems and techniques in the production of their design solutions. This course stresses the importance of managing quality, time and resources in the production process. Pre-requisites: DSGN 220 & 222. Co-requisites: DSGN 310. Typically offered: Fall

This class prepares students for real-world workflows in interactive media. Students will apply design principles and key concepts of interaction design in order to create compelling, attractive, and easy-to-use digital experiences. Through an emphasis on process and collaboration, class projects examine dynamic media and the demands of a designer's analytical, visual, and technical skills. Students will produce projects that demonstrate best practices in digital media development. Students will demonstrate an understanding of current topics of technical development in the industry. Prerequisites: DSGN 310 and DSGN 300; Co-requisites: DSGN 320. Typically offered Spring.
This course introduces the design of user-centered brand experiences for business, organizations, services, and products. Students will research and create identity systems designed for engaging user interaction. Students will discover, plan and prototype a variety of brand touch points across multiple media formats. Students will apply knowledge of typography, color, and other principles of visual communication to the design of a visual system. The study of brand identity design will be complemented with examples of work done for leading global brands. Students refine skills to present deliverables throughout the duration of the course. Pre-requisites: DSGN 220 & 222. Co-requisites: DSGN 300. Typically offered: Fall

The focus of this course will be the application of fundamentals of brand identity and interactive design to create effective, efficient and engaging brand experiences. Through exposure to a variety of business and social problems, students will be challenged to create unique ideas and solutions that meet real world challenges. An emphasis will be placed on understanding and capturing the essence of a chosen brand (corporate, product, service, NGO, media personality) to develop experiences designed for interaction and engagement that target all environments and platforms through which the brand has to connect with their users. Student presentations demonstrate solutions for multiple media formats. Pre-requisites: DSGN 310; Co-requisites: DSGN 301. Typically offered Spring.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically as needed.

Internships provide students with the opportunity to gain experience in workplace settings and to translate classroom learning into practice. Students are required to deliver detailed summary reports of experience during and at end of internship. The experience includes supervision and feedback by a design manager, creative director, art director, and professor. Experiences contribute to personal development and professional preparation. Study abroad experiences approved by an advisor could also be considered as equivalence. Prerequisites: DSGN 310. Typically offered Spring.

This course is designed for students to synthesize all program outcomes in a professional studio environment involving client contact and project management. Students will research, plan, prototype and produce a design system and the appropriate artifacts that meet a real client need. Students will research, identify and present design proposals for projects across multiple media formats. Clients include the University, regional community business and non-profit organizations. Through weekly meetings students will prepare updates and requirements with vendors and clients, meet project milestones, and respond to faculty and client feedback. Through daily time tracking, students accurately track all project progress. Students have an assigned role and are required to manage the studio as a real environment. Prerequisites: DSGN 320 and DSGN 301; Co-requisites: DSGN 412. Meets General Education requirements for Collaboration and Problem Solving. Typically offered Fall.

This course is designed for students to synthesize all program outcomes in a professional studio environment involving client contact and project management. Students will research, plan, prototype and produce a design system and the appropriate artifacts that meet a real client need. Students will research, identify and present design proposals for projects across multiple media formats. Clients include the University, regional community businesses and non-profit organizations. Through weekly meetings students will prepare updates and requirements with vendors and clients, meet project milestones, and respond to faculty and client feedback. Through daily time tracking, students accurately track all project progress. Students have an assigned role and are required to manage the studio as a real work environment. Prerequisites: DSGN 320 and DSGN 301; Co-requisites: DSGN 401. Typically offered Fall.
As a continuation of the project work established in the Fall Semester, Students in the Design Project Center will produce the client work including the research, planning, and prototyping from previous semester. This course structure will simulate a professional studio environment involving client contact, design, project management, and production. A continuation of weekly status meetings students prepare and conduct efficiently, manage updates and requirements with vendors & clients, meet project milestones, respond to feedback. Through daily time tracking, students accurately, diligently track all project progress. Manage studio with assigned role within a real work environment. Through project management software, maintain project communication daily. Prerequisites: DSGN 300, DSGN 410 and DSGN 412; Co-requisites: DSGN 499. Meets General Education requirements for Collaboration and Problem Solving. Typically offered Spring.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered as needed.

This class will prepare senior students to enter the job market with a portfolio and process example. Each student will complete designed communication projects and develop professional skills for a professional-level presentation of their projects. These will aid the graduate in securing employment in the design field. Students will complete a digital and physical capstone portfolio per specification, that is an excellent representation of student’s design knowledge, craft, and technical ability. Students will complete and present a detailed design process example through a book or digital presentation. Students will develop presentation skills in preparation for job interviews and portfolio review.

Prerequisites: DSGN 410; Co-requisites: DSGN 420. Typically offered Spring.

CCNA Exploration Routing Protocols and Concepts is the first of four courses leading to the Cisco Certified Network Associate (CCNA) designation. CCNA 1 introduces Cisco Networking Academy Program students to the fundamental networking concepts and technologies. It provides a theoretically-rich, hands-on introduction to networking and the Internet. As the course title states, the focus of this course is on learning the fundamentals of networking. In this course, you will learn both practical and conceptual skills that build the foundation for understanding basic networking. First, you will examine human versus network communication and see the parallels between them. Next, you will be introduced to the two major models used to plan and implement networks: OSI and TCP/IP. You will gain an understanding of the OSI layered approach to networks and examine the OSI and TCP/IP layers in detail to understand their functions and services. You will become familiar with the various network devices, network addressing schemes and, finally, the types of media used to carry data across the network. In this course, you will gain experience using networking utilities and tools, such as Packet Tracer and Wireshark, to explore networking protocols and concepts. These tools will help you to develop an understanding of how data flows in a network. A special Closely model Internet is also used to provide a test environment where a range of network services and data can be observed and analyzed. Typically Offered Fall Only

CCNA Exploration Routing Protocols and Concepts is the second of four courses leading to the Cisco Certified Network Associate (CCNA) designation. CCNA 2 introduces Cisco Networking Academy Program students to the fundamentals of routing. It provides a theoretically-rich, hands-on introduction to networking and the Internet. The primary focus of this course is on routing protocols. The goal is to develop an understanding of how a router learns about remote networks and determines the best path to those networks. This course includes both static routing and dynamic routing protocols. By examining multiple routing protocols, you will gain a better understanding of each of the individual routing protocols and a better perspective of routing in general. Learning the configuration of routing protocols is fairly simple. Developing an understanding of the routing concepts themselves is more difficult, yet it is critical for implementing, verifying, and troubleshooting routing operations. Each static routing and dynamic routing protocol chapter uses a single topology throughout that chapter. You will be using that topology to configure, verify, and troubleshoot the routing operations discussed in the chapter. The labs and Packet Tracer activities used in this course are designed to help you develop an understanding of how to configure routing operations while reinforcing the concepts learned in each chapter. Prerequisites: ECNS 115 minimum grade of C. Typically Offered Spring Only
Special Topics in ECNS190 Electronic Network System

ECNS215 Electronic Networks

Networks 3

Special Topics in ECNS - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Typically Offered Fall Only

ECNS310 Electronic C++ Programming Applications

C++ Programming Applications

C-C++ Programming Applications

C/C++ programming concepts through hands on instructor supervised labs.

Development of software for real-time control will be emphasized. Topics include hardware/software interface and control techniques; software development; and system debug tools. Co- Requisites: ECNS 311. Typically Offered Fall Only

Typically Offered Spring Only

ECNS311 Electronic High Level Programming

High Level Programming

C/C++ will be used to solve engineering problems and to introduce concepts of modular program design, object oriented programming, real-time control, system hardware/software dependencies, and other software engineering topics. Topics include structured program design, C/C++ input and output, functions, pointers, arrays, structures, run-time libraries, classes and object oriented design. Course labs provide hands-on experience with programming and implementation. Pre- Requisites: MATH 120 or MATH 126 or MATH 130 or MATH 216 or MATH 220 or MATH 226 or MATH 230 Minimum grade of C. Typically Offered Fall Only

Typically Offered Fall Only

CCNA Exploration LAN Switching and Wireless is the third of four courses leading to the Cisco Certified Network Associate (CCNA) designation. CCNA 3 introduces Cisco Networking Academy Program students to the fundamentals of switching. It provides a theoretically-rich, hands-on introduction to networking and the Internet. The primary focus of this course is on LAN switching and wireless LANs. The goal is to develop an understanding of how a switch communicates with other switches and routers in a small or medium sized business network to implement VLAN segmentation. Switching technologies are relatively straightforward to implement; however, as with routing the underlying protocols are algorithms are often quite complicated. This course will go to great lengths to explain the underlying processes of the common Layer 2 switching technologies. The better the underlying concepts are understood, the easier it is to implement, verify, and troubleshoot with switching technologies. Each switching concept will be introduced within the context of a single topology for each chapter. The individual chapter topologies will be used to explain protocol operations as well as providing a setting for the implementation of the various switching technologies. The labs and Packet Tracer activities used in this course are designed to help you develop an understanding of how to configure switching operations while reinforcing the concepts learned in each chapter. Pre- Requisites: ECNS 125 minimum grade of C.

CCNA Exploration Accessing the WAN is the last of four courses leading to the Cisco Certified Network Associates (CCNA) designation. CCNA 4 introduces Cisco Networking Academy Program students to the fundamentals of WAN technologies. It provides a theoretically-rich, hands-on introduction to networking and the Internet. The primary focus of this course is accessing wide area networks (WAN). The course introduces WAN converged applications and quality of service (QoS). It focuses on WAN technologies including PPP, Frame Relay, and broadband links. WAN security concepts are discussed in detail including types of threats, how to analyze network vulnerabilities, general methods for mitigating common security threats and types of security appliances and applications. The course then explains the principles of traffic control and access control lists (ACLs) and describes how to implement IP addressing services for an Enterprise network, including how to configure NAT and DHCP. IPv6 addressing concepts are also discussed. During the course, you will learn how to use Cisco Router and Security Device Manager (SDM) to secure a router and implement IP addressing services. Finally, students learn how to detect, troubleshoot and correct common Enterprise network implementation issues. The labs and Packet Tracer activities used in this course are designed to help you develop an understanding of how to configure routing operations while reinforcing the concepts learned in each chapter. Pre- Requisites: ECNS 215 minimum grade of C.
<table>
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<th>Course Name</th>
<th>Credits</th>
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<td>ECNS323</td>
<td>Electronic Computer Net-System Real Time Operating Systems TE</td>
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<td>ECNS325</td>
<td>Electronic Computer Net-System Wireless Networks TE</td>
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<td>Electronic Computer Net-System Special Topics in ECNS TE</td>
<td>1 TO 3</td>
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<td>Electronic Computer Net-System Advanced Digital Systems TE</td>
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<td>ECNS421</td>
<td>Electronic Computer Net-System Embedded Computer Systems TE</td>
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<td>ECOM200</td>
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<td>ECON190</td>
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<td>ECON221</td>
<td>Principles of Macroeconomics</td>
<td>BU</td>
<td>BU</td>
<td>Management</td>
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<tr>
<td>ECON222</td>
<td>Principles of Microeconomics</td>
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<tr>
<td>ECON290</td>
<td>Special Topics in Economics</td>
<td>BU</td>
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<td>ECON297</td>
<td>Special Studies in Economics</td>
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<td>ECON303</td>
<td>Economy of the European Union</td>
<td>BU</td>
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<td>Management</td>
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</table>

Study of devices and techniques to develop systems on a chip (SOC). VHDL and intellectual property (IP) devices will be combined to create networked and non-networked systems. Test benches will be created using VHDL to analyze timing and operational characteristics. Written and oral reports are an integral part of this course. Prerequisites: ECNS 311 and ECNS 414 with a grade of C- or better. Typically offered Spring.

This course provides an in-depth study of the technical aspects of security. Theory and technology of network security in both wired and wireless systems are examined. Topics such as: types of network attacks; how compromise through software or hardware devices occur; encryption theory and network design and technologies to detect compromise and limit vulnerability are studied. Prerequisites ECNS 315 minimum grade of C-. Typically Offered Spring Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This level special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Scope and meaning of economic principles basic to a free market economy. Equilibrium price formation and the efficiency of resource allocation in a market economy. National income accounting; determination of equilibrium national income, recession, and expansion. Government policy toward economic fluctuation; unemployment and inflation. The role of money and banking in recession and inflation. This course meets General Education requirement: Social Awareness; Social Foundations, and new Fall 2017 Self and Society, and Self and Society Foundation. Pre-Requisites: MATH 109 or 110 with a grade of C- or better or MATH 114, 115, 116, 117, 118, 119, 120, 122, 126 or ACT of 19 or MATH score of 460 on the pre 2016 SAT or 500 post 2016 SAT. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

An introductory course on European economic integration. It develops the background necessary for understanding European Union. It covers the institutions of the EU, their functions, as well as their current policies and programs. It surveys the EU member economies, their main features and position with respect to integration. A global perspective on the EU and the US economies is explored. This course meets General Education requirements: Social Awareness, and new Fall 2017 Self and Society. Pre-Requisites: ECON 221. Typically Offered Fall Only
ECON305 Economics Inter Macroeconomic Theory BU Management Undergraduate 3 LEC LAB
Analysis of the national income determination models using consumption, government expenditures, investment and money supply. The causes and cures of unemployment and inflation. Discussion of classical, Keynesian, monetarist, and rational expectation theories. This course meets General Education requirements: Social Awareness, and new Fall 2017 Self and Society. Pre-Requisites:ECON 222. Typically Offered On Demand

ECON306 Economics Inter Microeconomics Theory BU Management Undergraduate 3 LEC LAB
A study of the workings of the free enterprise economy. The mechanics of markets and prices. Household consumption decisions and demand. Production and supply. Competitive and non-competitive markets and their bearing on resource allocation. Extensions of microeconomics theory and miscellaneous applications in welfare economics, international trade, and others. This course meets General Education requirements: Social Awareness, and new Fall 217 Self and Society . Pre-Requisites:ECON 222. Typically Offered Fall Only

ECON321 Economics Money and Banking BU Management Undergraduate 3 LEC LAB
The causes and cures of inflation. Discussion Keynesian, and rational expectation theories. This course meets General Education requirements: Social Awareness, and new Fall 2017 Self and Society . Pre-Requisites:ECON 222. Typically Offered Spring Only

ECON331 Economics Labor Economic Labor Relations BU Management Undergraduate 3 LEC LAB
Using modern tools of economic analysis, a rigorous study of the evolution and the changing composition of labor and labor institutions is made. The labor movement, as shaped by labor, government, and the post-industrial economy is scrutinized. The new, emerging, international labor relations are analyzed. This course meets General Education requirements: Social Awareness, Race/Ethnicity/ Gender Issues and new Fall 2017 Self and Society and US Diversity . Pre-Requisites:ECON 222. Typically Offered Spring Only

ECON390 Economics Special Topics in Economics BU Management Undergraduate 1 TO 3 LEC LAB
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

ECON397 Economics Special Studies in Economics BU Management Undergraduate 1 TO 4 LEC LAB
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

ECON431 Economics Economics of Public Finance BU Management Undergraduate 3 LEC LAB
Economics of the public sector; the government’s supply of goods and services and its utilization of resources; the structure of taxation and government spending; social decision making in a democracy; political representation and voting. Pre-Requisites:ECON 222. Typically Offered Spring Only

ECON451 Economics International Economics BU Management Undergraduate 3 LEC LAB
Focuses on international trade theories; trade relations, commercial policies; international economic integration; international payments, as well as international investment and multinational enterprise. This course meets General Education requirements: Social Awareness, Global Consciousness and new Fall 2017 Self and Society, and Global Diversity . Pre-Requisites:ECON 222. Typically Offered On Demand

ECON490 Economics Special Topics in Economics BU Management Undergraduate 1 TO 4 LEC LAB
Special Topics In ECON-400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

ECON497 Economics Special Studies in Economics BU Management Undergraduate 1 TO 4 LEC LAB
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

ECON726 Economics Managerial Economics BU Management Graduate 3 LEC LAB
This course uses tools and concepts from microeconomic theory, industrial organization, and organizational economics and applies them to managerial decision making activities for businesses. Topics include determinants of demand, competitive markets, demand estimation, forecasting, cost/ benefit analysis, risk & uncertainty. Prerequisites: Economics Foundation Competencies and BUS graduate student. Typically offered: Fall, Spring, Summer.

ECTE320 Educational Career Tech Educat Fndtions of Career & Tech Ed I ED School of Education Dept Undergraduate 3 LEC LAB
The course provides analysis of CTE foundations knowledge and current educational practices and policies. Topics studied will include the following: History of CTE (Colonial Times to 1969), Career and Technical Education Student Organizations, Career Information Systems, Gender Diversity Issues in CTE, Academic and Vocational Curriculum Integration, Forms of Vocational Education, Professional Associations and Organizations, Ethics and Standards, and Cooperative Programming. Prerequisites: Students must be in Junior Standing. Typically offered in Fall, Spring, Summer.
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<td>ECTE516</td>
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This course introduces the student to student organizations in CTE, professional organizations, professional communication, professional development, advocacy for CTE, public relations and marketing of CTE, regional support for CTE programming, advisory groups in DTE, funding of CTE, CTE program review, local, state and federal resources for CTE (CEPDs, ISDs, MDE, DOL, BLS, etc), international and global issues, and preparations for the future through new technologies and the curriculum. Prerequisites: Students must be in Junior Standing. Typically offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Affords students the opportunity to analyze vocational educational foundations knowledge and to apply it to a critical study of current educational practices and policies. Topics studied will include the following: philosophy and history of career technical education, practices and programs in career technical education, demographics of vocational students, labor market data, the future of career technical education, state and federal laws and regulations pertaining to cooperative education and administration of cooperative education programs. Note: Not open to students with an undergraduate vocational foundations course without advisor permission. Pre-Requisites:Graduate status. Typically Offered Fall, Spring, Summer

Surveys the latest theory and practice of curriculum development and provide practice in the process of curriculum design and construction in CTE. The students will develop instructional materials including performance objectives, daily and unit lesson plans, and accompanying teacher materials. Note: Not open to students with an undergraduate course in curriculum design without advisor permission. Pre-Requisites:Graduate status. Typically Offered Fall, Spring, Summer

Introduces the student to the world of training and development in business, health care, government, and industry. The course is designed to identify, analyze, and assess key competencies required of individuals involved in training roles. Other important elements include organizational structures and their dynamics, the historical development of training, training components, and training practices. Pre-Requisites:Graduate status. Typically Offered Spring Only

Introduces the training and development student with the concepts, principles and application of needs analysis. Also covers job and task analysis - the foundation of skill training programs in employee training programs in employee training/retraining. Pre-Requisites:Graduate status. Typically Offered Summer Only

Provides an introduction to statistical methods and the techniques used to analyze frequency distributions, correlation, and tests of significance. Theory and practice of the design and construction of instruments used to assess cognitive, affective, and psychomotor knowledge and skill levels in education and training settings. Teacher self-appraisal and evaluation of instruction. Pre-Requisites:Graduate Status. Typically Offered Fall, Spring, Summer

Identify and discuss principles, philosophy, practices and innovations of workforce education and human resource professionals. Provides knowledge of the patterns of organizational behavior from the broad frame of organizational culture and explore specific skills needed to shape and direct an organization. Provides foundations for both human resource development and secondary/postsecondary technical education professionals in industry, community colleges, and high schools. Typically offered Summer.

Provides students with frameworks for analyzing education policies and practices in CTE settings. The frameworks are rooted to broad foundational perspectives designed to assist students in understanding selected issues in CTE by exploring historical antecedents, philosophical and theoretical assumptions, and social and ideological factors that influence current educational policies and practices. The aim is to analyze the character of assumptions and the nature of implications inherent in educational proposals, policies and activities. Pre-Requisites:Graduate status. Typically Offered Fall, Spring, Summer
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<td>Educational Career Tech Educ: Tchg Digital Painting Software</td>
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<td>Educational Career Tech Educ: Teaching Page Layout Software</td>
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<td>ECTE535</td>
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<td>Educational Career Tech Educ: Tchg Elect Imag Elem Art Educ</td>
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<td>ECTE537</td>
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<td>ECTE538</td>
<td>Educational Career Tech Educ: Art Educ Intro Macintosh Com</td>
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**ECTE532** Emphasizes techniques using vector-based draw programs such as Illustrator or FreeHand. Instruction combined with lab time allow participants to progress at their own speed through increasingly complex illustration assignments. Projects stress software shortcuts, electronic file management and production problem solving. Team-taught by a technical expert and curriculum specialist, students receive software training, then incorporate this technology in their classrooms by creating and sharing computer-based lesson plans. Pre-Requisites: Solid understanding of the Macintosh environment and ECTE 538. Typically Offered On Demand

**ECTE533** Focuses on the creative capabilities of Painter for color illustration, photo manipulation, and special effects. Students receive experience using Painter for such techniques as graphic design, illustration, multimedia photography and Web pages. Techniques covered include surface textures, custom brushes and unique plug-ins effects. A demo Wacom graphic tablet is offered during this course. Team-taught by a technical expert and curriculum specialist, students receive extensive software training, then learn how to incorporate this technology in their classrooms by creating and sharing computer-based lesson plans. Pre-Requisites: Solid understanding of the Macintosh environment and ECTE 538. Typically Offered On Demand

**ECTE534** Emphasis on the future of professional publishing using software applications such as QuarkXPress or PageMaker. Lectures will feature print design information including typography, page design concepts and grid techniques. Software’s page layout features and type handling abilities and salvaging documents that won’t print will be taught. Large publication issues and production tips will also be covered. Team-taught by a technical expert and curriculum specialist, students receive software training, then incorporate this technology in their classrooms by creating and sharing computer-based lesson plans. Pre-Requisites: Solid understanding of the Macintosh environment and ECTE 538. Typically Offered On Demand

**ECTE535** Learn the techniques, tricks and shortcuts to surf the Internet and develop an effective Web site. Students design and produce dynamic Web graphics and pages through increasingly complex projects. Participants will create a Web site using software such as Dreamweaver, PageMill, and Photoshop, create images and media for online delivery. Team-taught by a technical expert and curriculum specialist, students receive software training, then incorporate this technology in their classrooms by creating and sharing computer-based lesson plans. Pre-Requisites: ECTE 539 & solid understanding of the Macintosh environment. Typically Offered On Demand

**ECTE536** Designed for those who want to learn about digital imaging using the simplest raster-based applications available. Emphasis is on painting, montaging, illustration, logo enhancement, and similar applications. Resolution capabilities for producing images for print and multimedia will also be covered. Students will increase their electronic creativity, production knowledge through creative assignments. Team-taught by a technical expert and curriculum specialist, students receive software training, then incorporate this technology in their classrooms by creating and sharing computer-based lesson plans. Pre-Requisites: Solid understanding of the Macintosh environment and ECTE 538. Typically Offered On Demand

**ECTE537** Script and produce complex projects using software such as Director or Premiere, Photoshop, and SoundEdit. Students gain hands-on experience in integrating text, graphics, audio and video for multimedia presentations. Team-taught by a technical expert and curriculum specialist, students receive software training, then incorporate this technology in their classrooms by creating and sharing computer-based lesson plans. Pre-Requisites: ECTE 539 and solid understanding of the Macintosh environment. Typically Offered On Demand

**ECTE538** Introduces you to the basic elements of Macintosh computers. You will learn to manipulate and use the Desktop environment. You will also perform and save a find, use the Finder, and learn to manage your files. Pre-Requisites: Graduate status. Typically Offered On Demand
ECTE539 Educational Career Tech Educat  
Tchg Imaging Editing Software  
ED  
School of Education Dept  
Graduate 3 LEC LAB  

Designed for those who want to learn about the raster-based software application Photoshop. Emphasis will be on scanning and image correction, photo montaging, editorial illustration, logo enhancement and similar applications. Resolution issues for producing images for print and multimedia will also be covered. Team-taught by a technical expert and curriculum specialist, students receive software training, then incorporate this technology in their classrooms by creating and sharing computer based lesson plans.  
Pre-Requisites: Solid understanding of the Macintosh environment and ECTE 538.  
Typically Offered On Demand

ECTE575 Educational Career Tech Educat  
Adults in Career and Tech Educ  
ED  
School of Education Dept  
Graduate 3 LEC LAB  

An examination of the variety of ways career and technical educators work with adults in the course of their duties. Public relations skills. Making effective decisions as part of a professional work group. Organizing and maintaining an effective advisory council. Recognizing adult learning needs and participation patterns. Selecting the best teaching style and techniques to use with an adult audience.  
Pre-Requisites: Graduate Status.  
Typically Offered On Demand

ECTE591 Educational Career Tech Educat  
Internship in Career Tech Educ  
ED  
School of Education Dept  
Graduate 1 TO 3 LEC LAB  

The CTE internship is designed to allow students to: 1) update their technological skills or practices in their major/minor field, or 2) work with secondary students in a non-school setting, or 3) work with secondary students through a community-service agency, 4) work in a secondary school in a non-teaching capacity, or 5) other. Determination of appropriate CTE internship placement will be made by the student and the internship coordinator. One credit equals 66 clock hours.  
Pre-Requisites: Graduate Status and department approval.  
Typically Offered Fall, Spring, Summer

ECTE595 Educational Career Tech Educat  
Content Instr Wrkshp - Sem CTE  
ED  
School of Education Dept  
Graduate 1 TO 2 LEC LAB  

Allows students to participate in CTE courses, workshops, and seminars offered by universities, colleges, technical societies, professional organizations, or business and industry to improve their content/instructional skills in their subject area major or minor. The student will be required to write a scholarly paper on the CTE workshop/seminars attended. One credit equals 15 clock hours. Consult your advisor regarding appropriateness of CTE workshops/seminars.  
Pre-Requisites: Graduate Status and department approval.  
Typically Offered Fall, Spring, Summer

ECTE597 Educational Career Tech Educat  
Special Studies in ECTE  
ED  
School of Education Dept  
Graduate 1 TO 4 LEC LAB  

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  
Pre-Requisites: Graduate status and department approval.  
Typically Offered On Demand

ECTE601 Educational Career Tech Educat  
Administration of CTE Programs  
ED  
School of Education Dept  
Graduate 3 LEC LAB  

The purpose of the course is to provide an overview of the basic responsibilities of CTE administrators in funding, instructional program development and operation, student support services and data, evaluation and accountability requirements as well as other topics related to the administration of secondary and postsecondary CTE programs. Prerequisite: Graduate Status. Typically offered Spring.  
Pre-Requisites: Graduate Status and department approval.  
Typically Offered On Demand

ECTE607 Educational Career Tech Educat  
Inst Systems Dsgn and Dvlpmnt  
ED  
School of Education Dept  
Graduate 3 LEC LAB  

This course includes the elements of ADDIE- analysis, design, development, implementation and evaluation. An emphasis is placed on design issues including analysis, design and evaluation. Learners work through the instructional design process to assemble a training or education project that is ready for implementation. Prerequisite: Graduate status.

ECTE608 Educational Career Tech Educat  
Innovative Strategies  
ED  
School of Education Dept  
Graduate 3 LEC LAB  

This course will explore the most current innovations designed to increase the rigor and relevance of what students learn in school to more closely align them with the demands of the 21st century economy and workforce while creating stronger linkages between secondary and postsecondary education. Emphasis will be placed on methods to better engage students; how to improve academic and technical achievement; and how to improve the transition of college and career ready from high school to continuing education. Prerequisites: Graduate Status. Typically offered Fall and Spring.  
This course is designed for: 1) those who wish to strengthen their grant writing skills and 2) beginners who wish to acquire and master the techniques of preparing, writing and winning proposals from various funding agencies. The center of attention will be on how to effectively tell the story that leads to funding, be it for the educator or non-profit professional. Prerequisites: Graduate Status.  
Typically offered Summer

ECTE610 Educational Career Tech Educat  
Grant Writing & Development  
ED  
School of Education Dept  
Graduate 3 LEC LAB  

Clarity TQM (Total Quality Management) process and procedures and demonstrates how they can be used in the classroom. Topics will include the TQM approaches of such quality experts as Dr. W. Edwards Deming & Philip Crosby; how TQM works with students, specific ways to integrate the TQM tools into the classroom (based on the Malcolm Baldrige Criteria); and conditions that are necessary for successfully implementing TQM in the classroom.  
Pre-Requisites: Graduate status.  
Typically Offered On Demand

ECTE650 Educational Career Tech Educat  
Implem Total Quality Mgmt Educ  
ED  
School of Education Dept  
Graduate 3 LEC LAB  

Prerequisites: Graduate Status.  
Typically Offered On Demand
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<td>EDCD104</td>
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<td>Child Development Practicum</td>
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<td>EDCD160</td>
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<td>EDCD205</td>
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<td>Computer Appl for Children</td>
<td>ED</td>
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**ECTE655 Educational Career Tech Educat: Quality Improve Practices**

This course explores the various quality improvement practices of Baldrige award winning educational institutions. Provides opportunities to study formal and informal educational leadership systems and support structures for addressing key communities. Examines similarities, differences and trends in key aspects of process management, including learning-focused education design, education delivery, school services and operations as well as how key processes are designed, implemented, managed and improved to achieve better performance. Pre-Requisites: ECTE 650. Typically Offered On Demand

**ECTE660 Educational Career Tech Educat: Quality Management - Education**

Apply the principles of total quality management and the Malcolm Baldrige National Quality Award criteria relative to (1) the formation of partnerships between education and business that have adopted the criteria; (2) strategies for making or guiding decision, priorities, resource allocations, and school-wide management; (3) faculty and staff development strategies and satisfaction; and (4) the definition of student and stakeholder needs and expectations, and student and stakeholder satisfaction. Pre-Requisites: ECTE 650. Typically Offered On Demand

**ECTE665 Educational Career Tech Educat: Quality Metrics and Data Mgmt**

Examine numeric measures and indicators that quantify input, output, and performance dimensions of process, products, services and overall school outcomes. Examine the selection, management, and use of information and data to support key school processes and action plans. Examine the collection, management and reporting of student performance, student and stakeholder satisfaction, faculty and staff results, and school-specific performance. Also examined are methods for identifying performance levels to comparable schools and/or appropriately selected organizations. Pre-Requisites: ECTE 650. Typically Offered On Demand

**ECTE694 Educational Career Tech Educat: Graduate Topics Career Tech Ed**

Graduate level workshop/seminar courses in areas of CTE special interest. Primarily teacher/trainer in-service and professional development. Pre-Requisites: Graduate status and department approval. Typically Offered Fall, Spring, Summer

**ECTE697 Educational Career Tech Educat: Special Studies in ECTE**

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Graduate status and department approval. Typically Offered On Demand

**EDCD100 Education-Childhood Develop: Child Development Asso Introd**

Preparation for the National Child Development Association certificate (C.D.A.) Procedures and requirements for the certificate will be explained. Certificate will be given by the National Child Development association office upon completion of requirements. Typically Offered Fall, Spring

**EDCD104 Education-Childhood Develop: Child Development Practicum**

This practicum consists of 30 hours (2 hours per week) of participation at an early childhood site. This course is designed to give the student experience in an early childhood setting prior to the experiential learning required in the Child Development curriculum. This practicum must be taken the same semester as EDCD 105. Off campus visits required. Co-Requisites: EDCD 105. Typically Offered Fall, Spring

**EDCD105 Education-Childhood Develop: Child Development Leadership**

Overview of child care and development and various employment opportunities. A review of curriculum courses and the professional ethics and responsibilities of teaching young children. Also included are the components of operating a child care business. Co-Requisites: EDCD 104. Meets General Education requirements for Collaboration. Typically Offered Fall, Spring

**EDCD110 Education-Childhood Develop: Child Development 1**

Conception, birth, contraception, and development patterns pre-birth to 3 year olds. Focus on critical periods and attachment. Appropriate observations of infants and toddlers. A 30 hour field experience (2 hours weekly) is required. Typically Offered Fall, Spring

**EDCD111 Education-Childhood Develop: Child Development 2**

The social, emotional, physical, intellectual, and moral development of 3 to 12 year olds. Focus on developmental milestones. Appropriate observations. A 30 hour field experience (2 hours weekly) is required. Typically Offered Fall, Spring

**EDCD160 Education-Childhood Develop: Education of Children**

Role of teacher in a variety of settings and resultant impact on young children. Communication skills and guidance methods with children. Instructional strategies and learning styles appropriate for a child's growth and development. Off campus visits required. A 30 hour field experience (2 hours weekly) is required. Typically Offered Spring Only

**EDCD205 Education-Childhood Develop: Computer Appl for Children**

Computer Applications for children. Designed to provide positive experiences for inexperienced computer users. Emphasis will be on developing the skills necessary to operate the computer in pre-K-8 settings. An overview of the functions and capabilities of computer application programs in managing pre-K-8 settings will be included. Typically Offered Fall, Spring
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>School</th>
<th>Degree</th>
<th>Credits</th>
<th>Format</th>
<th>Notes</th>
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<tr>
<td>EDCD210</td>
<td>Infant Toddler Environ - Curr</td>
<td>ED</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Designing, planning and evaluating optimal environments and programs with developmentally appropriate activities for the positive growth of infants and toddlers. A 30 hour field experience (2 hours weekly) is required. Pre-Requisites: EDCD 110. Typically Offered Spring Only</td>
</tr>
<tr>
<td>EDCD211</td>
<td>Childrens Activities</td>
<td>ED</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>Focus on developmentally appropriate practices - lesson planning, active learning, key experiences, transitions and various activities for pre-school and school age children. Teaching labs plus participation experiences in campus center. A 30 hour field experience (2 hours weekly) is required. Pre-Requisites: EDCD 111. Typically Offered Fall Only</td>
</tr>
<tr>
<td>EDCD285</td>
<td>Child Development Intern Orient</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Introduction to internship requirements, application forms, role playing situations, and expectations. Pre-Requisites: Must be taken semester before internship and sophomore status. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>EDCD290</td>
<td>Special Topics in Child Develop</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC LAB</td>
<td>Special Topics In EDCD-200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>EDCD291</td>
<td>Child Development Internship</td>
<td>ED</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC LAB</td>
<td>240 hours of full participation in an early childhood setting working with children, staff and parents. One credit=60 hours of participation. The focus will be on employability skills, rapport with children, and teaching skills. Must be done at an F.S.U. affiliated internship site. Students will take the full 240 hours=4 credits unless exempted by Child Development advisor. Must be taken with EDCD 298 and EDCD 299. Pre-Requisites: EDCD 285. Co-Requisites: EDCD 298 and 299. Meets General Education requirements for Collaboration. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>EDCD297</td>
<td>Special Studies in Child Develop</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC LAB</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
<tr>
<td>EDCD298</td>
<td>Internship Seminar</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>A weekly seminar to discuss internship experiences. Must be taken with EDCD 291 and EDCD 299. Pre-Requisites: EDCD 285. Co-Requisites: EDCD 291 and 299. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>EDCD299</td>
<td>Professional Assessment</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Assessment of the student's accomplishments in the Early Childhood Education AAS major. Must be taken with EDCD 291 and EDCD 298. Pre-Requisites: EDCD 285. Co-Requisites: EDCD 291 and 298. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>EDCD308</td>
<td>Teaching Special Needs in ECE</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course is designed to provide pre-service teachers with an introduction to teaching strategies designed to accommodate the needs of exceptional and diverse learners from birth through 12 years of age. Content will also include a brief historical perspective of the field of special education, particularly as it relates to early childhood education, including legislation and litigation, causes of disabilities, academic and social characteristics, and basic assessment and intervention procedures. Prerequisites: EDCD 210 or EDCD 211 (EDCD students) or EDUC 413 (ELED students). Typically Offered Fall only.</td>
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<tr>
<td>EDCD310</td>
<td>Child Guidance</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Students will develop effective strategies for dealing with the behavior of young children. They will gather tools for supporting the long-term development of responsibility, self-confidence and self-control in children. The course includes theory and practical guidance strategies. Students will gain respect for the unique qualities of individual children while developing strategies for dealing with the many behaviors that children exhibit. Prerequisites Completion of all 200 level EDCD courses. Prerequisites: Completion of EDCD 211. Typically Offered Fall semester, even years only.</td>
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<tr>
<td>EDCD350</td>
<td>Curr Perspect Early Child Educ</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>This course is designed to look at early childhood programs within and outside of the United States. The students will examine specific early childhood curriculum programs such as Reggio Emilia and Montessori and their differing curricula. The students will also look at early childhood education in a variety of countries including Canada, France, Italy, China, etc. Prerequisites: Completion of all 200 level EDCD courses. Prerequisites: Completion of EDCD 211. Typically Offered Fall semester, odd years only.</td>
</tr>
<tr>
<td>EDCD380</td>
<td>Advocacy in Early Child Educ</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC LAB</td>
<td>Types of advocacy and the ways ECE professionals can advocate for children. Students will demonstrate their advocacy with an advocacy project. Prerequisites Completion of EDCD 211. Meets General Education requirements for Problem Solving. Typically Offered Spring semester, even years only.</td>
</tr>
<tr>
<td>EDCD397</td>
<td>Special Studies in EDCD</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC LAB</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
</tbody>
</table>
EDCD410 Education Childhood Develop Early Child Edu Mgt-Leadership ED School of Education Dept Undergraduate 3 LEC LAB Focus is on the role and responsibilities of an early childhood program director/administrator. Topics include leadership skills, budgeting, staff hiring and supervision, and professionalism. Prerequisites Completion of EDCD 211. Typically offered Spring semester, odd years only.

EDCD420 Education Childhood Develop Advanced Children’s Activities ED School of Education Dept Undergraduate 4 LEC LAB This course will focus on topics that increase the development of cognitive, physical, social and emotional development of children. This course will focus on developmentally appropriate lesson planning, active learning and interaction skills that focus on cognitive development with preschool and school-age children. A 30 hour field experience (2 hours weekly) is required. Prerequisites: EDCD 211. Typically offered Fall semester, even years only.

EDCD430 Education Childhood Develop Intro to Child Life Spec Prog ED School of Education Dept Undergraduate 4 LEC LAB This course will provide students with an introduction to the Child Life Specialist profession. The course will address topics specific to the profession including: separation and loss; childhood illness, injuries, diseases and disorders; abuse and neglect; therapeutic play; and family advocacy. The course will be taught by a nationally certified Child Life Specialist from Helen DeVos Children’s Hospital in Grand Rapids. Prerequisites: EDCD 104 and EDCD 105 and EDCD 110. Typically offered Fall. Student will complete a 50 hour practicum at a hospital where they will be supervised by a nationally certified Child Life Specialist. Students will carry out responsibilities as assigned by their on-site supervisor and course assignments as determined by university instructor. Prerequisites: EDCD 430. Typically offered Fall.

EDCD431 Education Childhood Develop Child Life Spec Practicum ED School of Education Dept Undergraduate 2 LEC LAB In this course the instructor and students will choose several current and/or controversial issues in the field of Early Childhood Education to study. An in-depth report, presentation or project on an individually chosen current issue will be required. Prerequisites: Completion of EDCD 211. Meets General Education requirements for Problem Solving. Typically offered Summer Only Introduction to internship requirements and expectations as well as paperwork requirements. Prerequisites will be checked and internship sites will be visited and chosen. Prerequisites: EDCD 420. Typically offered Fall and Spring.

EDCD432 Early Childhood Education Internship ED School of Education Dept Undergraduate 4 LEC LAB For the Management and Teacher concentrations, students will choose a 240-hour internship working with one of the following: infants, toddlers, preschoolers, school agers, a mixed aged classroom or in administrations. A different sites and age group from the lower levels internship is required. Students will assume the role of lead teacher/administrator and carry out daily responsibilities and requirements. For the Child Life Specialist concentration, students will choose a hospital setting and complete a 480-hours internship under the supervision of a certified Child Life Specialist as set forth by the Child Life Council. Prerequisites: All professional sequence and track courses on the check sheet or department approval. Note: This internship is off campus. Meets General Education requirements for Collaboration. Typically offered Fall and Spring.

EDCD497 Education Childhood Develop Special Studies in EDCD ED School of Education Dept Undergraduate 1 TO 4 LEC LAB This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand. Students will improve their observation and assessment skills, as well as evaluate their own teaching skills. This class will include a weekly discussion with peers as to the daily challenges in the student’s internship. Prerequisites: All professional sequence and track courses on the check sheet. Typically offered Fall, Spring, Summer.

EDGP206 Education - Get Promoted Edu Tech Secondary Class 1 ED School of Education Dept Undergraduate 1 LEC LAB Use and application of educational technology and microcomputers as instructional tools in classroom and laboratory environments. Design and development of materials for use in educational, training, and/or human services programs. Topics include basic operation of PC hardware and software. Pre Requisites: Admission to Pro-Mo-TED program. Typically offered Fall, Spring, Summer.

EDGP207 Education - Get Promoted Edu Tech Secondary Class 2 ED School of Education Dept Undergraduate 1 LEC LAB Use and application of educational technology and microcomputers as instructional tools at the intermediate level in classroom and laboratory environments. Major emphasis on applications will be based upon underlying concepts and principles of a systems approach to instructional design. Pre-Requisites: EDGP 206. Typically offered Fall, Spring, Summer.

EDGP208 Education - Get Promoted Edu Tech Secondary Class 3 ED School of Education Dept Undergraduate 1 LEC LAB Use and application of educational technology and microcomputers as instructional tools in classroom and laboratory environments. Design and development of materials for use in educational, training, and/or human services programs. Pre-Requisites: EDGP 207. Typically offered Fall, Spring, Summer.
<table>
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<th>Level</th>
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<td>EDGP251</td>
<td>Lifespan Human Grow - Devel 1</td>
<td>School of Education Dept</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
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<td>A study of the biological, cognitive, social and affective domains of human growth and development from the prenatal period through toddlerhood, particularly as they apply to teaching and learning. Students are required to observe human behavior at different stages of development in a variety of cultural (field) settings. This module you will observe development from birth-36 months. Required for state teacher certification. Pre-Requisites: Admission to Pro-Mo-TEd program. Typically Offered Fall, Spring, Summer</td>
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<tr>
<td>EDGP252</td>
<td>Lifespan Human Grow - Devel 2</td>
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<td>Undergraduate</td>
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<td>LAB</td>
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<td>A study of the biological, cognitive, social and affective domains of human growth and development from the early childhood through adolescence, particularly as they apply to teaching and learning. Students are required to observe human behavior at different stages of development in a variety of cultural (field) settings. This module you will observe development from 3-18 years. Required for state teacher certification. Pre-Requisites: EDGP 251. Typically Offered Fall, Spring, Summer</td>
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<td>EDGP253</td>
<td>Lifespan Human Grow - Devel 3</td>
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<td>LEC</td>
<td>LAB</td>
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<td>A study of the biological, cognitive, social and affective domains of human growth and development from early adulthood through death, particularly as they apply to teaching and learning. Students are required to observe human behavior at different stages of development in a variety of cultural (field) settings. This module you will observe development from 20-70 years. Required for state teacher certification. Pre-Requisites: EDGP 252. Typically Offered Fall, Spring, Summer</td>
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<td>EDGP287</td>
<td>Prin of Teaching - Learning 1</td>
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<td>Undergraduate</td>
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<td>The psychological principles underlying classroom management, including specific strategies for managing an effective classroom. Students are required to do a 5 hour field experiences in appropriate classroom setting. Pre-Requisites: Admission to Pro-Mo-TEd program. Typically Offered Fall, Spring, Summer</td>
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<td>EDGP288</td>
<td>Prin of Teaching - Learning 2</td>
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<td>EDGP289</td>
<td>Prin of Teaching - Learning 3</td>
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<td>Undergraduate</td>
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<td>LAB</td>
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<td>The psychological principles underlying, teaching and learning: learning theory, and motivation. Students are required to do a 5 hour field experiences in appropriate classroom setting. Pre-Requisites: EDGP 287. Typically Offered Fall, Spring, Summer</td>
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<td>EDGP303</td>
<td>School and Work and Society 1</td>
<td>School of Education Dept</td>
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<td>Structure, function, and purposes of schools in society and how they are affected by various philosophies of education. Topics include traditional and contemporary philosophical views of education and the role of the school in society. 30 clock hours of field experience is required throughout the three modules. Pre-Requisites: Admission to Pro-Mo-TEd Program. Typically Offered Fall, Spring, Summer</td>
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<td>EDGP304</td>
<td>School and Work and Society 2</td>
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<td>LAB</td>
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<td>Structure, function, and purposes of schools in society and how they are affected by various philosophies of education. Topics include financing education and the legal aspects of education. 30 clock hours of laboratory experience in schools will occur throughout the three modules. Pre-Requisites: EDGP 303. Typically Offered Fall, Spring, Summer</td>
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<td>EDGP305</td>
<td>School and Work and Society 3</td>
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<td>LEC</td>
<td>LAB</td>
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<td></td>
<td>Structure, function, and purposes of schools in society and how they are affected by various philosophies of education. Topics include teachers' professional groups and American education and the future. 30 clock hours of laboratory experience in schools will occur throughout the three modules. Pre-Requisites: EDGP 304. Typically Offered Fall, Spring, Summer</td>
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<td>EDGP308</td>
<td>Tchg Strat Sped Diverse Pops 1</td>
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<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
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<td>This course is designed to provide pre-service teachers an introduction to teaching strategies and other aspects of exceptional and diverse learners. Content will include a brief historical perspective of the field of special education including legislation and litigation and basic assessment and intervention procedures. Discussions will include special education services/programming, the role of the family and community. Pre-Requisites: Admission to Pro-Mo-TEd program. Typically Offered Fall, Spring, Summer</td>
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<tr>
<td>EDGP309</td>
<td>Tchg Strat Sped Diverse Pops 2</td>
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<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>LAB</td>
</tr>
<tr>
<td></td>
<td>This course is designed to provide pre-service teachers an introduction to teaching strategies and other aspects of exceptional and diverse learners. Content will include causes of disabilities and academic and social characteristics. Discussions will include special education services/programming, the role of the family and community. Course content includes issues regarding the gifted child and diverse populations. Pre-Requisites: EDGP 308. Typically Offered Fall, Spring, Summer</td>
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</table>
EDGP310 Education - Get Promoted Tchg Strat Sped Diverse Pop 3 ED School of Education Dept Undergraduate 1 LEC LAB This course is designed to provide pre-service teachers an introduction to teaching strategies and other aspects of exceptional and diverse learners. Content will include basic assessment and intervention procedures and teaching strategies. Discussions will include special education services/programming, the role of the family and community. Course content includes issues regarding the gifted child and diverse populations. Pre-Requisites: EDGP 309. Typically Offered Fall, Spring, Summer

EDGP339 Education - Get Promoted Instruct Planning - Practice 1 ED School of Education Dept Undergraduate 1 LEC LAB Analysis of instructional design theory and practice will be the FSU classroom focus. Pre-Requisites: Admission to Pro-Mo-TED program. Typically Offered Fall, Spring, Summer

EDGP340 Education - Get Promoted Instruct Planning - Practice 2 ED School of Education Dept Undergraduate 1 LEC LAB Emphasis is placed on exploring a variety of teaching styles and strategies through a 45-hour field experience. Pre-Requisites: EDGP 339. Typically Offered Fall, Spring, Summer

EDGP400 Education - Get Promoted Foundations Career Tech Educ 1 ED School of Education Dept Undergraduate 1 LEC LAB Designed to afford students the opportunity to analyze vocational educational foundations knowledge and to apply it to a critical study of current educational practices and policies. Pre-Requisites: Admission to Pro-Mo-TED program. Typically Offered Fall, Spring, Summer

EDGP401 Education - Get Promoted Foundations Career Tech Educ 2 ED School of Education Dept Undergraduate 1 LEC LAB Topics studied will include the following: philosophy and demographics of vocational students, labor market data, future of career technical education. Pre-Requisites: EDGP 400. Typically Offered Fall, Spring, Summer

EDGP402 Education - Get Promoted Foundations Career Tech Educ 3 ED School of Education Dept Undergraduate 1 LEC LAB Topics studied will include the following: state and federal laws and regulations pertaining to cooperative education and administration of cooperative educational programs. Pre-Requisites: EDGP 401. Typically Offered Fall, Spring, Summer

EDGP430 Education - Get Promoted Inst Delivery - Evaluation 1 ED School of Education Dept Undergraduate 1 LEC LAB Participants will demonstrate their ability to connect lesson plans with curriculum objectives. Pre-Requisites: Admission to Pro-Mo-TED program. Typically Offered Fall, Spring, Summer

EDGP431 Education - Get Promoted Inst Delivery - Evaluation 2 ED School of Education Dept Undergraduate 1 LEC LAB Participants will demonstrate their ability to develop assessment and test items, as well assessing student performance. Pre-Requisites: EDGP 430. Typically Offered Fall, Spring, Summer

EDGP432 Education - Get Promoted Inst Delivery - Evaluation 3 ED School of Education Dept Undergraduate 1 LEC LAB Participants will demonstrate their ability to connect lesson plans with curriculum assessment. Practice teaching will take place in the FSU classroom. Pre-Requisites: EDGP 431. Typically Offered Fall, Spring, Summer

EDGP433 Education - Get Promoted Inst Delivery - Evaluation 4 ED School of Education Dept Undergraduate 1 LEC LAB Participants will demonstrate their ability to connect lesson plans with curriculum objectives and assessment. Practice assessment will take place in the FSU classroom. Pre-Requisites: EDGP 432. Typically Offered Fall, Spring, Summer

EDGP439 Education - Get Promoted Inst Theory into Practice 1 ED School of Education Dept Undergraduate 1 LEC LAB Focus will be placed upon refining delivery techniques, evaluation and assessment and lesson plans. Pre-Requisites: Admission to Pro-Mo-TED program. Typically Offered Fall, Spring, Summer

EDGP440 Education - Get Promoted Inst Theory into Practice 2 ED School of Education Dept Undergraduate 1 LEC LAB Emphasis is placed on applying and refining theory into the practice of teaching through a 45-hour field experience. Pre-Requisites: EDGP 439. Typically Offered Fall, Spring, Summer

EDGP443 Education - Get Promoted Tchg Read Sec Content Areas 1 ED School of Education Dept Undergraduate 1 LEC LAB Specific strategies for applying teaching methods and effective reading comprehension skills in content areas. Topics include the reading process, prereading strategies and assessing knowledge of student background. Pre-Requisites: Admission to Pro-Mo-TED program. Typically Offered Fall, Spring, Summer

EDGP444 Education - Get Promoted Tchg Read Sec Content Areas 2 ED School of Education Dept Undergraduate 1 LEC LAB Specific strategies for applying teaching methods and effective reading comprehension skills in content areas. Topics assessing and building knowledge of student background, readability, and vocabulary and concept development. Pre-Requisites: EDGP 443. Typically Offered Fall, Spring, Summer

EDGP445 Education - Get Promoted Tchg Read Sec Content Area 3 ED School of Education Dept Undergraduate 1 LEC LAB Topics levels of comprehension and reading and study guides/strategies. Pre-Requisites: EDGP 444. Typically Offered Fall, Spring, Summer

EDGPS01 Education - Get Promoted Prin of Teaching - Learning 1 ED School of Education Dept Graduate 1 LEC LAB Designed to promote the study of psychology as it applies to the teaching and learning process. Current theory and methodology in establishing an environment effective to learning is emphasized. Students are required to observe and interview secondary school personnel. Prerequisites: Admitted to Troops to Teachers. Typically Offered Summer only.

EDGPS02 Education - Get Promoted Prin of Teaching - Learning 2 ED School of Education Dept Graduate 1 LEC LAB Examine the students own experiences and assumptions as learners and teachers contrasting them with the psychological theories about learning. Students are required to observe and interview secondary school personnel. Prerequisites: EDGP 501. Typically Offered Fall only.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Description</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDGP503</td>
<td>Education - Get Promoted</td>
<td>Prin of Teaching - Learning 3 ED School of Education Dept Graduate 1 LEC LAB Examine the students' own experiences and assumptions as learners contrasting with sociological and anthropological theories learning. Students are required observe and interview secondary school personnel. Prerequisites: EDGP 502. Typically Offered Spring only.</td>
<td></td>
</tr>
<tr>
<td>EDGP504</td>
<td>Education - Get Promoted</td>
<td>Pre-Teach Field Experience 1 ED School of Education Dept Graduate 1 LEC LAB Focus will be placed upon refining observation, recording and evaluation techniques to determine student-teacher relationships and behaviors as well as research and develop instructional materials. Prerequisites: Admitted to Troops to Teachers. Typically Offered Summer only.</td>
<td></td>
</tr>
<tr>
<td>EDGP505</td>
<td>Education - Get Promoted</td>
<td>Pre-Teach Field Experience 2 ED School of Education Dept Graduate 1 LEC LAB Emphasis is placed on applying and refining observation, recording, discussing and evaluating student-teacher relationships and behaviors as well as research and develop instructional materials through a 75 hour field experience. Prerequisites: EDGP 504. Typically Offered Fall only.</td>
<td></td>
</tr>
<tr>
<td>EDGP506</td>
<td>Education - Get Promoted</td>
<td>Foundations of Education 1 ED School of Education Dept Graduate 1 LEC LAB Designed to afford students the opportunity to analyze educational foundations, knowledge and to apply it to a critical study of educational practices and policies. Topics include: teaching as a profession and the philosophy of education. Observations and interviews with secondary school personnel are required. Prerequisites: Admitted to Troops to Teachers. Typically Offered Fall only.</td>
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</tr>
<tr>
<td>EDGP507</td>
<td>Education - Get Promoted</td>
<td>Foundations of Education 2 ED School of Education Dept Graduate 1 LEC LAB Designed to afford students the opportunity to analyze educational foundations, knowledge and to apply it to a critical study of educational practices and policies. Topics include: financing and governance of education and the sociology of education. Observations and interviews with secondary school personnel are required. Prerequisites: EDGP 506. Typically Offered Spring only.</td>
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</tr>
<tr>
<td>EDGP508</td>
<td>Education - Get Promoted</td>
<td>Foundations of Education 3 ED School of Education Dept Graduate 1 LEC LAB Designed to afford students the opportunity to analyze educational foundations, knowledge and to apply it to a critical study of educational practices and policies. Topics include: the education of exceptional children, educational reform and the history of education. Observations and interviews with secondary school personnel are required. Prerequisites: EDGP 507. Typically Offered Summer only.</td>
<td></td>
</tr>
<tr>
<td>EDGP509</td>
<td>Education - Get Promoted</td>
<td>Curriculum Design - Evaluat 1 ED School of Education Dept Graduate 1 LEC LAB Designed to survey the latest theories and practice in curriculum development. The student will develop instructional materials including assessment techniques. Prerequisites: Admitted to Troops to Teachers. Typically Offered Summer only.</td>
<td></td>
</tr>
<tr>
<td>EDGP510</td>
<td>Education - Get Promoted</td>
<td>Curriculum Design - Evaluat 2 ED School of Education Dept Graduate 1 LEC LAB The student will develop instructional materials that include performance objectives. Practice teaching will take place in the FSU classroom. Prerequisites: EDGP 508. Typically Offered Summer only.</td>
<td></td>
</tr>
<tr>
<td>EDGP511</td>
<td>Education - Get Promoted</td>
<td>Curriculum Design - Evaluat 3 ED School of Education Dept Graduate 1 LEC LAB The students will develop instructional materials including daily lesson plans with accompanying teacher materials. Practice assessment will take place in the FSU classroom. Prerequisites: EDGP 510. Typically Offered Summer only.</td>
<td></td>
</tr>
<tr>
<td>EDGP512</td>
<td>Education - Get Promoted</td>
<td>Inst of Exceptional Learners 1 ED School of Education Dept Graduate 1 LEC LAB This course is designed to provide an introduction to the education of the exceptional learner. Content will include an historical perspective of the field of special education including legislation and litigation, special education services/programming, the role of the family and community. Prerequisites: Admission to Troops to Teachers. Typically Offered Summer only.</td>
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<tr>
<td>EDGP513</td>
<td>Education - Get Promoted</td>
<td>Inst of Exceptional Learners 2 ED School of Education Dept Graduate 1 LEC LAB This course is designed to provide an introduction to the education of exceptional learners. Content will include psychological, academic, social and cognitive characteristics associated with specific handicapping conditions. Discussions will include special education services/programming, the role of the family and community. Prerequisite content includes issues regarding the gifted child and diverse populations. Prerequisites: EDGP 512. Typically Offered Fall only.</td>
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<tr>
<td>EDGP514</td>
<td>Education - Get Promoted</td>
<td>Inst of Exceptional Learners 3 ED School of Education Dept Graduate 1 LEC LAB This course is designed to provide an introduction to the education of exceptional learners. Assessment and intervention procedures that include teaching strategies and differentiated instruction will be included. Discussions will include special education services/programming, the role of the family and community. Course content includes issues regarding the gifted child and diverse populations. Prerequisites: EDGP 513. Typically Offered Summer only.</td>
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<tr>
<td>EDGP540</td>
<td>Education - Get Promoted</td>
<td>Educational Technology 1 ED School of Education Dept Graduate 1 LEC LAB Use and application of educational technology and microcomputers as instructional tools in classroom and laboratory environments. Design and development of materials for use in educational, training, and/or human services programs. Topics include basic operation of PC hardware and software. Prerequisites: Admitted to Troops to Teachers. Typically Offered Summer only.</td>
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<td>Course Code</td>
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<tr>
<td>EDGP541</td>
<td>Educational Technology 2 for Educators</td>
<td>ED</td>
<td>Graduate</td>
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<tr>
<td>EDGP542</td>
<td>Educational Technology 3 for Educators</td>
<td>ED</td>
<td>Graduate</td>
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<tr>
<td>EDGP543</td>
<td>Teaching Read Content Area 1</td>
<td>ED</td>
<td>Graduate</td>
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<tr>
<td>EDGP544</td>
<td>Teaching Read Content Area 2</td>
<td>ED</td>
<td>Graduate</td>
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<tr>
<td>EDGP545</td>
<td>Teaching Read Content Area 3</td>
<td>ED</td>
<td>Graduate</td>
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<tr>
<td>EDLA207</td>
<td>Emergent Literacy</td>
<td>ED</td>
<td>Undergraduate</td>
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<tr>
<td>EDLA222</td>
<td>Text and the Child</td>
<td>ED</td>
<td>Undergraduate</td>
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<tr>
<td>EDLA340</td>
<td>Writers Workshop</td>
<td>ED</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>EDLA342</td>
<td>Reader Response</td>
<td>ED</td>
<td>Undergraduate</td>
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<tr>
<td>EDLA397</td>
<td>Special Studies in EDLA</td>
<td>ED</td>
<td>Undergraduate</td>
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<tr>
<td>EDLA476</td>
<td>Inquiry in K-8 Classrooms</td>
<td>ED</td>
<td>Undergraduate</td>
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<tr>
<td>EDLE500</td>
<td>Educational Leadership</td>
<td>ED</td>
<td>Graduate</td>
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</tbody>
</table>

Use and application of educational technology and microcomputers as instructional tools at the intermediate level in classroom and laboratory environments. The major emphasis will be on media and instruction and visual principles used in integrating technology with teaching. Prerequisites: EDGP 540. Typically Offered Spring only.

Specific strategies for applying teaching methods and effective reading comprehension skills in content areas. Topics include the reading process, pre-reading strategies and assessing knowledge of student background. Prerequisites: EDGP 541. Typically Offered Summer only.

Specific strategies for applying teaching methods and effective reading comprehension skills in content areas. Topics include assessing and building knowledge of student background, readability, and vocabulary and concept development. Prerequisites: Admitted to Troops to Teachers. Typically Offered Summer only.

Specific strategies for applying teaching methods and effective reading comprehension skills in content areas. Topics include levels of comprehension and reading and study guides/strategies. Prerequisites: EDGP 544. Typically Offered Fall only.

Designed to assist pre-service elementary teachers with the creation of projects using children's literature. Criteria for evaluating and selecting developmentally appropriate text for classroom use are examined. A portion of the course covers literature as visual text and various artistic styles found in picture books are examined. The course emphasizes strategies for using literature in the classroom. Prerequisites: ENGL 150 and ENGL 250 with B or better. Typically Offered Fall, Spring, Summer

Examines composition theory and practice and the integrated nature of the language arts. The course introduces the procedures necessary to set up a daily writer's workshop in the classroom including mini-lesson, conferencing techniques, publication procedures, preparation for the MEAP writing assessment, and evaluation of student work. Prerequisites: ENGL 150 and ENGL 250 with B or better. Typically Offered Fall, Spring, Summer

Examines reader response theory and history, the role of literature circles in reading comprehension, reader performance techniques and fluency development. Reader response journals, discussion groups, evaluation rubrics, portfolio construction, and the role of the teacher as facilitator are emphasized. The comprehension piece of the MLPP training for MT teachers is included. Prerequisites: ENGL 150 and ENGL 250 with B or better. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course explores the various leadership philosophies including transactional, transformational, servant, balanced and values, great-man, and moral. Students will also study the history of leadership, and ethical leadership practices. They will identify and define the various leadership roles within school districts, and apply these concepts to the development of a personal philosophy of leadership. This course is heavily research oriented, and will be examined across the domains of leadership, management, and risk management. Typically Offered Fall, Spring and Summer
EDLE520  Educational Leadership  Curricular Supervision  ED  School of Education Dept  Undergraduate  3  LEC LAB
This course explores practices related to instructional leadership, including issues of school reform, accreditation, state and national standards, individual education plans, education development plans, and curricular processes. Students will apply these practices across the domains of leadership, management, and risk management. Prerequisites: EDLE 500. Typically Offered Fall, Spring and Summer.

EDLE525  Educational Leadership  Personnel Administration  ED  School of Education Dept  Undergraduate  3  LEC LAB
This course explores the personnel management functions of school administration including legal issues, policy practices, communication practices, discipline of staff and students, evaluation of personnel, working with bargaining units and unions, hiring/"rightsizing"/firing practices, and nurturing staff and students. These topics will be explored through the domains of leadership, management, risk management, and futuring. Students are expected to complete field-based activities. Typically Offered Fall, Spring and Summer.

EDLE530  Educational Leadership  School Business Management  ED  School of Education Dept  Undergraduate  3  LEC LAB
This course explores the management functions of school administration including legal issues, strategic planning, facilities management, terminology, funding and finance. These topics will be explored through the domains of leadership, risk management, management and futuring. Students are expected to complete field-based activities. Prerequisites: EDLE 500. Typically Offered Fall, Spring and Summer.

EDLE540  Educational Leadership  School-Community Relationships  ED  School of Education Dept  Undergraduate  3  LEC LAB
Examines the dynamics of the interface between the public schools and the community. Special attention is given to the findings of research in relation to school-community power, types, and organizational influences. Outcomes include research paper which outlines a plan for developing supportive school-community relations. Prerequisites: EDLE 500. Typically Offered Fall, Spring and Summer.

EDLE545  Educational Leadership  Administrative Practices  ED  School of Education Dept  Undergraduate  3  LEC LAB
The focus of this course is on current theories, principles and practices relevant to the organization, administration and operation of educational programs, including adult community education. Each topic will be examined through four lenses: leadership management, risk management and futuring. It is expected that the student spend time interviewing and observing building administrators. Prerequisites: Instructor Permission. Typically Offered: Fall, Spring.

EDLE691  Educational Leadership  Leadership Internship  ED  School of Education Dept  Undergraduate  3  LEC LAB
This course serves to apply the strategies and skills developed in the theoretical course work within a school organization. Students are expected to complete one 3-credit hour session, a semester-long program, working with the administrators of a school district which has agreed to sponsor their internship; thus this course requires support and commitment of a local school district. During the internship, students will plan and complete a substantive project which will benefit the district in which they are working. Prerequisites: EDLE 500, 520, 525, 530 and 540. Typically Offered Spring, Summer and Fall.

EDPB206  Education Promoted Business  Educ Tech Second Classrooms 1  ED  School of Education Dept  Undergraduate  1  LEC LAB
Use and application of educational technology and microcomputers as instructional tools in classroom and laboratory environments. Design and development of materials for use in educational, training, and/or human services programs. Topics include basic operation of PC hardware and software. Prerequisites: Admission to ProMoTed TBI program. Typically Offered Fall, Spring and Summer.

EDPB207  Education Promoted Business  Educ Tech Second Classrooms 2  ED  School of Education Dept  Undergraduate  1  LEC LAB
Use and application of educational technology and microcomputers as instructional tools at the intermediate level in the classroom and laboratory environments. The major emphasis on applications will be based upon underlying concepts and principles of a systems approach to instructional design. Prerequisites: EDPB 206. Typically Offered Fall, Spring and Summer.

EDPB208  Education Promoted Business  Educ Tech Second Classrooms 3  ED  School of Education Dept  Undergraduate  1  LEC LAB
Use and application of educational technology and microcomputers as instructional tools in classroom and laboratory environments. Design and development of materials for use in educational, training, and/or human services programs. Prerequisites: EDPB 207. Typically Offered Fall, Spring and Summer. The psychological principles underlying classroom management, including specific strategies for managing an effective classroom. Students are required to do 5 hour field experiences in appropriate classroom setting. Prerequisites: Admission to ProMoTed TBI program.

EDPB287  Education Promoted Business  Prin of Teaching/Learning 1  ED  School of Education Dept  Undergraduate  1  LEC LAB
The psychological principles underlying teaching and learning: Learning theory, and motivation. Students are required to do a 5 hour field experiences in appropriate classroom setting. Prerequisites: EDPB 287. Typically Offered Fall, Spring and Summer.

EDPB288  Education Promoted Business  Prin of Teaching/Learning 2  ED  School of Education Dept  Undergraduate  1  LEC LAB
The psychological principles underlying, teaching and learning: Learning theory, and motivation. Students are required to do a 5 hour field experiences in appropriate classroom setting. Prerequisites: EDPB 287. Typically Offered Fall, Spring and Summer.

EDPB289  Education Promoted Business  Prin of Teaching/Learning 3  ED  School of Education Dept  Undergraduate  1  LEC LAB
The psychological principles underlying, gender and cultural differences, individual differences, exceptional learners, the development of self-concept. Students are required to do a 5 hour field experiences in appropriate classroom setting. Prerequisites: EDPB 288. Typically Offered Fall, Spring and Summer.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Institution</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>EDPB339</td>
<td>Education of Promoted Business</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Analysis of instructional design theory and practice will be the FSU classroom focus. Prerequisites: Admission to ProMoTed TBI program.</td>
</tr>
<tr>
<td>EDPB340</td>
<td>Instruction Planning/Practice 1</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Emphasis is placed on exploring a variety of teaching styles and strategies through a 45-hour field experience. Prerequisites: EDPB 339. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB400</td>
<td>Foundations in CTE 1</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Designed to afford students the opportunity to analyze vocational educational foundations knowledge and to apply it to a critical study of current educational practices and policies. Prerequisites: Admission to ProMoTed TBI program. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB401</td>
<td>Foundations in CTE 2</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Topics studied will include the following: philosophy and demographics of vocational students, labor market data, and future of career technical education. Prerequisites: Admission to ProMoTed TBI. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB402</td>
<td>Foundations in CTE 3</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Topics studied will include the following: state and federal laws and regulations pertaining to cooperative education and administration of cooperative educational programs. Prerequisites: Admission to ProMoTed TBI. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB404</td>
<td>Training in Organization 1</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Introduces the Training in Business and Industry major to the world of training and development in business, health care, government, and industry. The module is designed to include organizational structures and their dynamics and the historical development of training within organizations. Prerequisites: Admission to ProMoTed TBI program. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB405</td>
<td>Training in Organizations 2</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Introduces the Training in Business and Industry major to processes for identifying, analyzing, and assessing key competencies required of individuals involved in training roles. Introduces the Training in Business and Industry major to various training practices. Prerequisites: EDPB 404. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB406</td>
<td>Occ Analysis/Need Assessment 1</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Familiarizes the Training in Business and Industry major with the foundational concepts and principles of job and task analysis. Prerequisites: Admission to ProMoTed TBI program. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB407</td>
<td>Occ Analysis/Need Assessment 2</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Familiarizes with various methods for conducting job and task analysis and with various applications of needs assessment method. Prerequisites: EDPB 406. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB430</td>
<td>Instruction Delivery-Evaluation 1</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Participants will demonstrate their ability to connect lesson plans with curriculum objectives. Prerequisites: Admission to ProMoTed TBI program. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB431</td>
<td>Instruction Delivery-Evaluation 2</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Participants will demonstrate their ability to develop assessment and test items, as well as assessing student performance. Prerequisites: EDPB 430. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB432</td>
<td>Instruction Delivery-Evaluation 3</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Participants will demonstrate their ability to connect lesson plans with curriculum assessment. Practice teaching will take place in the FSU classroom. Prerequisites: EDPB 431. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB433</td>
<td>Instruction Delivery-Evaluation 4</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Participants will demonstrate their ability to connect lesson plans with curriculum objectives and assessment. Practice assessment will take place in the FSU classroom. Prerequisites: EDPB 432. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB439</td>
<td>Instruction Theory/Practice 1</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Focus will be placed upon refining delivery techniques, evaluation and assessment, and lesson plans. Prerequisites: Admission to ProMoTed TBI. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB440</td>
<td>Instruction Theory/Practice 2</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>Emphasis is placed on applying and refining theory into the practice of teaching through a 45-hour field experience. Prerequisites: EDPB 439. Typically Offered Fall, Spring and Winter.</td>
</tr>
<tr>
<td>EDPB475</td>
<td>Adults in CTE 1</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>An examination of the variety of ways career and technical educators work with adults in the course of their duties. Recognizing adult learning needs and participation patterns. Prerequisites: Admission to ProMoTed TBI. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB476</td>
<td>Adults in CTE 2</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>An examination of the variety of ways career and technical educators work with adults in the course of their duties. Selecting the best teaching style and techniques to use with an adult audience. Prerequisites: EDPB 475. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>EDPB477</td>
<td>Adults in CTE 3</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC LAB</td>
<td>An examination of the variety of ways career and technical educators work with adults in the course of their duties. Public relations skills. Making effective decisions as part of a professional work group. Organizing and maintaining an effective advisory council. Prerequisites: EDPB 476. Typically Offered Fall, Spring and Summer.</td>
</tr>
</tbody>
</table>
**EDPE215**  
**Education Physical Education**  
**Physical Education Activities**  
ED School of Education Dept  
Undergraduate 3 LEC LAB  
A study of human motor development and the sequencing of motor learning, movement skills and teaching methods appropriate to the development stage.  
Pre-Requisites:PSYC 150 & Physical Education Minor students only.  
Typically Offered Fall Only, Odd Years

**EDPE220**  
**Education Physical Education**  
**Human Motor Development**  
ED School of Education Dept  
Undergraduate 3 LEC LAB  
Physical education teaching methods and strategies will be included with specific emphasis on designing delivery of learning experiences and tasks, providing an appropriate learning environment, and assessment. Instructional content development, student motivation, and inclusion techniques, along with observation tools will be covered.  
Pre-Requisites:EDPE 215, EDUC 289 or Instructor approval.  
Typically Offered Spring Only, Odd Yea

**EDPE223**  
**Education Physical Education**  
**Advanced Fitness**  
ED School of Education Dept  
Undergraduate 3 LEC LAB  
Typically Offered Spring Only, Even Year  
This course focuses on the main components of health-related fitness: cardiovascular endurance, muscular strength and endurance, flexibility, and body composition. Topics including health-related fitness, nutrition, stress management, injury prevention, and the goal setting process are covered to enhance the students’ awareness, knowledge and ability to make healthy choices.  
Pre-Requisites:BIOL 109 or Instructor approval.  
Typically Offered Spring Only, Even Ye

**EDPE329**  
**Education Physical Education**  
**Methods Teaching Physical Educ**  
ED School of Education Dept  
Undergraduate 3 LEC LAB  
This course is designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  
Typically Offered On Demand

**EDPE338**  
**Education Physical Education**  
**Biomechanics**  
ED School of Education Dept  
Undergraduate 3 LEC LAB  
Typically Offered Spring Only, Even Year  
This course explores communication, mental, and emotional strategies that will have impact on exercise and performance in physical education and sport.  
Pre-Requisites:PSYC 150 and EDPE 220.  
Typically Offered Fall Only, Even Year

**EDPE397**  
**Education Physical Education**  
**Special Studies in EDPE**  
ED School of Education Dept  
Undergraduate 1 TO 4 LEC LAB  
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  
Typically Offered On Demand

**EDPE426**  
**Education Physical Education**  
**Issues in Physical Edu - Sport**  
ED School of Education Dept  
Undergraduate 3 LEC LAB  
Students, as part of the physical education capstone course will be introduced to technology applications for physical education classrooms, be introduced to professional organizations, learn how technology network with colleagues and community program resources, develop a professional portfolio, and complete the required teacher emergency training under Michigan State Law.  
Pre-Requisites:Senior status and Physical Education Minor students only.  
Typically Offered Fall Only, Even Year

**EDPE497**  
**Education Physical Education**  
**Special Studies in EDPE**  
ED School of Education Dept  
Undergraduate 1 TO 4 LEC LAB  
This course is a broad range of lifetime physical activities including individual and team sports, fitness activities, recreational games, dance and outdoor pursuits will be covered. Emphasis will be on activities that combine growth and development physically as well as cognitively, socially and emotionally. Safety, equipment, skills, and rules or guidelines will be covered.  
Pre-Requisites:Physical Education Minor students only.  
Typically Offered Fall Only, Odd Years

**EDPE499**  
**Education Physical Education**  
**Professional Physical Educator**  
ED School of Education Dept  
Undergraduate 3 LEC LAB  
Typically Offered On Demand

**EDPH503**  
**Philanthropy Education**  
**Foundations Philanthropy Educ**  
ED School of Education Dept  
Graduate 3 LEC LAB  
This course is an overview of philanthropy including: a historic view of philanthropy, definitions of philanthropy from a variety of perspectives, service-learning as a teaching method, civil society, core democratic values and founding documents of American democracy, altruism and its developmental stages, and the personal awareness of the impact of philanthropy on the students’ lives. The objective is to introduce students to the significance of philanthropy in a civil society as well as in their personal lives.  
Pre-Requisites:Graduate status.  
Typically Offered Summer Only

**EDPH516**  
**Philanthropy Education**  
**Philosophy of Philanthropy**  
ED School of Education Dept  
Graduate 2 LEC LAB  
This course is a philosophical analysis of philanthropy from a variety of political, ethnic, racial, cultural, religious, ethical, gender, and global perspectives. Recent research on philanthropy from cultures around the world will be reviewed. The students will analyze and synthesize different philosophical perspectives and develop a personal philosophy.  
Pre-Requisites: EDPH 503 and EDPH 531.  
Typically Offered Summer Only
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>EDPH521</td>
<td>Philanthropy Education</td>
<td>Nonprofit and Voluntary Sector ED School of Education Dept</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course is an overview of the purpose, structure, size and scope of the nonprofit sector. Especially designed for educators, it will briefly cover the philosophical, social, religious, and historic origins of the sector and its role in American Democracy. The economic, social, and political effects of the sector will be explored in depth. Typically offered Spring.</td>
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<tr>
<td>EDPH524</td>
<td>Philanthropy Education</td>
<td>Civil Society Comparative Pers ED School of Education Dept</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course will examine the state of 'civil society' by looking at institutions of different societies and the role they play in addressing common concerns, how voluntary organizations are established and function, and whether the traditions of philanthropy can be imported and nurtured. It will consider whether 'civil society' is a universal feature of social life and, if so, whether by scrutinizing the experience of other countries and cultures. Typically offered Fall only.</td>
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<tr>
<td>EDPH531</td>
<td>Philanthropy Education</td>
<td>Philanthropy Social Studies ED School of Education Dept</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course explores the integrated concepts of philanthropy in the four major social studies taught at the K-12 level: economics, geography, history, and government. Attention will be given to original source documents and supporting literature. Specific attention will be paid to the social studies standards and benchmarks and how philanthropy education can enhance student understanding of these core concepts. The objective will be to acquaint students with key social studies concepts, standards, and benchmarks as they relate to philanthropy education. Pre-Requisites: Graduate status. Typically offered Summer Only</td>
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<tr>
<td>EDPH533</td>
<td>Philanthropy Education</td>
<td>Philanthropy in-through Arts ED School of Education Dept</td>
<td>Graduate</td>
<td>1</td>
<td>LEC</td>
<td>This is a highly interactive and creative course objective of which is to engage the student in teaching philanthropy through the arts (visual, performance, music, dance). In addition, the students will analyze the inter-relationship of philanthropy in support of the arts and civil society. Pre-Requisites: EDPH 503 and EDPH 531. Typically offered Summer Only</td>
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<tr>
<td>EDPH597</td>
<td>Philanthropy Education</td>
<td>Special Studies in EDPH     ED School of Education Dept</td>
<td>Graduate</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered on Demand.</td>
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<td>EDPH620</td>
<td>Philanthropy Education</td>
<td>Philanthropy Curriculum Devel ED School of Education Dept</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course will involve students in writing and piloting an original classroom unit that teaches philanthropy as an integrated component of the school curriculum. The unit will include at least one service-learning experience and will be written to a standardized template leto includes direct ties to the education standards and benchmarks. The objectives for students are to use an exemplary integrated unit writing model to create practical philanthropy lessons. Prerequisites: EDPH 503 and EDPH 531. Typically offered Summer Only</td>
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<tr>
<td>EDPH626</td>
<td>Philanthropy Education</td>
<td>Education for a Civil Society ED School of Education Dept</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This course introduces innovative national programs that support and are related to the mission of philanthropy education. The course will focus on the curriculum-based learning to give initiative. It will highlight the key concepts and teaching strategies involved in related efforts such as teaching tolerance, character education, cooperative learning, life skills, partnership studies, multiple intelligences, and brain-based instruction. The students will gain knowledge and experience in intentionally integrating their classroom and lessons instructional strategies for teaching a more civil society. Pre-Requisites: Graduate status. Typically offered Summer Only</td>
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<tr>
<td>EDPH641</td>
<td>Philanthropy Education</td>
<td>Capstone in Philanthropy Educ ED School of Education Dept</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
<td>This capstone course will result in a project, thesis or portfolio onfurthering the understanding and the application of philanthropy education inschool. Students will identify a project area and research the topic during their Action Research course. This course will require the application of knowledge acquired during the Masters Degree courses. Project, thesis orPortfolio requires prior approval of a proposal by the course instructor Prerequisites: EDPH 503, EDPH 531, and EDPH 620. Typically offered Spring only.</td>
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<tr>
<td>EDPH697</td>
<td>Philanthropy Education</td>
<td>Special Studies in EDPH     ED School of Education Dept</td>
<td>Graduate</td>
<td>1 TO 3</td>
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<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered on Demand.</td>
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<tr>
<td>EDUC101</td>
<td>Education</td>
<td>Intro to the Professn of Teach ED School of Education Dept</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
<td>Ethics, preparation for the MTTC, professional culture, conceptual framework, dispositions, pathways to certification, and the use of digital portfolios. Typically offered Spring and Fall.</td>
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<tr>
<td>EDUC197</td>
<td>Education</td>
<td>Special Studies in EDUC     ED School of Education Dept</td>
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<td>1 TO 4</td>
<td>LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered on Demand.</td>
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<td>Course Code</td>
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<td>EDUC251</td>
<td>Education Life Span Human Growth - Devel</td>
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<td>EDUC289</td>
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<td>School of Education Dept</td>
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<td>EDUC297</td>
<td>Education Special Studies in EDUC</td>
<td>School of Education Dept</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC-LAB</td>
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<tr>
<td>EDUC303</td>
<td>Education School and Work and Society</td>
<td>School of Education Dept</td>
<td>Undergraduate</td>
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<tr>
<td>EDUC338</td>
<td>Education Secondary General Methods I</td>
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<td>EDUC378</td>
<td>Education Media Presentation Techniques</td>
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<td>EDUC390</td>
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<td>EDUC391</td>
<td>Education Work Experience Internship</td>
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<td>EDUC397</td>
<td>Education Special Studies in Education</td>
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<td>1 TO 10</td>
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<td>EDUC413</td>
<td>Education Inst Plan-Delivery Elem Mid Sc</td>
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<td>EDUC415</td>
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<td>EDUC420</td>
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<td>EDUC421</td>
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<td>EDUC431</td>
<td>Education Meth Tchg Lang-Art-Soc Studies</td>
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<td>EDUC432</td>
<td>Education Meth Tchg Math-Sci Elem-Mid Sc</td>
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<td>EDUC435</td>
<td>Education Methods of Teaching Health/PE</td>
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<td>Undergraduate</td>
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<td>EDUC438</td>
<td>Education Secondary General Methods II</td>
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<td>EDUC443</td>
<td>Education Tchg Reading-Secondary Areas</td>
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<td>Undergraduate</td>
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<td>EDUC490</td>
<td>Education Special Topics in Education</td>
<td>School of Education Dept</td>
<td>Undergraduate</td>
<td>1 TO 9</td>
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**EDUC420**
Examines theories and research-based principles of reading instruction from emergent literacy to early childhood literacy acquisition within the framework of English Language Arts standards for Grades K-4. Includes investigations of family and socio-cultural influences on literacy acquisition, cognitive, child, and language development, balanced literacy, assessment/evaluation, and strategies for preventing reading failure. Develops strategies for organizing instruction within a literate/print-rich, literature-based environment, promoting basic conventions/rules for successful literacy acquisition, and designing instruction to meet all student's needs. Pre-Requisites: Teacher Education students only. Co-Requisites: EDUC 413. Typically Offered Fall, Spring, Summer.

**EDUC421**
Moves from emergent literacy to mature reading by examining research-based principles and methodologies for engaging students in meaningful reading/literacy instruction within the framework of English Language Arts standards (Grades 3-8). Explores concepts that enhance literacy independence and provides investigations of variables that influence reading success. Examines links to the writing process and other content areas through the integration of English Language Arts into the other content areas through thematic units. Pre-Requisites: EDUC 420. Co-Requisites: EDUC 431, 432 and 433. Typically Offered Fall, Spring, Summer.

**EDUC431**
Examines current social studies content and instructional methodology that children engages in reading, writing, and inquiry as they study the six basic social studies themes consistent with state and national standards: history, geography, economics, civics, public discourse/decision making, and citizen involvement. Investigates those themes within an interdisciplinary context that promotes reading and writing. Includes organizing for instruction, unit development, standards-based, classroom assessment models, and integrating language arts into social studies. 40 hour field experience required in authentic setting. Pre-Requisites: EDUC 413 and EDUC 420. Co-Requisites: EDUC 421, 432 and 433. Meets General Education requirements for Collaboration. Typically Offered Fall, Spring.

**EDUC432**
This course provides students with a vision and understanding of elementary mathematics and science curricula which reflect state and national standards. Emphasis placed upon the Assessment-Instruction-Evaluation-Intervention Teaching Model, appropriate use of concrete models, manipulatives and applications of technology. Investigation of current best practices of instruction and effective assessment strategies emphasized. Students will explore mathematics strands as they integrate into the science topics of constructing, reflecting and using scientific knowledge. 40 hour field experience requirement in authentic setting. Pre-Requisites: EDUC 413 and EDUC 420. Co-Requisites: EDUC 421, EDUC 431 and EDUC 433. Meets General Education requirements for Collaboration. Typically Offered Fall, Spring.

**EDUC435**
The purpose of this course is to integrate health physical education components into regular classroom settings. Health/Physical education teaching methods and strategies will be included with specific emphasis on designing, delivery of learning experiences and tasks, providing an appropriate learning environment and assessment. Students are introduced to health concepts that should be a part of every class as well as health related components of physical fitness that can be integrated with academics. Prerequisite: Level II admission. Co-requisite: EDUC 431 and EDUC 432. Meets General Education requirements for Collaboration. Typically Offered Fall and Spring.

**EDUC438**
The focus of this course is to continue development of teaching and learning skills by writing and delivering mini lessons, practicing managing a field classroom, exploring evaluation techniques, writing objective test questions, rubrics, matching tests/exercises, and discussing standardized testing. Participants will apply their major and minor content specialties to delivery of lessons and specific audiences. An 80-hour field experience in the schools is required. Prerequisite: EDUC 338. Meets General Education requirements for Collaboration. Typically Offered Fall, Spring. Specific strategies for applying teaching methods and effective reading comprehension skills in content areas. Topics include the reading process, assessing and building knowledge of student background, readiness, prereading strategies, levels of comprehension, vocabulary and concept development, reading and study guides/strategies. Pre-Requisites: Department approval. Typically Offered Fall, Spring, Summer.

**EDUC443**
Special Topics in EDUC 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.
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<td>EDUC492</td>
<td>Education Experienced Teacher Review</td>
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<td>EDUC494</td>
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<td>EDUC495</td>
<td>Postsecondary Directed Tchg</td>
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<td>EDUC496</td>
<td>Post Sec Exper Teacher Review</td>
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<td>EDUC497</td>
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<td>EDUC499</td>
<td>Student Teaching</td>
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<td>EDUC501</td>
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<td>EDUC502</td>
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<td>EDUC503</td>
<td>Foundations of Education</td>
<td>ED</td>
<td>Graduate</td>
<td>3</td>
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During this 15-week experience, non-certified lead teachers are under the direct supervision of an on-site supervisor/administrator, as well as a university supervisor, assume all duties of a regular lead classroom teacher. (Refer to State Board of Education Administrative Rules, Public Act 289 and/or FSU-SOE Policy) This experience is supported by regular participation in the online community where innovative instruction and assessment methods, as well as major topic of interest, subject area, classroom management, and pedagogy are discussed. Pre-Requisites: Teacher Education students only. Typically Offered Fall, Spring, Summer

Workshop/seminar courses in areas of special interest. Primarily teacher/trainer inservice and professional development. Typically Offered Fall, Spring

Practical experience under guidance of supervising teachers in planning for teaching, managing the classroom, directing the learning activities of pupils. Student teachers are given increasing responsibility for directing the activities of the classroom group to the point of assuming full responsibility. Student teaching in a postsecondary school. Co-Requisites: EDUC 499. Typically Offered Fall, Spring

An experience at the post-secondary level during which an experienced teacher, under the direct supervision of an on-site and university supervisor assumes all duties of a regular classroom teacher. The experienced teacher will be required to maintain an instructional notebook. Co-Requisites: EDUC 499. Typically Offered Fall, Spring

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

During this 15-week experience, student teachers receive practical experience under the guidance of supervising teachers in planning for teaching, managing classrooms, and directing learning activities of pupils. Student teachers are given increasing responsibility for directing the activities of the classroom group to the point of assuming the responsibility of a co/lead teacher. Student teaching is assigned at the appropriate levels in elementary or secondary schools, and is supported by regular participation in the online community where innovative instruction and assessment methods, as well as topics of interest, subject area, classroom management, and pedagogy are discussed. Prerequisites: Department Approval. Meets General Education requirements for Problem Solving. Typically Offered Fall, Spring

Designed to promote the study of psychology as it applies to the teaching & learning process. Current theory and methodology involved in establishing an environment effective to learning is emphasized. This course is designed to assist secondary classroom teachers, who will examine their experiences and assumptions as learners and teachers, contrasting them with psychological, sociological and anthropological theories about learning. Classroom observations and interviews with secondary school personnel are required. NOTE: Not open to students with an undergraduate principles of teaching and learning course without advisor permission. Pre-Requisites: Education students only. Typically Offered Fall, Spring, Summer

Students are required to do a field experience in an appropriate public school classroom setting where they serve as a teacher aide, tutor and guest teacher. Students will observe, record, discuss and evaluate student-teacher relationships and behaviors as well as research and develop instructional materials. Pre-Requisites: EDUC 501 & EDUC 503. Co-Requisites: EDUC 504. Typically Offered Fall, Spring

Designed to afford students the opportunity to analyze educational foundations knowledge and to apply it to a critical study of educational practices and policies. Topics studied will include: teaching as a profession, the financing and governance of education, the education of exceptional children, educational reform, the sociology of education, and philosophy and history of education. Observations of secondary classrooms and interviews with secondary school personnel are required. NOTE: Not open to students with an undergraduate foundations of education course without advisor permission. Pre-Requisites: Education students only. Typically Offered Fall, Spring, Summer
EDUC504 Education Curriculum Design - Evaluation ED School of Education Dept Graduate 3 LEC

This course is designed to survey the latest theory and practice of curriculum development and provide practice in the process of curriculum design & construction. The student will develop instructional materials including performance objectives, daily and unit lesson plans, accompanying teacher materials, assessment techniques in a number of micro-teaching experiences. Not open to students with an undergraduate course in curriculum design without advisor permission. Pre-Requisites: EDUC 501 and EDUC 503. Co-Requisites: EDUC 502. Typically Offered Fall, Spring

EDUC508 Education Inst of Exceptional Learners ED School of Education Dept Graduate 3 LEC

This course is designed to provide an introduction to the education of exceptional learners. Content will include an historical perspective including legislation and litigation, psychological, academicians, social and cognitive-characteristics associated with specific handicapping conditions, assessment and intervention procedures, special education services/programming and the role of family, community and current issues related to special education. Pre-Requisites: Graduate Status. Typically Offered Fall, Spring, Summer

EDUC513 Education Inst Plan-Del Elem-Middle Sch ED School of Education Dept Graduate 4 LEC

Theory with applied practice in planning instruction, classroom delivery techniques, and evaluating student performance. A clinical lab includes a 30-hour field experience in an educational environment as a non-teaching assistant. Simulated classroom activities will involve students in their first microteaching experience. Pre-Requisites: EDUC 501 and EDUC 503. Typically Offered Fall, Spring

EDUC514 Education Cooperative Edu Career Tech Ed ED School of Education Dept Graduate 2 LEC

State and federal laws, rules, and regulations pertaining to cooperative education; cooperative role and responsibilities; agreements between schools and employers; the promotion of cooperative education programs; and the employment of students. Student/employer education plans are designed and developed. Pre-Requisites: Graduate Status. Typically Offered Spring, Summer

EDUC516 Education Issues in Education ED School of Education Dept Graduate 3 LEC

Provides students with a framework for analyzing educational policies and practices in school and non-school settings. The framework is rooted to a broad foundational perspective designed to assist students in understanding selected issues in education by exploring historical antecedents, philosophical and theoretical assumptions, and social and ideological factors that influence current educational policies and practices. The aim is to analyze the character of assumptions and the nature of implications inherent in educational proposals, policies, and activities. Pre-Requisites: Graduate Status. Typically Offered Fall, Spring

EDUC518 Education Diversity Classroom-Workplace ED School of Education Dept Graduate 3 LEC

Examines theories and research-based principles of reading instruction from emergent literacy to literacy acquisition within the framework of English Language Arts standards for Grades K-4. Includes investigations of family and socio-cultural influences on literacy acquisition, cognitive, child and language development, balanced literacy, assessment/evaluation, and strategies for preventing reading failure. Develops strategies for organizing instruction within a literate/print-rich, literature-based environment, promoting basic conventions/rules for successful literacy acquisition, and designing instruction to meet the needs of all students. Pre-Requisites: EDUC 501, EDUC 503. Corequisite: EDUC 513. Typically Offered Fall, Spring, Summer

EDUC521 Education Tchg Reading Elem-Middle Sch 2 ED School of Education Dept Graduate 3 LEC

Moves from emergent literacy to mature reading by examining research-based principles and methodologies for engaging students in meaningful reading/literacy instruction within the framework of English Language Arts standards (Grades 3-8). Explores concepts that enhance literacy independence and provides investigations of variables that influence reading success, strategic teaching and reading practices, materials, programs, and interventions. Examines links to the writing process and other content areas through the integration of English Language Arts into the other content areas through thematic units. Pre-Requisites: Graduate Status and EDUC 520. Co-Requisites: EDUC 531, 532 and 533. Typically Offered Fall, Spring, Summer
EDUC531 Education Tchg Eval Lang Art-Ss Elem-MS ED School of Education Dept Graduate 3 LEC
Examines current social studies content and instructional methodology that children engages in reading, writing, and inquiry as they study the six basic social studies themes consistent with state and national standards: history, geography, economics, civics, public discourse/decision making, and citizen involvement. Investigates those themes within an interdisciplinary context that promotes reading and writing. Includes organizing for instruction, unit development, standards-based, classroom assessment models and integrating language arts into social studies. Pre-Requisites: EDUC 513 and 520. Co-Requisites: EDUC 521, 532 and 533. Typically Offered Fall, Spring, Summer

EDUC532 Education Tchg Eval Math-Sci Elem Mid Sc ED School of Education Dept Graduate 3 LEC
Provides the prospective teacher with a vision and understanding of elementary mathematics and science curricula which reflect state and national content standards. Emphasis will be placed upon the Assessment-Instruction-Evaluation-Intervention Teaching Model, appropriate use of concrete models and appropriate manipulatives and applications of technology. Investigation of current best practices of instruction and effective assessment strategies will be emphasized. Students will explore the mathematics strands as they integrate into the science topics of constructing, reflecting and using scientific knowledge. Pre-Requisites: EDUC 513 and 520. Co-Requisites: EDUC 521, 531, and 533. Typically Offered Fall, Spring, Summer

EDUC535 Education Methods of Teaching Health/PE ED School of Education Dept Graduate 3 LEC
The purpose of this course is to integrate health physical education components into regular classroom settings. Health/Physical education teaching methods and strategies will be included with specific emphasis on designing, delivery of learning experiences and tasks, providing an appropriate learning environment and assessment. Students will write a research paper detailing how health related components of physical fitness can be integrated with academics in their content area. Prerequisite: Level II admission. Co-requisite: EDUC 531 and EDUC 532. Typically Offered Fall and Spring.

EDUC540 Education Educ Technology Classroom ED School of Education Dept Graduate 3 LEC
Designed to prepare secondary classroom teachers for the inclusion of media and technology in their lessons. Students will prepare media that are examples of both older, time-tested technology as well as those that are emerging primarily because of the advent of the personal computer. Topics include: media and instruction, visual principles, hardware for the classroom, non-projected media, projected visuals, classroom audio, classroom video, and integrating technology with teaching. Note: Not open to students with an undergraduate educational technology course without advisor permission. Pre-Requisites: Education students only. Typically Offered Fall, Spring, Summer

EDUC543 Education Reading in the Content Area ED School of Education Dept Graduate 3 LEC
Specific strategies for teaching effective reading comprehension skills in any content area. Topics include the reading process, assessing and building knowledge of student background, readability, prereading strategies, levels of comprehension, vocabulary and concept development, reading and study guides/strategies, and the application of reading methods in the content areas. Provides students an opportunity to implement strategies learned. Pre-Requisites: Education students only. Typically Offered Fall, Spring, Summer

EDUC560 Education Adv Appl Educ Tech Classroom ED School of Education Dept Graduate 3 LEC
This course allows those already proficient with the basics of using media and technology in the classroom to explore ideas currently beyond their capacity. Advanced Web page design, hypermedia development, scripting and/or programming, authoring, teaching with multimedia, managing online learning groups, and the Internet. Pre-Requisites: EDUC 540. Typically Offered On Demand

EDUC570 Education Teach-Learn Theories Classroom ED School of Education Dept Graduate 3 LEC
Designed to provide the opportunity to implement advanced concepts of teaching and learning in the classroom. Emphasis will be placed on the assessment and evaluation of an effective learning environment; adapting instruction to meet individual needs and at-risk students; creating activities which motivate students and enable learners to retain information and transfer learning. The course will focus on the connection of learning theories to classroom practice as they relate to teaching and learning in a diverse classroom. Pre-Requisites: Graduate Status. Typically Offered On Demand Special Topics in EDUC - 500 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

EDUC590 Education Special Topics in Education ED School of Education Dept Graduate 1 TO 3 LEC
The M.Ed. internship is a supervised work internship in an appropriate K-12 public school setting. The intern will be required to create a portfolio. One credit of EDUC 591 equals 66 clock hours. During the semester that you are enrolled for EDUC 591, a FSU internship supervisor will be assigned to visit your internship site and discuss your progress. Pre-Requisites: Graduate Status and department approval. Typically Offered Fall, Spring, Summer
EDUC593 Education Experienced Teacher Review ED School of Education Dept Graduate 1 TO 8 LEC

An experience at the appropriate grade level during which an experienced, non-certified teacher, under the direct supervision of an on-site and university supervisor assumes all duties of a regular classroom teacher. The experienced teacher will be required to maintain an instructional notebook. Prerequisites: Graduate Status. Typically Offered Fall, Spring

EDUC595 Education Content-Instr Workshop-Seminars ED School of Education Dept Graduate 1 TO 2 LEC

This course is designed to allow students to participate in courses, workshops, and seminars offered by universities, colleges, technical societies, professional organizations, or business and industry to improve their content/instructional skills in their subject area major or minor. The student will be required to write a scholarly paper on the workshop/seminars attended. One credit equals 15 clock hours. Consult your advisor regarding appropriateness of workshops/seminars. Prerequisites: Graduate Status and department approval. Typically Offered Fall, Spring, Summer

EDUC597 Education Special Studies in EDUC ED School of Education Dept Graduate 1 TO 4 LEC

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

EDUC610 Education Employment-Training Policy ED School of Education Dept Graduate 2 LEC

A study of public and private policy and programs in the United States and selected foreign countries, such as ARA, MOTA, and JTPA designed to provide training and employment to citizens in means of alleviating unemployment and creating additional state and federal revenue and reducing costs of public maintenance of the unemployed. Prerequisites: Graduate Status. Typically Offered Fall, Spring.

EDUC620 Education Adv Integrat Curr Design-Eval ED School of Education Dept Graduate 3 LEC

Assists the student in developing and evaluating new and innovative curriculum processes for middle and high school settings. The course will concentrate on aligning curriculum content to national regional, state and local standards and building teamwork for curriculum integration. In addition, it will increase the student’s ability to use technology as a curriculum tool. Prerequisites: Graduate Status. Typically Offered Fall, Summer

EDUC630 Education School Law ED School of Education Dept Graduate 3 LEC

The course will use fundamental legal principles found in federal and state law, the constitutions of the United States and Michigan, case law and regulations to inform and prepare the student to apply the law to school administration. These topics will be explored through the domains of leadership, management, risk management, and futuring. Outcomes include an analysis of current school handbooks in relation to these concepts. Prerequisites: Graduate Status. Typically Offered Fall, Summer

EDUC663 Education Prin Data Driv Decision Making ED School of Education Dept Graduate 4 LEC

This course will provide students with a comprehensive overview of the information and processes used to make data driven decisions in an educational environment. This will include a survey of standard research approaches, data acquisition methods, interpretation of data and application of results. This course is the prerequisite to the Capstone course in all Masters of Education programs. Prerequisites: Graduate status, Instructor permission.

EDUC681 Education Capstone ED School of Education Dept Graduate 3 LEC

A capstone designed by graduate students in SOE with assistance of instructor and Faculty Capstone committee. A thesis, project, reflective portfolio, or comprehensive examination will demonstrate the synthesis of knowledge acquired in all master’s degree courses with focus on the student’s career endeavors. All capstone activities must be pre-approved and the application filed appropriately along with three-chapter proposal; students will present their completed capstone to a Faculty Capstone Committee. Prerequisites: EDUC 663 and graduate standing. Typically Offered Fall, Spring, Summer.

EDUC690 Education Special Topics in Education ED School of Education Dept Graduate 1 TO 4 LEC

Special Topics in EDUC-600 Level. Prerequisites: Graduate Status. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
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<td>EDUC697</td>
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<td>EEET110</td>
<td>Electrical Engineering Fundamentals</td>
<td>IET Technical Preparation</td>
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<td>EEET111</td>
<td>Mobile Robots</td>
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<td>EEET122</td>
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<td>EEET190</td>
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<td>EEET214</td>
<td>Advanced Electric Circuits</td>
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</table>

Graduate level workshop/seminar courses in areas of special interest. Primarily teacher/trainer inservice and professional development. Pre-Requisites: Graduate Status. Typically Offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Graduate Status. Typically Offered Fall, Spring, Summer.

An introduction to basic drafting, graphing, and diagramming techniques, as well as personal computer hardware, firmware, and software, as those topics relate to the electronics technology field. An objective of this course is to provide the student with some prerequisite tools and techniques to be used in other electronic courses for lab and project reports, and testing and homework responses. Pre-Requisites: Industrial Electronics students only. Typically Offered Fall Only.

Mobile Robots explores modern robots through design, construction and performance test. The course will also look at the broader aspect of different engineering disciplines working together in the robotic field. All students are welcome. Typically Offered Fall Only.

An introduction to the basic principles of electronic circuits including voltage, current, power, resistance, series, parallel, and combination circuit analysis. The course approaches these topics from a systems viewpoint which emphasizes the application of basic concepts to actual circuits and devices. Co-Requisites: MATH 115 or Department Approval. Typically Offered Spring and Fall.

Study of basic digital concepts including logic gates, Boolean algebra, number systems, logic functions, flip-flops, counters, registers and memory devices. VHDL will be used with programmable logic devices to implement logic functions. Written and oral reports are an integral part of this course. Pre-Requisite: EEET 114 with a grade of C- or better. Typically Offered Spring Only.

A continuation of Electric Circuits 1. This course examines capacitance, inductance, RC circuits, RL circuits, transformer theory and applications, AC signals and waveforms, oscilloscopes, power supplies and higher level devices. The course approaches these topics from a systems viewpoint which emphasizes the application of basic concepts to actual circuits and devices. Prerequisites: EEET 114 minimum grade of C- and MATH 115 or a minimum score of 24 on ACT Math or 580 on SAT Math. Typically Offered Spring and Fall.

Special Topics In EEET - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

An introductory course covering the principles of electricity as applied to DC and AC circuits and operation of common electrical devices and apparatus. Topics are presented in lecture and practiced in hands-on lab activities. Basic measurements of current, voltage, and power are presented. Course introduces magnetism, inductance, capacitance, generators, 3-phase power, power flow, power factor, transformers, motors and power supplies. Pre-Requisites: MATH 116 or MATH 120 or MATH 126 or MATH 130 or MATH 216 or MATH 220 or ACT MATH score 24 or higher. Typically Offered Fall, Spring Fundamentals of communication circuits and techniques; analysis of special circuits used in AM and FM receivers and transmitters. Modulation and demodulation methods are introduced along with antennas and transmission lines. Pre-Requisites: EEET 124 minimum grade of C- Co-Requisites: EEET 212 And EEET 216. Typically Offered Fall Only.

The student will learn the operation of discrete transistor devices and applications. JFET's, D-MOSFET, and BJT devices will be studied. Linear BJT amplifiers and multi-transistor circuits are covered. Pre-Requisites: EEET 124 minimum grade of C-. Typically Offered Fall Only.

A first course in microprocessor based systems. Microprocessor architecture, registers, addressing, memory and instructions are studied. Applications will be developed using flowcharting, pseudo code and assembly language. Programming and troubleshooting activities utilizing microprocessor based hardware is emphasized. Pre-Requisites: EEET 122 minimum grade of C- Typically Offered Fall Only.

This course will address basic AC circuit concepts including waveforms, phasors, series and parallel circuits, resonance, transformers and filters. Application of methods of analysis, theorems and power calculations will be investigated. Prerequisites EEET 124 with a grade of C- or better and MATH 126 or MATH 216. Typically Offered Fall only.
<table>
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<tr>
<th>Course Code</th>
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<td>EET221</td>
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<td>EET222</td>
<td>Electrical Engineering Microprocessor Applications</td>
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<td>EET224</td>
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<td>EET290</td>
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<td>EET-CNS</td>
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<td>EET297</td>
<td>Electrical Engineering Special Studies in EEET</td>
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<td>EET301</td>
<td>Electrical Engineering Controls for Automation</td>
<td>TE</td>
<td>EET-CNS</td>
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<td>EET313</td>
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<td>EET321</td>
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<td>EET323</td>
<td>Electrical Engineering Industrial Automation Controls</td>
<td>TE</td>
<td>EET-CNS</td>
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</table>

This course will introduce students to semiconductors beginning with the diode and expand to three terminal devices in both switching and amplifying applications. Exploration of the BJT, JFET, and SOA/FET in small signal and power devices will be exploited in singular and multistate circuits. The course will culminate in a semester design project that involves designing a real amplifier that will be built and demonstrated. Pre-Requisites: EET 124 with minimum grade of C. Typically Offered Fall semester.

Students will draw upon their knowledge of DC, AC, solid state devices and digital circuits to develop problem solving techniques and methodology. Troubleshooting skills will be developed through the use of analog and digital instruments to identify faults in a variety of non-functional circuits. Pre-Requisites: EET 210 minimum grade of C. EET 212 minimum grade of C. EEET 216 minimum grade of C. Co-Require: EET 226. Typically Offered Spring Only

A project oriented microprocessor course dealing with interface issues of digital systems. Topics include A/D and D/A converters, signal conditioning, transducers, loading effects, serial interface, parallel interface and combination programmable logic and microprocessor circuits. Written and oral reports are an integral part of this course. Pre-Requisites: EET 212 minimum grade of C. Typically Offered Spring Only

Introduces automation; review of magnetics; DC motors, AC induction motors, three-phase, transformers; programmable logic controllers, input sensors, ladder logic, wire diagrams, and electric heat controls. Pre-Requisites: EET 124 with a grade of C or better. Typically Offered Spring Only

The course is a continuation of EEET 216. Study will include multi-transistor circuits, JFET's, MOSFET's and classes of amplifiers. Differential amplifiers and op-amps will be studied. Pre-Requisites: EET 216 with minimum grade of C-and MATH 130 with minimum grade of C-. Typically offered in Spring semester.

Special Topics in EEET - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of special interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

A second course that builds on principles taught in EEET 201 and applies them to industrial automation systems. Sensor and actuator control elements are presented. Ladder diagrams and fluid power symbology emphasized. Solenoids, starters, timers, counters, relays, contactors, heaters, motors, 3-phase power, PLC's, other I/O devices are discussed and applied to manufacturing applications. Safety standards, and other system integration issues are presented. Pre-Requisites: EET 201 minimum grade of C. Typically Offered Fall, Spring

Covers in-depth study of DC motors and generation, polyphase motors, single phase motors and synchronous motors; other topics covered are machine efficiency and heating, three-phase power and power factor, transformers, and variable frequency drives. Prerequisites EET 224 minimum grade of C or EEET 301 minimum grade of C. Typically Offered Fall Only

Course builds on DC and AC theory. Covers derivative and integral relations for capacitive and inductive components; transient and steady state solutions with differential equations; initial and final conditions; and second order circuits characterized by responses. Laplace Transforms as a tool for solving linear networks and determining stability of control systems. Use of transfer functions to describe input/output relations. Review of Bode Plots and the introduction of Fourier Analysis. Written and/or oral reports required. Pre-Requisites: EET 124 with a grade of C- or better and MATH 230 with a grade of C- or better. Typically Offered Fall semester.

Advanced topics in PLC and process control. Includes an introduction to robotics, PID control, the PC as a controller, PLC topics include I/O devices, timers, counters, arithmetic instructions, subroutines, sequencer instructions, PLC to PLC and PLC to host communications. Prerequisites EET 224 minimum grade of C- or EEET 301 minimum grade of C. Typically Offered Fall Only
<table>
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<th>Course Code</th>
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<td>EET3357</td>
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<td>EET-CNS</td>
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<td>EET390</td>
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<td>EET411</td>
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<td>EET418</td>
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<td>EET424</td>
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<td>EET428</td>
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<td>EET490</td>
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<td>EET-CNS</td>
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An introduction to data acquisition (DAQ), control analysis, and presentation using the graphical programming language LabVIEW. Sensors, transducers and signal conditioning is introduced. LabVIEW may be used to acquire data into a computer via GPIB, serial ports, and plug-in DAQ boards. LabVIEW is also used to provide process control, analysis of data (in both real time and post process) and present the associated information in an end user friendly format. Prerequisites: EET 122 minimum grade of C- and EET 124 minimum grade of C. Typically offered Fall semester.

As a continuation of EET 221, advanced concepts in electronics will be covered including energy conversions, hybrid drive and green energy applications. Emphasis will be placed on circuits in motor control, photovoltaic and battery charging technologies. This includes DC/DC converters (Buck, Boost, Flyback, Inductorless), AC inversion, H-Bridge applications and PWM circuits including class-D amplifiers. Prerequisites: EET 215 with a grade of C- or better and EET 222 with a grade of C- or better. Typically offered Fall.

Special Topics in EET - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Industrial experience where students can apply their previously learned skills for the mutual benefit of the intern and the employer (400 hours minimum). Weekly activity reports are required during the internship, as well as a mid-term and final formal report. Employers also submit a performance report on the intern. Students are required to complete a cover letter and resume’ prior to seeking the internship. Pre-Requisites: Department Approval. Typically Offered Summer Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

As a continuation of EET 210, this course will focus on advanced modulation techniques, digital transmission and reception, high order switched capacitor filter analysis as well as antennas and transmission lines. CAD tools will be used for analysis of filter topologies and then realized in lab. Introduction to lossless and lossy transmission line analysis will be covered in theory and practice. Prerequisites: EET 210 with a grade of C- or better. Co-requisite: EET 321. Typically offered Fall, Spring.

Fundamentals of industrial Process Communications are presented. A foundation in transmission media and standard are reviewed. A heavy emphasis is given on Industrial control networks and applications. PLC to PLC, PLC to MMI, PLC to SCADA, PLC to Remote I/O, PLC to Motion Controllers, PLC to Sensors, PLC to Devices, and PLC to PC communications are emphasized, connected and tested. Pre-Requisites: EET 323 minimum grade of C. Typically Offered Spring Only

Learn the principles of managing senior project, including project definition, project specs, Gantt chart preparation, cost analysis, documentation and presentation. Written and oral reports are an integral part of this course. Pre-Requisites: Senior status in Elect/Electronic Eng or Computer Network Sys. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall Only

Fundamentals of Industrial Motion control are presented. A foundation in Servo Systems and components are introduced. Basic Control Theory with S-Plane analysis is presented. A heavy emphasis is given to industrial applications where motion control is used in manufacturing operations. Also included is an introduction to industrial digital servo systems. Pre-Requisites: EET 313 with a grade of C or better and EET 321 with a grade of C- or better. Typically Offered Spring Only

Actual construction phase of senior project. Project developed in project management course is completed. Primarily a lab class. Includes the construction, demonstration, and formal documentation of the project. Timely project status reports are required. Oral reports are an integral part of this course with formal oral report at conclusion of project. Pre-Requisites: EET 418 minimum grade of C- Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only

Special Topics in EET - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
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<td>EHSM390</td>
<td>Environmental Health-Safety Mg</td>
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<td>ENGL222</td>
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<td>Intro to Creative Writing</td>
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</table>

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Social Topics in EHSM - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring

An introduction to college writing strategies and skills through guided practice and instruction in pre-writing through revision stages in composition. How to use writing support systems, establish a writing portfolio, and develop analytic skills. Typically Offered Fall, Spring

Organize and develop papers for diverse audiences and purposes; including how to discover and focus on a topic, develop ideas, gather support, and draft and revise papers effectively. Fundamental language skills and introduction to library research and argumentation. Pre-Requisites:ENGL 074 or a minimum score of 14 on ACT or a minimum score of 370 on pre 2016 SAT or 450 on SAT Evidence Based Reading and Writing. Meets General Education requirements for Written Communication. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

English 211 is a basic course designed to prepare the student to write successfully on the job as an employee or a first-line supervisor. It includes basic forms of business and technological writing to assist the student in developing sound communication practices. This course meets General Education requirements: Communication Competence, and new Fall 2017 Written Communication. Pre-Requisites:ENGL 150 with a grade of C- or better. Typically Offered Fall, Spring

The second of a two course sequence. Focuses on research. Students will learn how to use the library resources to produce a longer documented paper, how to evaluate conflicting claims and evidence to write an extended argument, and how to write papers based on primary research. Stresses problem solving and reasoning skills, but also includes grammatical structure, diction, and style appropriate to professional writing situations. This course meets General Education requirements Communication Competence, and new Fall 2017 Written Communication. Pre-Requisites:ENGL 150 with a grade of C- or better. Typically Offered Fall, Spring, Summer

Students will be introduced to issues and concerns in the professional communication profession and the goals of the TPC/ITC program. Through group projects, the students will develop their teamwork, collaboration, and project management skills while working with, students at all levels. Each semester, students will complete a different semester project directed by a TPC/ITC program faculty member. Typically Offered Fall, Spring

Special Topics in ENGL - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Provides writing experience on commercial publication including community newspapers, as well as radio stations and public relations offices. Students are required to work 160 - 180 hours at the internship site. Typically Offered Summer Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand
Undergraduate 3 LEC
ENGL301 English Introduction to Linguistics AS English, Lit and World Lang Undergraduate 3 LEC

Linguistics will enable students to follow and contribute to public debates about language-related issues, observe and facilitate their own and their children's language development, work more effectively with the structure of language, and appreciate the complex richness of their own language. Pre-Requisites: ENGL 250 Or 211 with a grade of D- or better. Typically Offered On Demand

ENGL311 English Advanced Technical Writing AS English, Lit and World Lang Undergraduate 3 LEC

An advanced course designed to train the student as a technical communicator. The student is taught to present technical concepts, facts, data analysis and evaluation to both a scientific or technical audience. Included are skills in editing, organization, and development of technical articles for publication, abstracting, proposals, memorandum reports, project/progress reports, technical descriptions, professional and technical letters, and the protocols of formal research reporting. Pre-Requisites: ENGL 211 or ENGL 250 with a grade of C or better. Meets General Education requirements for Written Communication. Typically Offered Fall, Spring, Summer

ENGL321 English Advanced Composition AS English, Lit and World Lang Undergraduate 3 LEC

Builds on rhetorical and stylistic skills/techniques; prepares for successful writing experiences in the professional world and helps develop the thinking and organizing skills needed for effective written expression. Some professional emphasis sections of the course are regularly set aside for students in health-related fields, social work, and product design. These sections are designated by program in the semester roster of courses and carry an "enrollment by permit only" requirement. Meets General Education requirements for Written Communication. Pre-Requisites: ENGL 250 Or 211 with a grade of C or better. Typically Offered Fall, Spring, Summer

ENGL323 English Proposal Writing AS English, Lit and World Lang Undergraduate 3 LEC

Proposal writing background and training in applying for sponsored project funds. Skills and techniques needed for organizing and writing a full-scale, formal proposal, the process of writing contract proposals submitted in response to specific bid solicitation, writing in connection with preliminary proposal planning, writing a letter proposal, the history of grants and grant-making, philosophies and strategies in project idea development, and methods for finding funding sources. Meets General Education requirements for Written Communication. Pre-Requisites: ENGL 250 or 211 with a grade of C or better. Typically Offered Fall, Spring

ENGL325 English Advanced Business Writing AS English, Lit and World Lang Undergraduate 3 LEC

Continues skills begun in ENGLISH 2, with focus on typical types of problems and documents used in Business. Emphasis on audience and rhetorical analysis, working with multiple documents, primary and secondary research skills, and completion of a major analytical report. Meets General Education requirements for Written Communication. Pre-Requisites: ENGL 250 or 211 with a grade of C or better. Typically Offered Fall, Spring, Summer

ENGL380 English History of Rhetoric - Style AS English, Lit and World Lang Undergraduate 3 LEC

The problems of editing and revising written texts through the study of style. Students begin studying contemporary editing practices. They examine the changes in correctness, eloquence, and theories of rhetoric from classical to, modern theorists. Using samples of written (English) texts, students examine their assumptions of "good style" and consider the importance of rhetorical concerns: appropriateness, audience awareness, and stylistic choices. Pre-Requisites: ENGL 311 or ENGL 321 or ENGL 323 or ENGL 325 with a grade of C+ or better. Typically Offered Spring.

ENGL382 English Hist - Structure Engl Language AS English, Lit and World Lang Undergraduate 3 LEC

The course will examine the history and structure of the English language. Structure will be studied within a comparative framework of traditional, structural and transformational generative grammars. Pre-Requisites: ENGL 321 with a grade of D- or better. Typically Offered Fall, Spring Special Topics in ENGL - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

ENGL390 English Special Topics in ENGL AS English, Lit and World Lang Undergraduate 1 TO 3 LEC

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

ENGL397 English Special Studies in English AS English, Lit and World Lang Undergraduate 1 TO 4 LEC

An advanced course required of TPC and ITC majors and minors to develop professional viewpoints of technical communication: writer, editor, writing/publication production manager, and member of project work teams. Class assignments apply macro- and micro-editing principles, project management, document production, visual rhetoric, and rhetorical analysis. Pre-Requisites: ENGL 311 or ENGL 321 or ENGL 323 or ENGL 325 with a grade of C+ or better. Meets General Education Requirements for Collaboration and Problem Solving. Typically Offered Fall Only

ENGL411 English Prof Technical Communication AS English, Lit and World Lang Undergraduate 4 LEC
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<td>Literacy Issues and Conflicts</td>
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<td>Assessing Writing</td>
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</table>

Present and future teachers will examine the issues and conflicts surrounding the implementation of literacy programs. In addition to defining traditional literacy, the course will explore the contemporary literacy debate at the classroom, school system and community levels. Students will be evaluated on a number of projects, including portfolios, article critiques, and a research project. Pre-Requisites: ENGL 321 with a grade of D- or better. Typically Offered On Demand

Designed for majors in English education and BA English/composition as a program capstone. This course examines composition theories and requires a professional development component and portfolio. Pre-Requisites: ENGL 321 or department approval. Typically Offered Fall

Visual Rhetoric & Document Design examines the art and science of designing documents, websites, and other visual artifacts to communicate technical information effectively to various audiences. Primarily a tools- and project-oriented course that focuses presenting information professionally, ENGL417 will equip students with a robust set of skills that are increasingly in demand in professional communication settings. Pre-Requisites: ENGL 311 or ENGL 321 or ENGL 323 or ENGL 325 with a grade of C+ or better. Meets General Education requirements for Problem Solving and Collaboration. Typically Offered On Demand

Advanced Scientific Writing (ENGL 421) is a professional writing course designed specifically for students in the sciences. The primary focus will be on the formal preparation of a review of research. Other writing assignments may include: scientific book review; prospectus; analysis of trade vs. research articles; abstracts; empirical research study. Pre-Requisites: ENGL 250 with a grade of D- or better and Junior status. Typically Offered Fall, Spring

An advanced course in the study and practice of various techniques used in writing poetry and fiction. Students will read and critique examples of contemporary literature and produce a collection of original writings in the genre of their choice. Other genres, such as drama or creative nonfiction, may be considered at the discretion of the instructor. Pre-Requisites: ENGL 222 with a grade of D- or better. Special Topics in ENGL - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

The internship provides students with actual work experience in a technical communication setting. Since the internship is scheduled to be taken during the summer between the students' junior and senior years, the exposure to an actual employment setting provides helpful insight into the technical communication career and knowledge of business practices. This experience helps reinforce concepts presented in classes taken during the senior year. A 4 credit internship requires 20 hours per week and an 8 credit internship requires 40 hours per week. Pre-Requisites: ENGL 311 and 321 with a grade of D- or better. Typically Offered on demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This capstone course for the TPC/TC program takes an in-depth look at the professional communication profession. The seminar emphasizes the artistic and humanistic elements of document design and expression of technical information. It examines the ethics of technical communication and looks at models of communication and looks at models of technical writing. Through the seminar students prepare portfolios that contain writing, layout, and design work they have done samples of the writing, layout, and design work they have done in the classes building toward their degree. Pre-Requisites: ENGL 311 or ENGL 321 or ENGL 323 or ENGL 325 with a grade of C+ or better. Meets General Education Requirements for Collaboration and Problem Solving. Typically Offered Spring Only

In the context of current theories of writing acquisition, this course will evaluate the available methods of writing assessment. Students will also learn how to design assessment activities, develop effective rating instruments, implement the assessment, and evaluate its effectiveness. Political and ideological influences on assessment will be examined. Pre-Requisites: Graduate status or instructor approval. Typically Offered Spring Only
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<td>Adv Composition Prof Programs</td>
<td>3 LEC</td>
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<td>ENGP 421</td>
<td>English Professional</td>
<td>Scientific Writing Prof Prog</td>
<td>3 LEC</td>
<td>1st Professional</td>
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<td>ENGY 323</td>
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<td>Energy Cradle to Grave</td>
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<td>ENGY 420</td>
<td>Energy</td>
<td>Wind-Solar Energy Generation</td>
<td>4 LEC</td>
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<td>ENGY 430</td>
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<td>ERLA 501</td>
<td>Education Reading Language Art</td>
<td>Understand Literacy - Lang Dev</td>
<td>3 LEC</td>
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<td>ERLA 511</td>
<td>Education Reading Language Art</td>
<td>Literacy - Content Learning</td>
<td>3 LEC</td>
<td>Graduate</td>
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</table>

The course will examine the history of the English language from its Indo-European roots to the present time. The course will also focus on structure within a comparative grammars framework; traditional grammar, structural grammar and transformational-generative grammar will be studied. This background in English history and structure will be particularly helpful to English Education graduate students and to teachers presently teaching English in high schools and junior colleges. Prerequisites: Graduate status. Typically Offered Spring, Summer.

Special Topics in ENGL - 500 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered on demand.

Builds on rhetorical and stylistic skills/techniques; prepares for successful writing experiences in the professional world and helps develop the thinking and organizing skills needed for effective written expression. Some professional emphasis sections of the course are regularly set aside for students in health-related fields, social work, and product design. These sections are designated by program in the semester roster of courses and carry an "enrollment by permit only" requirement. Prerequisites: ENGL 250 or ENGL 211. Typically Offered Fall, Spring and Summer.

Advanced Scientific Writing (ENGP 421) is a professional writing course designed specifically for students in the sciences. The primary focus will be on the formal preparation of a review of research. Other writing assignments may include: scientific book review; prospectus; analysis of trade vs. research articles; abstracts; empirical research study. Prerequisites: Professional Program. Typically Offered Fall and Spring.

The student will study energy from its source, to its final usage and will understand the energy and carbon footprint of creating energy, transporting it converting it, using it. Losses and costs of energy production and usage will be studied. The course reviews past, present and future trends in global energy consumption, environmental concerns of energy generation, distribution and consumption, as well as a classification and comparison of energy sources. Prerequisites: MECH 330. Co-req MECH 223. Typically Offered Spring even years.

The course introduces students to solar and wind energy. Students will study site conditions and requirements and potentials for generation based on several proposed projects at the university for electrical and heat generation from solar and wind power. Students will be study the strength and weaknesses of energy generation, in addition to mounting, maintenance and regulations regarding wind and solar equipment. Prerequisites: ENGY 323. Typically Offered Fall Every Year.

The students will study various forms of alternative energy, including such areas hydropower, combustion turbines, fuel cells, biomass, geothermal, nuclear and energy recycling. The student will be expected to develop and understanding of their sources and applications. A report will be developed by the student utilizing information from course to prepare and defend a report on the use of a fuel for future usage and replacement of oil or coal based energy sources. Prerequisites: ENGY 323. Typically offered Spring odd years.

Examines the theoretical and research bases for understanding reading and writing development and how children become literate. Explores the nature of language and how social, culture and environmental factors influence its development. Describes the stages of literacy development and how differences among learners influence their development. Provides an overview of current methodologies, research-based programs, and various models of assessment and instruction. Includes technology and classroom application components. Prerequisites: Graduate Status. Typically Offered Fall, Spring.

Examines theoretical & research bases for content literacy instruction in the framework of English Language Arts/other subject matter Content Standards. Explores interrelationship of reading & writing as to the development of conceptual learning/higher-order thinking in all areas. Focuses on the role of teacher in curriculum, working with students with special needs, promoting lifelong learning. Describes methodologies, assessment, and best practices promoting meaningful reading & writing in a variety of purposes/texts. Includes technology/classroom application components. Prerequisites: Graduate Status. Typically Offered Fall, Spring.
ERLA515 Education Reading Language Art  Literacy Leadership C and I  ED  School of Education Dept  Graduate 3  LEC
Identifies national and international literacy leaders in history, as well as the roles literacy leaders currently perform at the local, state, and national levels. Focuses on administrative/operational considerations related to planning, organizing, and implementing, staffing, supervising, budgeting, and evaluating literacy programs. Provides experience in grant writing and conduction an action research project at the local level. Includes technology and school or community application components. Prerequisites: Graduate Status. Typically offered Fall only.

ERLA516 Education Reading Language Art  Trends and Issues in Literacy  ED  School of Education Dept  Graduate 3  LEC
Explores current trends and issues in literacy within a historical overview of the American educational system and comparison of educational systems world-view. Examines research related to differing philosophies and controversial issues in literacy and learning. Focuses on investigating local problems and issues in literacy and seeking viable solutions. Provides experience in researching a topic or issue and presenting the information in varying formats dependent upon the intended audience. Includes technology/school or community applications. Pre-Requisites: Graduate status. Typically Offered Summer Only

ERLA530 Education Reading Language Art  Literacy Assessment  ED  School of Education Dept  Graduate 3  LEC
Identifies current principles of assessment/evaluation and how they inform/support literacy instruction. Examines assessment/evaluation techniques/practices based on research in literacy and language development. Describes aligning/assessment/instruction in English Language Arts Standards and Benchmarks/school district curriculum. Focuses on selecting/creating formal/informal literacy assessment tools, administering/interpreting them, communicating results. Includes technology/classroom application components. Pre-Requisites: Graduate Status. Typically Offered Spring Only

ERLA533 Education Reading Language Art  Students Reading Difficulties  ED  School of Education Dept  Graduate 3  LEC
Examines nature/multiple causes of reading difficulties based on literacy research, language development, learning theories. Explores impact of social, cultural, emotional, physical, and environmental factors on students with reading difficulties. Identifies assessment principles/practices that inform and support literacy instruction. Focuses on methodologies, research-based programs, and best practices for prevention, intervention, and remediation of reading difficulties at all grade levels. Emphasizes creating partnerships with parents, families. Includes technology and classroom application components. Pre-Requisites: Graduate Status. Typically Offered Summer Only

ERLA550 Education Reading Language Art  Lrng Envr-Liter Diverse Popul  ED  School of Education Dept  Graduate 3  LEC
Provides overview of research on how differences among learners influence literacy development. Explores influence of factors on that development, including language, culture, intellect. Examines theoretical/research bases for developmentally appropriate learning environments fostering literacy growth. Focuses on methodologies, research-based programs, best practices promoting literacy and language development; examines interrelationship of assessment/instruction. Describes creating inclusive learning communities that promote literacy growth, respect for all learners, and family and community involvement. Involves technology/classroom applications. Pre-Requisites: Graduate Status. Typically Offered Fall, Summer

ERLA591 Education Reading Language Art  Internship Reading - Literacy  ED  School of Education Dept  Graduate 1 TO 3  LEC
Designed to allow students opportunity to engage in literacy, language arts and reading development, primarily in K-12 schools. This internship could encompass: a) Reading Recovery training; b) MLPP training; c) school district reading assessment programs. Designed to be separate from the normal teaching load in order to provide reading, literacy and language arts growth. Determination of appropriate internship placement and design will be made by the student and advisor. One credit equals 66 clock hours. Pre-Requisites: Department approval and graduate status. Typically Offered Fall, Summer

ERLA595 Education Reading Language Art  Workshops-Sem Reading-Literacy  ED  School of Education Dept  Graduate 1 TO 2  LEC
Designed to allow students to participate in courses, workshops, and seminars offered by universities, colleges, technical societies, professional organizations, or business and industry to improve their Reading and Literacy teaching skills. The student will be required to write a scholarly paper on the workshops/seminars attended. One credit equals 15 clock hours. Pre-Requisites: Department approval and graduate status. Typically Offered Fall, Spring, Summer

ERLA597 Education Reading Language Art  Special Studies in ERLA  ED  School of Education Dept  Graduate 1 TO 3  LEC
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand Special Topics in ERLA - 600 Level. Pre-Requisites: Graduate Status. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

ERLA690 Education Reading Language Art  Special Topics in ERLA  ED  School of Education Dept  Graduate 1 TO 4  LEC

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<td>Education Reading Language Art</td>
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<td>School of Education Dept</td>
<td>ED</td>
<td>1 TO 6</td>
<td>Graduate level workshop/seminar courses in areas of special interest in Reading, Literacy and Language Arts. Primarily for teacher/trainer in-service and professional development. Pre-Requisites: Graduate Status and department approval. Typically Offered Fall, Spring, Summer</td>
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<td>English Writing for Beginners</td>
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<td>Professional-Tech Studies</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<td>ESLP041</td>
<td>English Integrated Writing 1</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<tr>
<td>ESLP042</td>
<td>English Integrated Writing 2</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
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<td>ESLP043</td>
<td>English Integrated Writing 3</td>
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<td>Undergraduate</td>
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<td>ESLP090</td>
<td>Special Topics in ESLP</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
<td>Undergraduate</td>
<td>1 TO 12 LEC</td>
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<tr>
<td>ESLP091</td>
<td>ESL Conversation Practicum</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
<td>Undergraduate</td>
<td>2 LEC</td>
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<tr>
<td>ESLP092</td>
<td>ESL Service Learning Practicum</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<tr>
<td>ESLP097</td>
<td>ESL Independent Study</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
<td></td>
</tr>
</tbody>
</table>

This beginning level reading course is designed for ESL learners whose vocabulary and reading skills of English are not sufficient to begin the ESL level 1 reading course. This course helps the students build essential vocabulary for everyday and college life, gain knowledge of phonics and spelling, explore English structure, and prepare to start reading academic materials. Prerequisites: Placement into the course based on the Intensive English Program placement test.

This course is designed for the learners of English as a second language whose reading skills range from a high beginning to low intermediate level to develop reading fluency and comprehension skills, expanding vocabulary and exploring English structures. Prerequisites: Successful completion of the Beginning Level reading course or placement into the course based on the Intensive English Program placement test.

This course is designed for the learners of English as a second language whose reading skills are in the low intermediate to high intermediate level to develop reading fluency and comprehension skills, expanding vocabulary and exploring English structures. Prerequisites: Successful completion of the level 1 reading course or placement into the course based on the Intensive English Program placement test.

This beginning level writing course is designed for ESL learners whose writing skills of English are not sufficient to begin the ESL level 1 writing course. This course teaches students to write short coherent texts using simple sentence structures. Prerequisites: Placement into the course based on the Intensive English Program placement test.

This course is designed for the learners of English as a second language whose writing skills are at the high beginning to low intermediate level to enhance vocabulary and reading strategies to improve reading comprehension and critical reading/thinking skills. Prerequisites: Successful completion of the level 2 reading course or placement into the course based on the Intensive English Program placement test.

This course is designed for the learners of English as a second language whose writing skills are at the high beginning to low intermediate level to increase their overall writing skills. Prerequisites: Successful completion of the level 1 writing course or placement into the course based on the Intensive English Program placement test.

This course is designed for the learners of English as a second language whose writing skills and knowledge of written expressions are at the low intermediate to high intermediate level to increase their overall writing skills. Prerequisites: Successful completion of the level 2 writing course or placement into the course based on the Intensive English Program placement test.

This course is designed to provide supplemental conversation field experience to ESL students. Students will meet with native-speaking conversation partners and participate in on campus and community activities and events to improve conversation skills, enhance understanding of university and American culture, and integrate into the campus community. Prerequisite: Admission into the IEP Program.

This practicum course is designed to provide supplemental service learning experience to ESL students. Students will participate in service learning projects coordinated by the course instructor to improve receptive and productive English language skills, enhance understanding of university and American culture, and integrate into the campus community. Prerequisite: Admission into the IEP Program and permission of program coordinator.

This course is designed to allow ESL students to engage in English language learning in a more flexible environment. The program coordinator and/or instructor will coordinate with students to arrange the course content and schedule. Prerequisite: Admission into the IEP Program and permission of program coordinator.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESLP099</td>
<td>English Second Language Prog</td>
<td>ESL</td>
<td>Undergraduate</td>
<td>3 LEC</td>
</tr>
<tr>
<td>ESLR090</td>
<td>English Second Language Read</td>
<td>ESL</td>
<td>Undergraduate</td>
<td>3 LEC</td>
</tr>
<tr>
<td>ESLS090</td>
<td>English Second Lang Speaking</td>
<td>ESL</td>
<td>Undergraduate</td>
<td>3 LEC</td>
</tr>
<tr>
<td>ESLS090</td>
<td>English Second Language Write</td>
<td>ESL</td>
<td>Undergraduate</td>
<td>3 LEC</td>
</tr>
<tr>
<td>ESPS502</td>
<td>Education Special Needs</td>
<td>ESL</td>
<td>Graduate</td>
<td>3 LEC</td>
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<tr>
<td>ESPS503</td>
<td>Education Special Needs</td>
<td>ESL</td>
<td>Graduate</td>
<td>3 LEC</td>
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<tr>
<td>ESPS504</td>
<td>Education Special Needs</td>
<td>ESL</td>
<td>Graduate</td>
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<td>ESPS505</td>
<td>Education Special Needs</td>
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<td>Graduate</td>
<td>3 LEC</td>
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<td>ESPS510</td>
<td>Education Special Needs</td>
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<td>Graduate</td>
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<tr>
<td>ESPS512</td>
<td>Education Special Needs</td>
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<td>Graduate</td>
<td>3 LEC</td>
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<tr>
<td>ESPS514</td>
<td>Education Special Needs</td>
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<td>Graduate</td>
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<tr>
<td>ESPS515</td>
<td>Education Special Needs</td>
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<td>ESPS520</td>
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<tr>
<td>ESPS522</td>
<td>Education Special Needs</td>
<td>ESL</td>
<td>Graduate</td>
<td>3 LEC</td>
</tr>
</tbody>
</table>

This course is designed to provide the field of experience for the advanced ESL students by applying their linguistic, academic, and cultural skills in an authentic classroom setting. Prerequisites: Must have 475 or above on the i pt TOEFL or equivalent deter minded by the IEP Coordinator.

Special Topics in ESL - 000 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Special Topics in ESLS - 000 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Typically Offered On Demand

This course is designed to develop the interpersonal and intrapersonal skills necessary to effectively communicate, consult and collaborate when serving individuals with special needs in the public schools. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

This course will explore a variety of behavioral theories to provide a foundation for building effective strategies for the management of students with special needs in the classroom. Roles and responsibilities of teacher, parent, student and other school personnel will be explored. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

This course is designed to familiarize the student with the basic requirements of the Individual Education Program for students with special needs. Emphasis will be on linking assessment with goals and objectives, team meetings and implementation. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

This course is designed to give students the opportunity to review a variety of assessment tools used in identifying students with special needs and assessing progress of individual students. Discussion includes standardized tests, curriculum-based assessments, portfolio assessments, teacher made tests, and norm referenced tests. Students will have an opportunity to practice administration and interpretation of assessments and linking results to the curriculum and students individual education plan. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

Review current research and policies related to the education of infants and young children with special needs. Topics include historical perspectives of early childhood special education, efficacy information, and the future of early childhood special education. Familiarize the student with research studies and classroom application. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

This course is designed to increase the student's awareness of the many assessment tools used in the evaluation of young children with special needs. Students will get hands on experience evaluating and interpreting test results for young children. Topics will include play-based assessment, curriculum-based assessment, standardized assessment, and functional assessment. The importance of parent input will also be covered. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

Provides theory and practices regarding understanding and helping parents deal with their young child with special needs. Issues regarding family coping, parent-professional partnerships and parent training are emphasized. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

Provides skills in assessment- intervention- evaluation programming philosophy. Different aspects of intervention and their common elements are covered. A developmental focus with consideration of child's functional needs is emphasized. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

This course is designed to familiarize the student with learning disabilities. Emphasis will be on the history of learning disabilities, understanding learning problems, identifying learning disorders, diagnosis and remediation of learning disorders. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer

This course is designed to give students a more in-depth look at learning disabilities and remediation skills. Emphasis will be on developing strategies that will assist the future teacher in teaching students with learning disabilities. Skill development will be in ameliorating thinking, reading, writing, spelling, arithmetic, and other skill deficiencies. Pre-Requirements: Graduate Status. Typically Offered Fall, Spring, Summer
### Assessment with Learning Disabilities

This course will provide students with the knowledge of formal and informal assessments used to determine eligibility, interventions, and strategies for students with learning disabilities. Following the review of assessments, students will administer and interpret results to establish curricular goals. Students will also learn strategies to monitor progress and make the appropriate adjustments to instruction based on assessment results. Pre-requisite: Department approval. Typically offered: Fall, Spring

### Individually Designed Programs-Learning Disabilities

This course is designed to familiarize the student with the basic requirements of the Individual Education Program for students with learning disabilities. Emphasis will be on linking assessment with goals and objectives, team meetings, and implementation. Pre-requisite: Department approval. Typically offered: Fall

### Transition Plan/Practicum Students with LD

Students in this course will examine legislation and recommended practices related to person-centered transition planning for students with learning disabilities. Students will apply knowledge of learning disabilities (LD) to explore transition needs for students in the areas of post-school and adult life, including postsecondary education, employment, community participation, and independent living. Additionally, students will explore how students with disabilities have been viewed in society, gaining an understanding of state initiatives, community trends and resources, and professional organizations and networks, related to secondary transition. Typically offered: Fall, Spring

### Basic Concepts in Autism

Students will gain an understanding of autism and its many facets. Course content will include definitions of the different types of disabilities that fall under the Autistic category including Asperger's Syndrome, characteristics including language development, social interactions, behavioral issues, intellectual functioning, etc., causes, and prevalence. Pre-requisites: Graduate Status. Typically Offered Fall, Spring, Summer

### Curriculum and Autistic Child

Students will gain skills in modifying curriculum for students with autism. Curriculum will include working with the child in developing personal adjustment skills and provocational training. Students will also gain skills in interacting with their colleagues and assisting in providing a systematic curriculum for students with autism. Pre-requisites: Graduate Status. Typically Offered Fall, Spring, Summer
Students will understand the roles of language and communication including traits, characteristics, and interventions related to ASD. For example, pragmatic functions of communication and language such as the relationships of communication, language, behavior, and social skills; expressive and receptive language development and patterns; effects of medication on language; developing communication systems such as alternative and augmentative systems and assistive technology across environments.

Prerequisites: Graduate Status. Typically offered in Summer.

This course is designed to familiarize the student with the basic requirements of the Individual Education Program for students with autism spectrum disorders. Emphasis will be on linking assessment with goals and objectives, team meetings, and implementation.

Pre-requisite: Department approval. Typically offered: Fall, Spring.

Students will gain knowledge in home/school interactions. Students will gain knowledge of family and community support services for children with autism. Course discussion will include accessing information related to services already in the community and how to access services outside the community. Skills in interacting with parents and families to create a positive relationship between home and school will also be included.

Pre-Requisites: Graduate Status. Typically Offered Fall, Spring, Summer.

Students in this course will examine legislation and recommended practices related to person-centered transition planning for students with autism spectrum disorder. Students will apply knowledge of autism spectrum disorder (ASD) to explore transition needs for students in the areas of post-school and adult life, including postsecondary education, employment, community participation, and independent living. Additionally, students will explore how students with disabilities have been viewed in society, gaining an understanding of state initiatives, community trends and resources, and professional organizations and networks, related to secondary transition.

Pre-requisite: Department approval. Typically offered: Fall, Spring.

This course will provide the student with the foundations of working with students with emotional impairments. It will cover the identification, etiology, diagnosis, characteristics, classifications of emotional impairment, including psychiatric terminology and research-based models. Students will gain working knowledge of the various agencies involved with students with emotional impairment, the need to collaborate with parents and service providers and the need of integrating academic instruction and curriculum with affective educational strategies. Typically Offered Fall only.

This course will provide the student with the knowledge and expertise to integrate academic instruction and curriculum with affective educational strategies for students with emotional impairment. They will learn to adapt, accommodate and modify the general education curricula for students with emotional impairment. Typically Offered Fall only.

This course will provide students with knowledge and experience in the areas of assessment related to collecting indirect and direct data on academic, social and emotional functioning of students in order to develop reports and design, manage, and monitor interventions. The students will be involved in researching, developing, implementing and evaluating individualized behavior and classroom management strategies and plans. Typically Offered Fall odd year.

This course is designed to familiarize the student with the basic requirements of the Individual Education Program for students with emotional impairments. Emphasis will be on linking assessment with goals and objectives, team meetings, and implementation.

Pre-requisite: Department approval. Typically offered: Fall, Spring.

Students in this course will examine legislation and recommended practices related to person-centered transition planning for students with emotional impairments. Students will apply knowledge of emotional impairments (EI) to explore transition needs for students in the areas of post-school and adult life, including postsecondary education, employment, community participation, and independent living. Additionally, students will explore how students with disabilities have been viewed in society, gaining an understanding of state initiatives, community trends and resources, and professional organizations and networks, related to secondary transition. Typically offered: Fall, Spring.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<td>ESPN597</td>
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<td>ETEC140</td>
<td>Engineering Technology</td>
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<td>FILM222</td>
<td>Film Intro to Film: History-Analysis</td>
<td>3</td>
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<td>LEC</td>
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<tr>
<td>FILM253</td>
<td>Film American Movies</td>
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<td>AS</td>
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<td>LEC</td>
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<tr>
<td>FILM297</td>
<td>Film Special Studies in Film</td>
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<td>AS</td>
<td>Undergrad</td>
<td>LEC</td>
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<tr>
<td>FILM353</td>
<td>Film Directors</td>
<td>3</td>
<td>AS</td>
<td>Undergrad</td>
<td>LEC</td>
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<tr>
<td>FILM360</td>
<td>Film Gender and Race in Film</td>
<td>3</td>
<td>AS</td>
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<td>LEC</td>
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<tr>
<td>FILM390</td>
<td>Film Special Topics in FILM</td>
<td>1 TO 6</td>
<td>AS</td>
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<td>LEC</td>
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<td>FILM397</td>
<td>Film Special Studies in FILM</td>
<td>1 TO 3</td>
<td>AS</td>
<td>Undergrad</td>
<td>LEC</td>
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<td>FILM497</td>
<td>Film Special Studies in FILM</td>
<td>1 TO 3</td>
<td>AS</td>
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<td>LEC</td>
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<td>FINC201</td>
<td>Finance Personal Finance</td>
<td>3</td>
<td>BU</td>
<td>Undergrad</td>
<td>LEC</td>
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</tbody>
</table>

The field experience is designed to give students the opportunity to work with students with special needs in both integrated as well as segregated settings. The student is required to complete a field experience working under the direct supervision of a special education teacher. The student will be supervised by a faculty member from the University. Students will engage in an online community with other students who are engaged in the field experience. Pre-requisite: Department approval. Typically offered: Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered on Demand.

Comprehensive introductory course which integrating technical drawing fundamentals, 2-D CAD, and 3-D Cad. Drawing fundamentals will focus on understanding and recognizing the standards which guide the creation of technical drawings, reading and interpreting technical drawings, and creating standards compliant sketches. The CAD portion of the course will focus on basic competence in turning sketched ideas into 2-D CAD drawings and basic 3D computer models that meet design intent and are ready for future analysis. Typically Offered Fall, Spring, Summer.

Special Topics in ETEC - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered on Demand.

Introduction to the invention of film technology and its early forms (documentary, experimental, narrative) and to the analysis and interpretation of film as a visual art form. This course meets the General Education requirements Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered Fall Even Years.

Various genres common to American films: historical and social impacts on society as a result of the film industry; films not merely as entertainment, but as a serious art form. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Special Topics in FILM - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered on Demand.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Introduces the knowledge and techniques associated with major financial planning problems encountered by individuals and families such as savings and investments, insurance, taxes, budgeting and major purchases, retirement and estate planning. Typically Offered Fall, Spring.
FINC280  Finance  Fundamentals of Banking  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

Introduces commercial banking, including the roles of banking in the business world; emphasizes the history, philosophy, and practices of commercial banking; provides an overview of banking functions and operations such as bank lending, management of assets and liabilities and management of bank services. Pre-Requisites: Sophomore Status. Typically Offered Spring Only

FINC297  Finance  Special Studies in FINC  BU  Account, Finance, Info Systems  Undergraduate  1 TO 3  LEC

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

FINC300  Finance  Mathematics of Finance  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

Provides the knowledge of the mathematical functions in finance to assist with both organizational and personal financial management; concentrates on techniques for dealing with simple interest, compound interest, discounted interest, ordinary annuities, annuities due, forborne annuities, deferred annuities, corporate bond, municipal bond and capital budgeting decisions. Pre-Requisites: MATH 114 or 115 with a grade of C- or better or MATH 116, 117, 118, 119, 120, 126, 130, 132, 133, 135 or a minimum score of 24 on ACT or 560 on the pre 2016 SAT or 580 post 2016 SAT. Typically Offered Fall, Spring, Summer. Financing sources for real estate, documents used, related laws, and financial impact on borrowers, lenders and the economy. Covers the real estate finance process from loan application to foreclosure. Pre-Requisites: MATH 114, 115, 116, 117, 118, 119, 120, 126, 130, 132, 133 or ACT 24 or pre 2016 SAT 560 or post 2016 SAT 580. Typically Offered Fall Only

FINC310  Finance  Real Estate Finance  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

Introduces financial markets and institutions, including a brief review of the financial system of the United States; emphasizes institutions, instruments, and procedures for meeting the demands for funds by business (both short and long term), consumers, federal, state, and local governments; considers international finance. Pre-Requisites: ACCT 202 and ECON 221 with a grade of D- or better. Typically Offered Fall, Spring, Summer

FINC322  Finance  Financial Management 1  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

The environment, goals, and techniques of financial management; emphasizes both investment and financing decisions; incorporates control techniques including ratio analysis, budgeting, and forecasting; includes time value of money, bond and stock values, the use of operating and financial leverage, capital budgeting techniques, cost of capital, and basic information concerning international financial management. Meets General Education requirements for Collaboration and Problem Solving. Pre-Requisites: ACCT 202 and Math 124, 115, 116 or 117 or ACT 24 or pre 2016 SAT 560 or post 2016 SAT 580. Typically Offered Fall, Spring, Summer

FINC323  Finance  Financial Management 2  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

Continues FINC 322, with emphasis on risk and rates of return; bond and stock evaluation models; financial markets, institution and interest rates; risk analysis in capital budgeting; a more in depth look at the use of preferred stock, long term debt and leasing; the investment banking process; dividend policy; stock splits and re-purchases; mergers, divestitures, holding companies and LBO's. Pre-Requisites: FINC 322 and FINC 300. Typically Offered Spring Only

FINC375  Finance  Fin Analysis & Forecasting  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

This course provides the basic concepts and financial tools to evaluate financial decisions by analyzing financial statements in order to understand the linkages between management decisions and financial performance and the economic value of the business. Prerequisites: FINC 322. Typically offered Spring.

FINC397  Finance  Special Studies in FINC  BU  Account, Finance, Info Systems  Undergraduate  1 TO 3  LEC

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

FINC410  Finance  Introduction to Derivatives  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

This course is intended to introduce students to the theoretical and practical understandings of derivative securities such as options, futures, and other derivative instruments. Students are expected to develop a basic understanding on the use of derivatives and risk management, and to establish relevant strategies in order to achieve targeted goals. Prerequisites: STQM 260 and FINC 322. Typically offered Spring.

FINC451  Finance  Investment Principles  BU  Account, Finance, Info Systems  Undergraduate  3  LEC

An introduction to the field of stock and bond investing. Topics covered include: developing investment strategies, sources of investment information, common stock fundamental analysis and evaluation, technical analysis, bond investing, convertible securities, options, commodities, financial futures, mutual funds and monitoring an investment portfolio. Pre-Requisites: FINC 322. Typically Offered Fall Only
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINC452</td>
<td>Finance</td>
<td>Financial Modeling BU Account, Finance, Info Systems Undergraduate 3 LEC Application of computer-based models in solving financial problems. Computer applications such as Microsoft Excel, Risk simulation program, and other applications will be used extensively in the course. Pre-Requisites:FINC 323 and ISYS 105. Typically Offered Fall Only</td>
</tr>
<tr>
<td>FINC454</td>
<td>Finance</td>
<td>Portfolio Management BU Account, Finance, Info Systems Undergraduate 3 LEC Focuses on modern portfolio theory, specifically on the Markowitz applied in the construction of a hypothetical portfolio. The use of instruments that are available in today's market, such as stock index futures and options is also studied. Pre-Requisites:FINC 451. Typically Offered Spring Only</td>
</tr>
<tr>
<td>FINC465</td>
<td>Finance</td>
<td>Problems in Finance BU Account, Finance, Info Systems Undergraduate 3 LEC Emphasizes the application of the principles of financial management to the solution of specific, realistic financial problems in such areas as forecasting funds requirements, working capital management, capital budgeting, long-term capital structure, leasing, and dividend policy; uses the case method. Pre-Requisites:FINC 323 or Instructor approval. Typically Offered Fall Only</td>
</tr>
<tr>
<td>FINC475</td>
<td>Finance</td>
<td>Seminar in Finance BU Account, Finance, Info Systems Undergraduate 3 LEC Adds depth to the student's background in financial management and investments; includes analyzing articles dealing with principal areas and issues in both of these fields of finance, emphasizes both practical and theoretical concepts. Pre-Requisites:FINC 323 or Instructor approval. Typically Offered On Demand</td>
</tr>
<tr>
<td>FINC490</td>
<td>Finance</td>
<td>Special Topics in FINC BU Account, Finance, Info Systems Undergraduate 1 TO 3 LEC Special topics in FINC - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>FINC491</td>
<td>Finance</td>
<td>Finance Internship BU Account, Finance, Info Systems Undergraduate 1 TO 6 LEC Work experience can be with employer organizations in business, industry, government and education. It is designed to be relevant to the student's academic pursuits, personal development, and professional preparation. Department head approval is required, and the internship must meet all College of Business requirements. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>FINC497</td>
<td>Finance</td>
<td>Special Studies in FINC BU Account, Finance, Info Systems Undergraduate 1 TO 3 LEC This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>FINCE16</td>
<td>Finance</td>
<td>Corporate Finance BU Account, Finance, Info Systems Graduate 3 LEC This course is designed to develop analytical skills with fundamental finance concepts for the financial management and decision making in various situations that a firm generally faces. All topics to be covered are addressed along a spectrum of risk and return, which are two most critical dimensions in any financial decision making. The main focus is on how financial decision making impacts the value and risk of the firm. The topics include interpreting financial statements information, financial forecasting, handling projected growth, financial markets, financing decisions, discounted cash flow approach, and investment assessments. In most cases, the course places you in the position of a financial manager in a firm. Pre-Requisites: ACCT 614 w/ C or higher, BUS graduate student. Typically offered Fall, Spring, Summer.</td>
</tr>
<tr>
<td>FMAN321</td>
<td>Facility Management</td>
<td>Principles of Facility Mgmt TE Arch Tech-Facility Mgmt Undergraduate 3 LEC An introduction to basic methods, concepts and procedures of facility planning, programming, budgeting, project management, office productivity measurements, and operations management. Emphasis is placed on the facility management process, terminology and organizational development. Pre-Requisites: Enrollment in Facility Management or instructor permission. Typically Offered Fall Only</td>
</tr>
<tr>
<td>FMAN322</td>
<td>Facility Management</td>
<td>Project Management TE Arch Tech-Facility Mgmt Undergraduate 3 LEC Overview of facility project management concepts, phases and processes. Course topics include: development of project plans and teams, sequencing of activities, development of schedules, estimating of resources, coordinating and monitoring of facility projects, and review of project delivery methods and contracts. Pre-Requisites: FMAN 321 or permission. Meets General Education requirements for Collaboration. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>FMAN331</td>
<td>Facility Management</td>
<td>Facility Program-Design Proc TE Arch Tech-Facility Mgmt Undergraduate 3 LEC Course will enable students to understand the role of the facility manager in working with organizations and the users of space to identify facility related needs and present them to design professionals. Students will also learn the facility manager's role in strategic planning, facilitating the organization's business plan, and working with outside consultants to develop facilities. Pre-Requisites:FMAN 321. Typically Offered Spring Only</td>
</tr>
<tr>
<td>FMAN390</td>
<td>Facility Management</td>
<td>Special Topics in FMAN TE Arch Tech-Facility Mgmt Undergraduate 1 TO 3 LEC Special Topics in FMAN - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>FMAN393</td>
<td>Facility Management</td>
<td>Facility Management Internship TE Arch Tech-Facility Mgmt Undergraduate 4 LEC Ten weeks (400 total hours minimum) of supervised industry training experience in the facility management environment. Pre-Requisites: Completion of Junior year or instructor permission. Typically Offered Summer Only</td>
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<td>Course Code</td>
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<tr>
<td>FMAN397</td>
<td>Special Studies in Fm Man</td>
<td>TE</td>
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<tr>
<td>FMAN431</td>
<td>Principles of Space Planning</td>
<td>TE</td>
</tr>
<tr>
<td>FMAN432</td>
<td>Principles of Interior Archit</td>
<td>TE</td>
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<tr>
<td>FMAN441</td>
<td>Property Development-Planning</td>
<td>TE</td>
</tr>
<tr>
<td>FMAN451</td>
<td>Plan - Budget for Operations</td>
<td>TE</td>
</tr>
<tr>
<td>FMAN489</td>
<td>Capstone Research</td>
<td>TE</td>
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<tr>
<td>FMAN490</td>
<td>Special Topics in FMAN</td>
<td>TE</td>
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<tr>
<td>FMAN497</td>
<td>Special Studies in FMAN</td>
<td>TE</td>
</tr>
<tr>
<td>FMAN499</td>
<td>Capstone Thesis</td>
<td>TE</td>
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<tr>
<td>FREN100</td>
<td>French for Business-Travel</td>
<td>AS</td>
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<tr>
<td>FREN101</td>
<td>Beginning French 1</td>
<td>AS</td>
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<tr>
<td>FREN102</td>
<td>Beginning French 2</td>
<td>AS</td>
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This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Introduction to space planning concepts; office layouts and furniture systems. Space development and furniture systems will be examined in terms of how they serve the business goals of organizations, including growth and contraction forecasting. The course will include an historical overview of office facilities; development of architectural programs; and teamwork exercises to expose students to multiple roles in the facility development team. Pre-Requisites: Enrollment in FMAN program. Meets General Education requirements for Collaboration. Typically Offered Fall Only

Overview of the elements of interior design and their application. Students apply the principles of interior design with regard to program requirements, context, environment, ergonomics, code and regulatory issues. The visual effects and physical attributes of various components of the interior space are studied. Pre-Requisites: FMAN 431. Typically Offered Spring Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Development and completion of individual or group thesis projects that reflect understanding of the core competencies of facility management: leadership and management; operation and maintenance; planning and project management; communication; finance; human and environmental factors; quality management and assessment; and real estate. Pre-Requisites: FMAN 489. Meets General Education requirements for Problem Solving. Typically Offered Spring Only

FREN 100 stresses basic language survival skills for a potential business traveler-tourist in France. The course endeavors to establish a heightened cultural awareness of the international francophone community while enabling students to develop survival skills in the target language. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Spring, Summer

Pronunciation, essentials and basics of French grammar, practice in conversation of everyday topics, and composition. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Global Diversity and Culture. Typically Offered Fall, Spring, Summer Continuation of French 101. Completion of basic French grammar and practice in conversation. Reading of French short stories. Oral and written practice; stressing idioms. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Global Diversity and Culture. Typically Offered Spring Only
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. **Typically Offered On Demand**

Teaching largely in French. Reading of a French play in rehearsal style. Reading of French newspapers and other periodicals. Composition increasingly independent of English models. Discussions in French.

This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Global Diversity and Culture. **Typically Offered Fall Only**

Continuation of French 201. Practice in composition of assigned topics. Readings of selections from fiction and science with discussions in French and written reports. This course meets General Education requirements: Global Consciousness; Cultural Enrichment, new Fall 2017 Global Diversity, Culture. **Typically Offered Spring Only**

Exploration of Francophone literature in English translation focusing primarily on the colonial era in the African countries colonized by the French, French Acadian literature, and the plantation society of the French Antilles, from 1690 to 1848. This course meets General Education requirements: Cultural Enrichment and Global Consciousness, and new Fall 2017 Culture and Global Diversity. **Typically Offered Fall, Spring**

Special Topics In FREN - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. **Typically Offered On Demand**

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. **Typically Offered On Demand**

Advanced practice in composition, grammar, and conversation in French using media and readings related to the Francophone world. This course is taught in French. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites:FREN 202 with a grade of D- or better. **Typically Offered Fall Only**

Continued advanced practice in composition, grammar, and conversation in French using media and readings related to the Francophone world. Introduction to major French authors. This course is taught in French. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites:FREN 301 with a grade of D- or better. **Typically Offered Spring Only**

This is a course in French culture and history. It is an overview of France’s impact and place of importance in the world, historically, and in the world of the 21st century. This course will strive to illuminate and stimulate the student in and about the greatness of the French and their legacy. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Fall, Summer

Special Topics In French - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. **Typically Offered On Demand**

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. **Typically Offered On Demand**

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. **Typically Offered On Demand**

Special Topics in FSU - Level 200. This course covers various topics taught by diverse faculty and may not be offered every semester. **Typically Offered On Demand**

Developing strategies for managing the changes that impact first-year students in order to enhance their opportunity for college success. Includes discussions on how to network and build relationships, manage time and money, use support services including academic advising, FSU program offerings and the library. Also deals with issues of diversity, wellness and personal responsibility and how to improve basic study habits. **Typically Offered Fall, Spring, Summer**
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Type</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>FSUS101</td>
<td>Ferris State University Sem</td>
<td>UN</td>
<td>LEC</td>
<td>Offered: Fall, Spring. Work experience of specialized training designed to enhance the student's academic pursuits, personal development, and professional preparation. The experience, number of weeks, and total hours worked must be approved by the BIS program coordinator. Normally, 3-6 semester credit hours will be granted for a 15-week cooperative education experience. FSUS 491 may be repeated for a maximum of 9 credit hours. FSUS 491 is graded as pass/fail. Pre-Requisites: Junior status and department approval. Typically Offered: Fall, Spring, Summer.</td>
</tr>
<tr>
<td>FSUS190</td>
<td>Special Topics in FSUS</td>
<td>UN</td>
<td>LEC</td>
<td>Offered: On Demand. The course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered: On Demand.</td>
</tr>
<tr>
<td>FSUS491</td>
<td>Cooperative Education</td>
<td>UN</td>
<td>LEC</td>
<td>Offered: Fall. Capstone course for all students enrolled in the BIS degree program. Course includes an exploration of long-term career goals and objectives, construction of a personal professional portfolio, and an assessment of learning and development in the BIS program, in general education, and in the workplace. Pre-Requisites: Senior status. Typically Offered: Fall, Spring, Summer.</td>
</tr>
<tr>
<td>FSUS499</td>
<td>Senior Capstone Seminar</td>
<td>UN</td>
<td>LEC</td>
<td>Offered: Fall. The course is designed to teach students how to build digital documents for various types of graphic media workflows. The student will learn the fundamentals of capturing and manipulating raster images, creating vector art, and producing digital documents in professional graphic media software applications. Typically offered: Fall.</td>
</tr>
<tr>
<td>GCOM131</td>
<td>Graphic Communication Building Prof Digital Docs</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. This course is designed to teach students how to build digital documents for various types of graphic media workflows. The student will learn the fundamentals of capturing and manipulating raster images, creating vector art, and producing digital documents in professional graphic media software applications. Typically offered: Fall.</td>
</tr>
<tr>
<td>GCOM132</td>
<td>Graphic Communication Port Doc Files/Prepress Wrkflw</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. Designed to develop theoretical and basic operation knowledge of sheetfed offset and digital presses. Extensive demonstration and operation of presses will take place to give practical experience in statistical data analysis, problem solving, trouble-shooting and color management. Includes care, maintenance, and performance capabilities of modern presses; sheetfed, web-fed offset and digital presses. Typically Offered: Spring.</td>
</tr>
<tr>
<td>GCOM161</td>
<td>Graphic Communication Media Imaging &amp; Production</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand.</td>
</tr>
<tr>
<td>GCOM197</td>
<td>Graphic Communication Special Studies in Graphic Com</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand.</td>
</tr>
<tr>
<td>GCOM232</td>
<td>Graphic Communication Digital Color Reproduction</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand.</td>
</tr>
<tr>
<td>GCOM243</td>
<td>Graphic Communication Prepress Workflow Automation</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand.</td>
</tr>
<tr>
<td>GCOM273</td>
<td>Graphic Communication Substrates, Inks, and Coatings</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand.</td>
</tr>
<tr>
<td>GCOM285</td>
<td>Graphic Communication Introduction to Packaging</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand.</td>
</tr>
<tr>
<td>GCOM297</td>
<td>Graphic Communication Special Studies in GCOM</td>
<td>BU</td>
<td>LEC</td>
<td>Offered: Fall. The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand.</td>
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<td>Credits</td>
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<tr>
<td>GCOM299</td>
<td>Graphic Communication</td>
<td>Imaging &amp; Finishing Proj Mgmt</td>
<td>BU</td>
<td>Marketing</td>
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</tbody>
</table>

This course is designed to develop the student's knowledge in project management by placing the student in charge of graphic media projects from imaging to getting the product out the door. Students will work in groups and take on challenging projects that require; deadlines, project plans, equipment and digital automation knowledge. Prerequisite: GCOM 161 w/C or higher. Typically offered Spring.

| GEOG100    | Geography | Geography of World Regions     | AS     | Social and Behavioral Sciences | Undergraduate | 3 | LEC |

Geography and the world—terms, concepts, basic place locations, map and atlas usage. Emphasized are the demographic, cultural, economic, political and physical aspects of the major regions of both the technologically developed and developing regions of the world: Europe, CIS, USA, Canada, Latin America, Africa, Asia and Pacific regions. This course meets General Education requirements: Social Awareness, Global Consciousness, Race/Ethnicity/Gender Issues, Social Foundations and new Fall 2017 Self and Society, Self and Society Foundation, Global Diversity and U.S. Diversity. Typically Offered Fall, Spring, Summer

| GEOG111    | Geography | Geography of Phys Environment | AS     | Social and Behavioral Sciences | Undergraduate | 4 | LEC |

Study of the natural habitat in which people have developed economic, cultural, and political structures. Emphasizes maps showing world patterns of climates, landforms, surface waters, soils and earth materials, and vegetation. This course meets General Education requirements: Scientific Understanding and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered Fall, Spring

| GEOG112    | Geography | Cultural Geography            | AS     | Social and Behavioral Sciences | Undergraduate | 3 | LEC |

World and local cultural-social aspects of geography including: terms and concepts, demographic trends and problems, architectural features and patterns resulting from peoples use of the earth, historic pattern of rural to urban settlement changes and innovations for the future, evolution of transportation systems, language and religion patterns, popular culture, and people-food-environmental relationships. Individual case studies and descriptions of world culture groups. This course meets General Education requirements: Social Awareness, Global Consciousness; Race/Ethnicity/Gender Issues; Social Foundations and new Fall 2017 Global Diversity, U.S. Diversity and Self and Society Foundations. Typically Offered Fall, Spring

| GEOG121    | Geography | Weather and Climate           | AS     | Social and Behavioral Sciences | Undergraduate | 3 | LEC |

A study of the elements controlling the weather. Weather maps and basic forecasting devices, pollution, and climatic change are topics of discussion. Related human problems of world hunger and the human role in weather and climate alteration are treated. This course meets General Education requirements: Scientific Understanding and new Fall 2017 Natural Sciences. Typically Offered Spring Only

| GEOG201    | Geography | Geography of US and Canada    | AS     | Social and Behavioral Sciences | Undergraduate | 3 | LEC |

Study of the differing natural environments of Anglo-America including the variety of rural and urban settlement patterns, problems, resources, and land uses one would expect to find when traveling in these nations. This course meets General Education requirements: Social Awareness and new Fall 2017 Self and Society. Typically Offered Fall, Spring, Summer

| GEOG202    | Geography | Geog Latin America-Africa-Asia  | AS     | Social and Behavioral Sciences | Undergraduate | 3 | LEC |

Study of and descriptions by text, slides and videos of the continental regions of the predominately non-western, technologically developing cultures and people of the world. Emphasized are aspects of ethnic groups, historic and contemporary economic contributions, political relationships, resources, potentials, transportation, demographic concerns, and physical attractiveness of regions. Atlas use and place locations skills are reinforced. Typically Offered On Demand

| GEOG241    | Geography | Map Analysis - Interpretation | AS     | Social and Behavioral Sciences | Undergraduate | 3 | LEC |

Maps are analyzed as tools for communication, social interaction, societal patterns, and individual perceptions of place. Map generalization and symbolization, continuous surface, data classification, and other cartographic theories are used to critically analyze expression of spatial phenomenon in the social sciences, the media, in politics, demographics, and history. Topographic and popular reference maps are studied using fundamental concepts of scale, projection, and measurement. Students use GIS to create thematic maps. This course meets General Education requirements: Social Awareness, and new Fall 2017 Self and Society. Typically Offered Spring Only, Even Ye

| GEOG290    | Geography | Special Topics in GEOG   | AS     | Social and Behavioral Sciences | Undergraduate | 1 TO 4 | LEC |

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

<p>| GEOG297    | Geography | Special Studies in GEOG | AS     | Social and Behavioral Sciences | Undergraduate | 1 TO 4 | LEC |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit(s)</th>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG301</td>
<td>Geography Geog of Mi and Great Lakes Reg</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate study of the major freshwater region on earth which includes Ontario, Michigan, and parts of seven other U.S. states. Focus is on aspects of physical environment, resources, history, political organization, economy, trade and tourist attractions, demographic trends, interstate water management organizations, problems, publications and maps. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues. Recommended one prior Social Awareness course, and new Fall 2017 US Diversity and Self and Society. Pre-Requisites:One Social Awareness Foundations Course. Typically Offered Fall, Spring</td>
</tr>
<tr>
<td>GEOG311</td>
<td>Geography Social Aspects of GIS</td>
<td>3</td>
<td>LEC</td>
<td>Introduction to basic concepts underlying computerized Geographic Information Systems (GIS) applied to the various social sciences. An overview of GIS principles and practical social science applications in the analytic use of spatial information. Topics covered include: basic cartographic concepts, spatial databases, GIS analysis of social needs and services, spatial queries, spatial analysis, data capture and acquisition, and mapping with GIS. Introduce students to a major GIS software package. Pre-Requisites:Junior Status. Typically Offered Spring Only</td>
</tr>
<tr>
<td>GEOG372</td>
<td>Geography World Medical Geography</td>
<td>3</td>
<td>LEC</td>
<td>This course provides the student with an understanding of the basic principles and themes of geography as they are applied to the study of health and disease in an international setting. Health-related topics are holistically examined within a variety of physical and cultural systems. Case studies from Latin America, Africa, Asia, Europe, and North America are discussed from the perspective of medical geography. This course meets General Education requirements: Social Awareness and Global Consciousness and new Fall 2017 Self and Society and Global Diversity. Typically Offered Spring Only Special Topics in Geography - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>GEOG390</td>
<td>Geography Special Topics in GEOG</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>GEOG450</td>
<td>Geography Geography Teaching Methods</td>
<td>3</td>
<td>LEC</td>
<td>This course focuses on both the theoretical and practical aspects of planning, implementing, and assessing the teaching of geography in the secondary schools. It will examine the role and function of geography in the schools and the school curriculum, critical, pedagogical approaches, current issues, book selection, planning objectives, intra- and inter-disciplinary relationships, classroom pedagogical activities, faculty collegiality, and assessment of both student learning and teacher performance. Co-Requisite: EDUC 430. Generally offered Spring semester.</td>
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<tr>
<td>GEOG490</td>
<td>Geography Special Topics of GEOG</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>Special Topics in GEOG - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>GEOG497</td>
<td>Geography Special Studies in GEOG</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>GEOL121</td>
<td>Geology Physical Geology</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>4</td>
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<tr>
<td>GEOL131</td>
<td>Geology and Land Use Mgmt</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>GEOL210</td>
<td>Geology Field Geology</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>GEOL221</td>
<td>Geology History of the Earth</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>GEOL297</td>
<td>Geology Special Studies in GEOL</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
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<tr>
<td>GEOL321</td>
<td>Geology Hydrogeology</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>4</td>
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<td>GERM100</td>
<td>German for Business-Travel</td>
<td>German</td>
<td>Undergraduate</td>
<td>3</td>
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<td>GERM101</td>
<td>Beginning German 1</td>
<td>German</td>
<td>Undergraduate</td>
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</tr>
<tr>
<td>GERM102</td>
<td>Beginning German 2</td>
<td>German</td>
<td>Undergraduate</td>
<td>4</td>
</tr>
<tr>
<td>GERM201</td>
<td>Intermediate German 1</td>
<td>German</td>
<td>Undergraduate</td>
<td>4</td>
</tr>
<tr>
<td>GERM202</td>
<td>Intermediate German 2</td>
<td>German</td>
<td>Undergraduate</td>
<td>4</td>
</tr>
<tr>
<td>GERM290</td>
<td>Special Topics in GERM</td>
<td>German</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
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</table>

Explores the processes that continuously interact to cycle rock and water through the earth system, thus shaping the surface of our dynamic earth. Plate tectonics is the thread that ties the study of earthquakes, volcanoes, and mountain belts; weathering, erosion, and deposition. The interrelation of humans and the earth system is a recurring theme. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences and Natural Sciences Lab. Typically Offered On Demand

Examines the geologic factors important to making wise land-use decisions. Hazards of development in areas prone to earthquakes, volcanoes, flooding, mass-wasting, and shoreline erosion are considered, together with hazard reduction measures. The impact of development on resources such as soil and groundwater is also considered. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences Lab. Pre-Requisites: Surveying Eng & Environmental Hlth students only. Typically Offered Fall Only

Geological problems are explored using field and laboratory methods. Typically Offered Summer Only

Students will be introduced to current understandings of the formation and evolution of the earth system. We will explore how the geosphere, hydrosphere, atmosphere and biosphere have interacted and evolved since Earth formed. We will learn about significant events in Earth’s history and about how geologists are able to unravel a story that spans 4.6 billion years. A special emphasis will be placed on the geologic history of Michigan. This course meets General Education requirements: Scientific Understanding, and new Fall 2017 Natural Sciences. Prerequisites: PHSC 110 or GEOL 121 or GEOL 210 or GEOG 121 all course with a grade of D- or better. Typically Offered Spring.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Investigates various essential aspects of groundwater including geologic controls on its occurrence, storage, and movement; principles of flow through saturated and unsaturated media; sources and movement of pollutants; and groundwater remediation techniques. Field methods for conducting various groundwater investigations. This course meets General Education requirements: Scientific Understanding, Lab. Pre-Requisites: MATH 115 or a minimum score of 24 on ACT or 560 on pre 2016 SAT or 580 post 2016 SAT; & GEOL 121. Typically Offered Spring Only

German 100 stresses basic language survival skills for a potential business associate-tourist in Germany. It is also cultural in its orientation, focusing on the Germans, German and German-speaking world. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Spring Only

Listening, speaking, reading and writing skills will be developed with emphasis on pronunciation, conversation and beginning grammar. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Global Diversity and Culture. Typically Offered Fall Only

Continuation of GERM 101. Continuing development of listening, speaking, reading and writing skills with emphasis on pronunciation, conversation and grammar. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Global Diversity and Culture. Typically Offered Spring Only

Speaking, writing and a thorough grammar review. Conversation and reading center on daily life in German-speaking countries. This course meets General Education requirements: Global Consciousness; Cultural Enrichment, and new Fall 2017 Global Diversity and Culture. Typically Offered Fall Only

Functioning effectively in all aspects of the German language, including composition. Readings from literature and contemporary publications. This course meets General Education requirements: Global Consciousness; Cultural Enrichment, new Fall 2017 Global Diversity; Culture. Typically Offered Spring Only

Special Topics in GERM - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Course Title</th>
<th>Unit Type</th>
<th>Credits</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERM297</td>
<td>German</td>
<td>Special Studies in GERM</td>
<td>AS</td>
<td>1-4</td>
<td>Undergraduate</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand. Studies in the history and culture of contemporary Germany including customs, arts, politics, current events and everyday life through readings, discussion and film. Knowledge of German language not required. Typically Offered Spring. Summer.</td>
</tr>
<tr>
<td>GERM331</td>
<td>German</td>
<td>German Culture</td>
<td>AS</td>
<td>3</td>
<td>Undergraduate</td>
<td>Study of fiction, memoir, film and memorial representing the Nazi Holocaust of the European Jew. The history of racial Anti-Semitism and rise of Nazism is introduced as a context for a textual analysis of the Holocaust representations. Students will examine literary and cinematic form as productive to social awareness of the causes, events, and aftermath of the Holocaust. Texts and films will represent various generations and cultures in their attempt to represent the Holocaust and its continued impact on our lives. (Cause taught in English). This course meets General Education Requirements for Global Consciousness, Cultural Enrichment, Race-Ethnicity-Gender and Fall 2017 Culture, Global Diversity and US Diversity. Typically offered Fall, Spring, Summer.</td>
</tr>
<tr>
<td>GERM341</td>
<td>German</td>
<td>Reps of the Holocaust</td>
<td>AS</td>
<td>3</td>
<td>Undergraduate</td>
<td>Special Topics in GERM - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>GERM390</td>
<td>German</td>
<td>Special Topics in GERM</td>
<td>AS</td>
<td>1-4</td>
<td>Undergraduate</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.</td>
</tr>
<tr>
<td>GISC224</td>
<td>Geographic Information Science</td>
<td>Fundamentals of GIS</td>
<td>TE</td>
<td>3</td>
<td>Undergraduate</td>
<td>This course deals with fundamental principles of Geographic Information Systems (GIS) and its applications including vector, raster data models, coordinate systems datums, map projections, aerial and satellite images, data entry and editing, digital spatial data, attribute data, data standards and quality, and spatial analysis. Students will work with vector GIS software packages. Typically offered Fall, Spring, Summer.</td>
</tr>
<tr>
<td>GISC225</td>
<td>Geographic Information Science</td>
<td>Principles of GIS</td>
<td>TE</td>
<td>3</td>
<td>Undergraduate</td>
<td>This course will explore fundamental principles of Geographic Information Systems (GIS) and its applications including hardware and software. Topics covered include: database concepts, algorithms to manage spatial data, cost benefit analysis, GIS project management, and digital data dissemination methods using internet technologies. Students will work with database management, raster and vector GIS applications software on various case studies including nature and environmental conservation, real estate administration, marketing and city management. Prerequisites: Basic computer skills. Typically Offered Spring.</td>
</tr>
<tr>
<td>GISC239</td>
<td>Geographic Information Science</td>
<td>Remote Sensing</td>
<td>TE</td>
<td>3</td>
<td>Undergraduate</td>
<td>This course explores the fundamental principles of remote sensing as they relate to engineering and environmental problems. Topics covered include image interactions, reflectance, scanning systems, satellite sensors, digital image process, and image classification. Students will work with image processing software. Typically Offered Spring.</td>
</tr>
<tr>
<td>GISC282</td>
<td>Geographic Information Science</td>
<td>Geographic Information Science 2</td>
<td>TE</td>
<td>3</td>
<td>Undergraduate</td>
<td>Continuation of GISC 224 which describes spatial data collection techniques, and land information systems. Spatial data collection techniques such as land surveying, Global Positioning System, photogram metric mapping, remote sensing, Ladar, and mobile mapping will be studied. Geodetic and Cartographic data from Federal Government will be explored as well as mapping procedures and accuracy standards. Principles of the cadastral system will be taught including the public land survey system, property descriptions, and boundary surveys. Prerequisites: GISC 224 or GISC 225 with a C- or better. Typically Offered Summer only.</td>
</tr>
<tr>
<td>GISC297</td>
<td>Geographic Information Science</td>
<td>Special Studies in GIS</td>
<td>TE</td>
<td>1-4</td>
<td>Undergraduate</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.</td>
</tr>
<tr>
<td>GISC382</td>
<td>Geographic Information Science</td>
<td>GIS Data Analysis-Specialized</td>
<td>TE</td>
<td>3</td>
<td>Undergraduate</td>
<td>Key topics include the point process and network analysis, and the advanced surface operations (interpolation, line of sight, volume calculation, drainage, contour line mapping, and 3D visualization). Students will perform an independent research on one GIS specialty application (e.g., homeland security and criminal justice, transportation, health care, natural resources, environment and nature protection, city and county management, utilities, and public administration). Prerequisites: GISC 224 or GISC 225 with a C- or better. Typically offered Summer only.</td>
</tr>
</tbody>
</table>
This is a continuation of GISC 382 and involves advanced spatial analysis, spatial estimation and interpolation of data, spatial data models and modeling. It also deals with data standards and quality. Advanced topics include Web GIS, Geospatial Mashups, Mobile GIS, Geportals, NSDI, and applications such as e-government. It will also explore the publicly available data both national and international. The course will require a design and implementation for a GIS project. Pre-requisite GISC 382. Typically offered: Summer

Advanced concepts of geographic information systems and modern cartography will be studied. Topics covered include: metadata, federal and state spatial databases, map generalization, map labeling, advanced spatial data analysis, Digital Elevation Model (DEM), interpolation methods, DEM analysis such as slope, aspect, watershed, line of sight and grid operations. These topics will be linked to the data collection courses photogrammetry, remote sensing, land surveying and geodesy. Laboratory assignments will be project oriented using existing raster and vector GIS software. Prerequisites: GISC 225. Typically offered Fall.

Special Topics in GLBL - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Special Topics in GLEL - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This course is designed to introduce students to emerging technologies in digital and variable data printing. The impact of these technologies on traditional print markets and new digital printing markets are explored. Students examine specific digital printing technologies including: color toner based print engines, ink jet, and direct to press offset presses. Students complete projects utilizing databases and variable data printing software, servers and presses to produce unique customized variable data print campaigns. Typically offered: Fall

A course designed to give the student a working knowledge of estimating the cost of a job in the graphic media industry. Involves the estimating of materials and labor relative to current industry practices for site production of a printed product. Emphasis will be on estimating by analyzing the product to be produced and deciding the most economical ways of production. Students will be introduced to the use of cost controls used in the Graphic Media. The course includes break-even charts, budgeted hourly rates, cash flow projection, return-on-investment analysis, budget forecasting, and contribution analysis. Typically offered Spring.

This course will teach a systemic and analytical approach to achieving an efficient production system in all areas of media production, print production and material controls. Analyzing and planning jobs for most economical means of production, production scheduling systems and record keeping including inventory systems will be examined. Typically offered Fall.

A 10-week minimum work experience in a print media or cross media production company or with a company directly related to the graphic communications industry. Must be taken the summer prior to graduation and must be a management-related position. Orientation sessions, which must be completed the semester prior to the internship, will focus on resume writing and the job search. Also required will be one all-day session on campus during the proceeding semester to present your experience to others in the program. Typically offered Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course is designed to develop the student's knowledge in managing digital workflows in a graphic media environment. Primary emphasis of this course is to build an understanding of how automation is performed in digital graphic systems. Meets General Education requirements for Collaboration and Problem Solving. Typically offered Spring.

This course is focused on developing a basic understanding of color science and the complex processes of color management as applied to the graphic media industry. Specific topics of applied knowledge include: device calibration, characterization, and conversion in an ICC color management workflow. Typically offered Spring.
Designed for students to gain a holistic experience of how a print or cross media company’s processes interrelate and affect the overall operation of the business. Students will analyze production data and make recommendations to improve processes and their outcomes. How the combination of production data and meta data is used to improve an organization’s quality and production objectives will be examined. Customer relations, customer contact skills, along with people management skills will be stressed. Meets General Education requirements for Collaboration and Problem Solving. Typically offered Spring.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Current events related to the Graphic Media Industry and its employers will be discussed. Employers expect graduates to have knowledge of current issues that affect their business. Typically Offered Spring.

Special Topics in GRDE - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

This course provides an introduction to health services administration. It explores the unique role of the administrator in the health care setting, the dual power structure in health care agencies, and the impact of the organization’s culture on the role of the administrator. It also includes the administrative roles of planning, inventory control, facility and equipment management, and productivity management, staffing and work distribution. Typically Offered Fall and Spring.

This course introduces the legal issues facing the healthcare industry. It provides students with knowledge of health law, law creation, federal and state regulations and standards (such as HIPAA, JCAHO, EMT AL A), legal release of information, subpoenas, and court orders, criminal and civil liabilities for healthcare providers. Students will review cases and role-play to understand the value of conflict resolution, arbitration, mediation, and facilitation. Prerequisites: CDP 201 with grade of C or above. Typically Offered Fall, Spring, Summer.

Overview of computer use in health care agencies. Topics to be studied include clinical and administrative systems, use of the internet, extranet, electronic records, telemedicine, computerized medical devices, compatibility issues, billing via the Web, litigation issues surrounding the use of computer technology in health care and emerging technologies and their impact on health care agencies. Pre-Requisites: SYS 105. Typically Offered Fall Only

Diverse international healthcare systems. The course content includes a comparison of the United States health care system with other developed and undeveloped world health care systems. Prerequisites: CDP 201 with grade of C or above. Typically Offered Fall and Spring.

This course introduces the student to the internal and external environment of long term care, including a summary of the providers and customers of long term care services. Prerequisites: CDP 201 with grade of C or above. Meets General Education requirements for Collaboration. Typically Offered Fall and Spring.

Special Topics in HCSA - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

This course introduces the theory of managerial planning for capital and operational budgeting in health care as well as the regulatory constraints related to capital expenditures. Students will have the opportunity utilizing Excel to prepare a capital budget proposal as well as to gain practical skills in operational budgeting preparation and related analysis. Prerequisites: (HCSA 210 or MRRS 221) and ACCT 201 with grades of C or above. Meets General Education requirements for Problem Solving. Typically Offered Fall, Spring, and Summer.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCSA326</td>
<td>Health Care Services Admin</td>
<td>Health Care Personnel Practice, Undergraduate 3 LEC, students study the components unique to health care services ad.</td>
</tr>
<tr>
<td>HCSA336</td>
<td>Health Care Services Admin</td>
<td>Health Care Supervisory Pract, Undergraduate 3 LEC, students study the topics of health care licensing, credentialing and care requirements.</td>
</tr>
<tr>
<td>HCSA336</td>
<td>Internship Orientation</td>
<td>Health Care Services Admin, Internship Orientation, Undergraduate 1 LEC, students will study comprehensive systems for maintaining and improving grounds, building and equipment in long-term care facilities.</td>
</tr>
<tr>
<td>HCSA390</td>
<td>Special Topics in HCSA</td>
<td>Health Care Services Admin, Special Topics in HCSA - 300 Level, students will study the various Human Resource components unique to the health care industry. Topics include aspects of Human Resource, Health Care bargaining units, licensing, and credentialing and accreditation requirements for health care personnel. This course will address health care mandates pertaining to the employment process, Prerequisites: HCSA 120 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA392</td>
<td>Hospital Internship</td>
<td>Health Care Services Admin, Hospital Internship, Undergraduate 6 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA402</td>
<td>Health Law 2</td>
<td>Health Care Services Admin, Health Law 2, Undergraduate 3 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA410</td>
<td>Health Care Finance 3</td>
<td>Health Care Services Admin, Health Care Finance 3, Undergraduate 4 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA425</td>
<td>Lean Healthcare Applications</td>
<td>Health Care Services Admin, Lean Healthcare Applications, Undergraduate 3 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA460</td>
<td>Principles of Long Term Care</td>
<td>Health Care Services Admin, Principles of Long Term Care, Undergraduate 3 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA461</td>
<td>Nursing Home Administration</td>
<td>Health Care Services Admin, Nursing Home Administration, Undergraduate 3 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA463</td>
<td>Care Professionals in LTC</td>
<td>Health Care Services Admin, Care Professionals in LTC, Undergraduate 1 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
</tr>
<tr>
<td>HCSA465</td>
<td>LTC Facility Management</td>
<td>Health Care Services Admin, LTC Facility Management, Undergraduate 2 LEC, students will study and discuss theory and practice of management in health care facilities with an emphasis placed on conducting meetings, performance appraisals, interview processes, and corrective actions. Students will develop policies and procedures, job descriptions, and orientation/training topics. Skills in team building, coaching, counseling, conflict management, networking and delegation will be addressed. Prerequisites: COHP 101 with grade of C or above. Typically Offered Fall and Spring.</td>
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<td>Course Code</td>
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<td>Course Description</td>
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<tr>
<td>HCSA474</td>
<td>Health Care Strategic Applicat</td>
<td>Clinical Lab Resp Care - Hlth Ad</td>
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<tr>
<td>HCSA475</td>
<td>Practice Mgmt in Health Care</td>
<td>Clinical Lab Resp Care - Hlth Ad</td>
</tr>
<tr>
<td>HCSA493</td>
<td>Management Internship</td>
<td>Clinical Lab Resp Care - Hlth Ad</td>
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<tr>
<td>HCSA497</td>
<td>Special Studies in HCSA</td>
<td>Clinical Lab Resp Care - Hlth Ad</td>
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<tr>
<td>HEQT100</td>
<td>Heavy Equipment Technology</td>
<td>Trouble Shooting Strategies</td>
</tr>
<tr>
<td>HEQT101</td>
<td>Heavy Equipment Technology</td>
<td>HEQT Maintenance Fundamentals</td>
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<tr>
<td>HEQT110</td>
<td>Heavy Equipment Technology</td>
<td>HEQT Electronics Fundamentals</td>
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<tr>
<td>HEQT120</td>
<td>Heavy Equipment Technology</td>
<td>HEQT Engine Technology</td>
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<tr>
<td>HEQT160</td>
<td>Heavy Equipment Technology</td>
<td>Fluid Power Fundamentals</td>
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<tr>
<td>HEQT193</td>
<td>Heavy Equipment Technology</td>
<td>Industry Internship</td>
</tr>
<tr>
<td>HEQT200</td>
<td>Heavy Equipment Technology</td>
<td>Planned Maintenance Systems</td>
</tr>
<tr>
<td>HEQT201</td>
<td>Heavy Equipment Technology</td>
<td>Transport Refrigeration System</td>
</tr>
<tr>
<td>HEQT210</td>
<td>Heavy Equipment Technology</td>
<td>HEQT Electrical Systems</td>
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<tr>
<td>HEQT230</td>
<td>Heavy Equipment Technology</td>
<td>Diesel Fuel Systems Technology</td>
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<tr>
<td>HEQT240</td>
<td>Heavy Equipment Technology</td>
<td>HEQT Brakes-Suspension Systems</td>
</tr>
<tr>
<td>HEQT270</td>
<td>Heavy Equipment Technology</td>
<td>HEQT Power Transfer Technology</td>
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<tr>
<td>HEQT271</td>
<td>Heavy Equipment Technology</td>
<td>HEQT Auto Transmissions</td>
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</tbody>
</table>

This course introduces applications underlying strategic alignment in health care organizations. Introduction to the techniques involved in the strategic planning process, supply chain management and project planning are enhanced by best practices in quality improvement. Meets General Education requirements for Problem Solving. Prerequisites: MRRS 209 and HCSA 310 with grades of C or above. Typically Offered Fall, Spring, Summer.

This course provides students with the opportunity to integrate program concepts in a simulated practice environment. Prerequisites: HCSA 336 and HCSA 310 with grades of C or above. Typically Offered Fall, Spring, and Summer.

The internship is the capstone course for the Health Care Systems Administration Program. The internship is 10 weeks in length in which the student will work 40 hours per week performing assigned tasks and written projects. Pre-Requisites: Departmental approval. Typically Offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Logical thought process used in analyzing and trouble-shooting system malfunctions. Practical applications of trouble-shooting strategies are stressed. Typically Offered Fall, Spring.

Practical use of tools, equipment, and instruments used for the diagnosing and servicing of heavy equipment. Identification, ordering information, proper use of various fittings, fasteners, wire and wire terminals, and lubricants will be presented. Typically Offered Fall, Spring.

Theory of operation and repair of the gas and diesel internal combustion engine. Also included will be the theory and applications of gasoline and gaseous fuel systems. Pre-Requisites:HEQT 100 And 101. Typically Offered Spring.

Theory and practical applications of fluid power principles as applied to the heavy equipment industry. The proper use of testing equipment will be presented. Typically Offered Fall, Spring.

Manual and computerized procedures used in preventive maintenance systems. Course will include P.M. inspection procedures. Typically Offered Fall, Spring.

Principles of transport refrigeration will be covered to include trouble-shooting and repair of these units. Typically Offered Spring.

Theory and application of heavy duty electrical systems, including repair and adjustment of charging, cranking, ignition, and accessory circuits. Proper trouble-shooting procedures will be emphasized. Typically Offered Fall, Spring.

A study of the traditional and electronically controlled diesel fuel systems. Emphasis is placed on the major systems in use today with diagnostic and tune-up procedures on running engines in the dynamometer laboratory. Pre-Requisites:HEQT 120 and 210. Typically Offered Fall.

The theory of operation and application of brakes, suspension, and steering systems on various types of on and off road vehicles. State of the art measuring and adjusting equipment will be utilized. Pre-Requisites:HEQT 101. Typically Offered Fall, Spring.

The theory of operation and application of various mechanical gearing and driveline components. Pre-Requisites:HEQT 101. Typically Offered Fall, Spring.

Automatic transmissions and control systems, which have application to the trucking, construction, agricultural, forestry, and auxiliary power industries will be presented. Pre-Requisites:HEQT 160 and HEQT 270. Typically Offered Fall, Spring.
HEQT282  Heavy Equipment Technology  AC Power Generation  TE  Heavy Equipment  Undergraduate  4  LEC  Function, operation, repair, adjustment, and troubleshooting of alternating current electrical power generation systems. Pre-Requisites: MATH 110. Typically Offered On Demand

HEQT285  Heavy Equipment Technology  Gen Controls-Switch Gear Sys  TE  Heavy Equipment  Undergraduate  4  LEC  Application of various types of practical generator switch gear and other types of auxiliary power components and controls. Pre-Requisites: HEQT 282. Typically Offered On Demand

HEQT297  Heavy Equipment Technology  Special Studies in HEQT  TE  Heavy Equipment  Undergraduate  1 TO 4  LEC  This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

HIST090  History  Special Topics in HIST  AS  Humanities  Undergraduate  1 TO 3  LEC  Special topics in HIST. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

HIST121  History  US History to 1877  AS  Humanities  Undergraduate  3  LEC  A history of the United States from its founding to 1877. The social, cultural, political, and economic developments of this period. The emergence of the United States will be viewed as part of a continuum of western and nonwestern political and cultural expansion. This course meets General Education Requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer

HIST122  History  US History - 1877 to Present  AS  Humanities  Undergraduate  3  LEC  A history of the United States from 1877 to the present. The social, cultural, political, and economic developments of this period as well as the European and nonwestern influence on our society. This course meets General Education Requirements: Cultural Enrichments and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer

HIST151  History  Hist of Western Civil to 1500  AS  Humanities  Undergraduate  3  LEC  This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

HIST152  History  Western Civil 1500 to Present  AS  Humanities  Undergraduate  3  LEC  A history of Western civilization including the Reformation, scientific revolution, Enlightenment, the French Revolution, the industrial revolution, nationalism, liberalism, socialism, the rise of mass society, communism, totalitarianism, the decline of European supremacy, WWI and WWII, and post-WWII European society. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Fall, Spring

HIST190  History  Special Topics in HIST  AS  Humanities  Undergraduate  1 TO 3  LEC  This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

HIST201  History  African-American History  AS  Humanities  Undergraduate  3  LEC  History of African-Americans and their impact on American politics, economy, and culture. The emergence of a unique black consciousness is traced from the slave experience to the modern era where the quest for civil rights has found expression in the arts, economic boycotts, and political ideology. This course meets General Education Requirements: Cultural Enrichments, Global Diversity, Race/Ethnicity/Gender, and new Fall 2017 Culture, US Diversity. Pre-requisites: ENGL 150. Typically Offered On Demand

HIST211  History  World Civilizations to 1400  AS  Humanities  Undergraduate  3  LEC  Course surveys earliest world civilizations, classical civilizations that followed, origins of today’s most popular religions, impact of both Eastern and Western thought, medieval period, civilizations of the Americas, Africa, and Asia prior to and following contact with Europeans, growth of trade, etc. Course will consider broader questions and trends of these world civilizations and eras, including comparisons of their economies, societies, politics, cultures, and religions. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-requisites: ENGL 150. Typically Offered Fall and Spring.

HIST212  History  World Civilizations since 1400  AS  Humanities  Undergraduate  3  LEC  Course surveys rise of European nation states; European exploration and conquest; rise of Gunpowder Empires; Early Modern China and Japan; rise of science and the Enlightenment; global trends of industrialization, revolution, nationalism, communism, mass society, and imperialism; World Wars and Cold War, post-war struggles for independence and nationhood, and economic transformation of East Asia. Course will consider broader questions and trends of world civilizations and eras, including comparisons of economies, societies, politics, cultures, and religions. This course meets General Education requirements: Cultural Enrichment and Global Consciousness, and new Fall 2017 Culture and Global Diversity. Pre-requisites: ENGL 150. Typically Offered Fall and Spring.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Type</th>
<th>Area</th>
<th>Level</th>
<th>Credits</th>
<th>Format</th>
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<tbody>
<tr>
<td>HIST230</td>
<td>History Michigan History</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
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<td>Development of Michigan's past and its place in the present. State and local events as they mirror larger national trends; what is both unique and universal about the Wolverine State. This course meets General Education Requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered On Demand</td>
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<tr>
<td>HIST251</td>
<td>History Racism and Science</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>This course will establish a historical context for the scientific study and debate over race. This course will examine the origins and development of race and racism from the Enlightenment to the present. The course will examine how scientific ideas about race were shaped by slavery, nationalism, colonialism and imperialism. Topics will include the origins of the classification of humans into racial groups; the debates over polygenesis, Social Darwinism, eugenics and the Bell Curve theory. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and Race/Ethnicity/Gender, new Fall 2017 Culture, Global Diversity and US Diversity. Prerequisites: English 150. Typically Offered Fall Odd Years.</td>
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<tr>
<td>HIST253</td>
<td>History Imperialism Modern World</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<td>Course will examine phenomenon of European imperialism in 19th and 20th centuries in terms of origins, purpose, geographic scope, and impact on Asia, Africa, and Middle East. Students will learn how and why European imperialism happened, as well as discover its political, economic, social (class, gender, and ethnicity), and cultural impact on both Europe and those colonized. Course will address the fall of most European empires and resulting consequences for those living in the former empires. This course meets General Education requirements: Cultural Enrichment and Global Consciousness, and new Fall 2017 Culture and Global Diversity. Prerequisites: ENGL 150. Typically Offered Fall Odd Years.</td>
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<tr>
<td>HIST255</td>
<td>History The Impact of 1492</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>The course will consider the impact of the encounter between Europeans and Americans following Columbus’ first voyage in 1492: Why and how the encounter happened, who was involved, and the ramifications for the Americas and Europe, if not the world. Key figures and topics to be examined include Columbus and Montezuma II of the Aztecs, the Columbian Exchange, the Atlantic slave trade, as well as the economic, ecological, religious, social and political consequences of the contact. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered Fall Even Years.</td>
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<tr>
<td>HIST257</td>
<td>History Terrorism in the Modern World</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>The course will examine the phenomenon of terrorism in the 19th and 20th centuries in terms of its origins, scope, purpose, and impact throughout the world. Students will examine terrorism by the state and against the state; ideological and theological justifications of terrorism; and how modern terrorist networks operate in a global setting. Finally, they will examine the threat terrorism poses to the state and how the modern state has responded to this threat. This course meets General Education requirements: Cultural Enrichment and Global Consciousness, and new Fall 2017 Culture and Global Diversity. Prerequisites: ENGL 150. Typically Offered Fall Even Years.</td>
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<tr>
<td>HIST258</td>
<td>History Greece and Rome</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>Course will consider political, social, intellectual, religious, and economic history of Ancient Greece and of Ancient Rome. Emphasis on Greece will consider its geography’s impact on its political and economic development; social and political institutions of Athens and Sparta; Greek philosophy; and Greek culture throughout Mediterranean. Emphasis on Rome will cover birth of the Republic and its political organization; transition from Republic to Empire; expansion of the Empire, as well as eventual decline. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisite: ENGL 150 Typically Offered Spring Even Years.</td>
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<tr>
<td>HIST259</td>
<td>History Women in Activism Global Persp</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>This course will examine the origins of feminist activism and will consider activism at the local, national, and global levels. Emphasis will be placed on the nineteenth and twentieth centuries. Settings to be examined include Europe, Africa, the Middle East, Asia, Latin America and the United States. Global arenas of activism will include labor, health and reproductive rights, peace movements, environmentalism, anti-poverty, ethnic cleansing, and violence against women. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and Race/Ethnicity/Gender Issues, and new Fall 2017 Culture, Global Diversity and US Diversity. Prerequisites: ENGL 150. Typically Offered On Demand.</td>
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This course will serve as an introduction to the theory and craft of public history. Students will focus on developing an understanding of the creation, management, and presentation of historical records. It emphasizes the practical applications of a history career in a variety of settings including agencies, libraries, historical societies and museums. Students will complete a public history project such as a finding aid, exhibit or other activity which can be placed in a portfolio. Prerequisites: HIST 250; Consent of Professor. Typically Offered Spring only.

The history of science and technology from ancient times to the present with special emphasis on developments in the twentieth century. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered On Demand

Major developments in American business history from the colonial period to the present, tying together the role of government, technology, unions, and banks on business enterprise in America. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered On Demand

A history of medicine and health care from Babylonian and Egyptian origins to the present with a special emphasis on its social, political, and economic consequences. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered On Demand

A history of amateur and professional sports throughout the world with an emphasis on the nineteenth and twentieth centuries. Athletics and their social, political, cultural, and economic ramifications. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisite: ENGL 150. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer

Students will learn how to practice the craft of studying the past by developing Historical Thinking Skills that are essential for reading and analyzing primary and secondary sources. Students will also develop and apply research skills in terms of searching the Internet and using full-text electronic databases. Throughout the semester, students will develop and practice writing various analytical essays, as well as prepare a book review essay, an annotated bibliography, a literature review essay, and a small research paper. Students will also apply peer review skills for various writing assignments. Prerequisites: ENGL 250. Typically offered Spring semester.

This course covers the social, cultural, political, and economic trends from 1900 to 1945. This course meets General Education requirements: Cultural Enrichment, new Fall 2017 Culture. Prerequisites: ENGL 250. Typically Offered On Demand

Major historical events and trends from WWII to the present. Emphasis on the social, cultural, political, and economic impact of subjects such as the Cold War, consumer culture, Baby Boom generation, Civil Rights movement, Vietnam War, Watergate, women's rights, student protests, Reagan revolution, influence of the global economy, and the impact of changes in Eastern Europe, Africa, South America, and the Middle East on the U.S. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 250. Typically Offered On Demand

This course will examine the history of Jim Crow segregation using the collection of racist memorabilia (objects and ephemera) housed in the Jim Crow Museum. Students will learn about the history and evolution of key racial stereotypes, rooted to the American institution of slavery and used as a socio-cultural device to dehumanize African Americans since the end of slavery. The course is designed to introduce students to the ways public museums address racial issues in their exhibitions and how these exhibition strategies educate the public about controversial ideas and events. This course involves applied learning, with the Jim Crow Museum's holdings providing a rich array of primary source materials for learners to study and analyze. This course meets General Education Requirements: Cultural Enrichment, Race/Ethnicity/Gender, and new Fall 2017 Culture and U.S. Diversity. Prerequisite: ENGL 250. Typically offered Spring semester.
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<th>Course Code</th>
<th>Course Title</th>
<th>Discipline</th>
<th>Level</th>
<th>Credits</th>
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<tr>
<td>HIST315</td>
<td>History Modern Civil Rights Movement</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<td>This course examines current debates revolving around the historical narrative of the Civil Rights Movement. What time frame or chronology should be used? Who should serve as heroes or icons of the movement? Should the Civil Rights Movement be seen as the story of grassroots activism or judicial and legislative change? We will not resolve these larger polemical questions by semester’s end; however, we will examine recent scholarship that has begun to question the popular narrative of the Modern Civil Rights Movement. The course will challenge that narrative by studying lesser known events and personalities as well as work to restore the significance of grassroots activism and foster a multifaceted narrative of the Modern Civil Rights Movement. This course meets General Education Requirements: Cultural Enrichment, Race/Ethnicity/Gender, and new Fall 2017 Culture and U.S. Diversity. Pre-Requisites: ENGL 250. Typically Offered Fall Semester.</td>
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<tr>
<td>HIST320</td>
<td>History US and the Vietnam War</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>Focuses on early Vietnamese history; French rule in Indochina; U.S. involvement before and after WWII; the political, economic, military, cultural, and social nature of that intervention; consequences of the war. This course meets General Education Requirements: Cultural Enrichment, Global Consciousness, and new Fall 2017 Culture, Global Diversity. Pre-Requisites: ENGL 250. Typically Offered On Demand. Social, cultural, political, and economic experiences of women within society. Women’s experiences as wives and mothers, wage earners, and social-political reformers from the colonial era to the present. This course meets General Education Requirements: Cultural Enrichment, Race/Ethnicity/Gender and new Fall 2017 Culture and US Diversity. Pre-Requisites: HIST 121 or HIST 122; and ENGL 250. Typically Offered On Demand.</td>
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<tr>
<td>HIST325</td>
<td>History American Women’s History</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>An introduction to the social, political, and cultural contributions of African American women from the 1800s to the present. This course serves to complement, rather than duplicate information presented in such courses as American Women’s History and African American History. Will focus on individual African American women who have played key leadership roles throughout the 19th and 20th century. This course meets General Education Requirements: Cultural Enrichment, Race/Ethnicity/Gender and new Fall 2017 Culture and US Diversity. Pre-Requisites: HIST 121 or HIST 122; and ENGL 250. Typically Offered On Demand.</td>
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<tr>
<td>HIST326</td>
<td>History African-American Women’s Hist</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>This course offers learners an in-depth examination of key cultural ideas, social events, and political issues that shaped the United States during the 1960s, considered the most turbulent decade of the 20th century. Issues and events addressed will include the Cold War and idealism of the Kennedy Administration; the Civil Rights Movement; questions concerning Vietnam and the Anti-War Movement; the militancy of the Women’s Liberation Movement and Black Power; and the creative outpourings of the counterculture and environmental movements. As a strategy to aid learners’ understanding of the human dimension of these historical events and issues, they will examine music from diverse genres, recorded and performed during the era. This course meets General Education Requirements: Cultural Enrichment, Race/Ethnicity/Gender and new Fall 2017 Culture and US Diversity. Pre-Requisites: ENGL 250. Typically Offered Fall Semester.</td>
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<tr>
<td>HIST330</td>
<td>History Turbulent 1960s</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>This course explores popular expressions of American culture and leisure time pursuits during the 1800s. The course examines consumer tastes among working class Americans and recent immigrants to America, trends in urban recreation activities, and the emergence of a national identity. Key mediums explored include print culture (newspapers, tabloids, and dime novels) and public performance events (circus, theater, minstrel shows, and Wild West shows). This course will analyze popular recurring narrative themes and popularized myths found in various forms of print culture and public performance events. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisites: ENGL 250. Typically offered Spring semester.</td>
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<tr>
<td>HIST331</td>
<td>History 19th Century Amer Pop Culture</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
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<td>This course explores popular expressions of American culture and leisure time pursuits during the 1900s. The course examines dominant consumer tastes among middle class Americans. Key mediums explored include World Fairs, broadcast radio programs, Hollywood films, Broadway musicals, and television situation comedies. This course will analyze popular recurring narrative themes and popularized myths found in various forms of American popular culture during the 20th century. Special attention will be given to the ways leisure time activities both shaped and reflected a national identity embraced by middle-class Americans. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisite: ENGL 250. Typically offered Spring semester.</td>
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<tr>
<td>HIST332</td>
<td>History 20th Century Amer Pop Culture</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<td>This course explores popular expressions of American culture and leisure time pursuits during the 1900s. The course examines dominant consumer tastes among middle class Americans. Key mediums explored include World Fairs, broadcast radio programs, Hollywood films, Broadway musicals, and television situation comedies. This course will analyze popular recurring narrative themes and popularized myths found in various forms of American popular culture during the 20th century. Special attention will be given to the ways leisure time activities both shaped and reflected a national identity embraced by middle-class Americans. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisite: ENGL 250. Typically offered Spring semester.</td>
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<td>HIST333</td>
<td>History Antebellum America</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<tr>
<td>HIST334</td>
<td>History Colonial America</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>HIST341</td>
<td>History US Foreign Policy-20th Century</td>
<td>AS</td>
<td>Humanities</td>
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<td>3 LEC</td>
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<tr>
<td>HIST342</td>
<td>History The Civil War-Reconstruction</td>
<td>AS</td>
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<tr>
<td>HIST350</td>
<td>History The Making of Modern Britain</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>HIST351</td>
<td>History Medieval Europe</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>HIST352</td>
<td>History Renaissance and Reformation</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>HIST360</td>
<td>History Contemporary European History</td>
<td>AS</td>
<td>Humanities</td>
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<tr>
<td>HIST361</td>
<td>History Racism in the Modern World</td>
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<tr>
<td>HIST363</td>
<td>History Rise of the Russian Empire</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>This course explores the rise of the Russian empire between the reigns of Peter the Great (1682-1725) and Catherine the Great (1762-1796). During this period, Russia would gain significant territory at the expense of Sweden, the Ottoman Empire, Siberian tribes, and Poland. We will examine the social, political, economic, and cultural forces that led to Russia's rise and the development of a Russian national consciousness. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Prerequisites: ENGL 250. Typically Offered Fall only.</td>
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<tr>
<td>HIST370</td>
<td>History Modern Africa</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>An introduction to the social, political and cultural history of Modern Africa and a selective examination of issues confronting Contemporary Africa. Issues to be explored include the impact of European contact and colonization, Pan-African Nationalism, and Post Colonialism. In addition the class will explore African cultural contributions to the world. This course meets General Education Requirements: Cultural Enrichment, Global Consciousness, Race/Ethnicity/Gender and new Fall 2017 Culture, Global Diversity, U.S. Diversity. Pre-Requisites: ENGL 250. Typically Offered On Demand</td>
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<tr>
<td>HIST371</td>
<td>History Modern China, Japan &amp; Korea</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>This course focuses on China, Japan and Korea in the twentieth century and their relationship with the West. Students will examine the rivalry between China and Japan, and the competition these two nations had over the control of Korea. Attention will be given to Japanese militarism and Chinese Nationalism during the first half of the 20th century. During the second half of the class, students will investigate the post WW2 era: the creation of the People's Republic of China in 1949, the Korean War of 1950-1953, Mao Zedong's &quot;Great Leap Forward,&quot; and emergence of Japan as a major U.S. ally. Finally, the course will explore present-day relations between China, Japan, and Korea and their influence on the global economy. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically offered Spring semester.</td>
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<tr>
<td>HIST372</td>
<td>History Middle East in Modern Era</td>
<td>AS</td>
<td>Undergraduate</td>
<td>LEC</td>
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<td>Modern nations of the Middle East, the influence of Islam, and the Arab-Israeli conflict. This course meets General Education requirement: Cultural Enrichment, Global Consciousness and new Fall 2017 Culture and Global Diversity. Pre-Requisites: ENGL 250. Typically Offered On Demand</td>
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<tr>
<td>HIST373</td>
<td>History 20th Century Russia</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>Economic, intellectual, political, and cultural movements which have characterized Russia since 1900. Emphasis placed on the Communist Revolution and the Soviet Period. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and new Fall 2017 Culture and Global Diversity. Pre-Requisites: ENGL 250. Typically Offered On Demand</td>
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<tr>
<td>HIST375</td>
<td>History Latin American History</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>Exploration, conquest, and colonization of South and Central America, and a history of the cultural, economic, political, social, and military history of colonial Latin America through the wars for independence. Development of the social and political structure of Latin American nations in the nineteenth and twentieth centuries. This course meets General Education requirement: Cultural Enrichment, Global Consciousness and new Fall 2017 Culture and Global Diversity. Pre-Requisites: ENGL 250. Typically Offered On Demand</td>
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<tr>
<td>HIST381</td>
<td>History Imperial China</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>This class will offer background on major pre-20th century Chinese dynasties as well as important philosophies and belief systems, such as Daoism and Confucianism. Students will learn the coveted role China has played as a trading partner with the advent of the Silk Road. Explore the influence of western imperialism on China in the 1800th's, China's efforts to resist the West and the resulting division of China into spheres of influence. The class will conclude with the Chinese Revolution of 1911. This course meets General Education Requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisite: ENGL 250. Typically offered Spring semester.</td>
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<tr>
<td>HIST385</td>
<td>History American Military History</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>Evolution of warfare, military theory, and the military profession, with a particular emphasis on the place of military institutions in society. The U.S. Military and its actions within a global context and how our experiences have differed from those of other nations. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and new Fall 2017 Culture and Global Diversity. Pre-Requisites: ENGL 250. Typically Offered On Demand</td>
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<tr>
<td>HIST390</td>
<td>History Special Topics in HIST</td>
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<td>Undergraduate</td>
<td>LEC</td>
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<td></td>
<td>Special Topics in HIST - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer</td>
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<td>HIST397</td>
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<td>1 TO 3 LEC</td>
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<td>HIST400</td>
<td>History Research in History</td>
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<td>HIST405</td>
<td>History History Educ Theory-Practice</td>
<td>Humanities</td>
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<td>HIST497</td>
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<td>HNRS100</td>
<td>Honors Orientation to Honors</td>
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<td>HNRS190</td>
<td>Honors Special Topics in HRNS</td>
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<td>HNRS201</td>
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<td>HNRS202</td>
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<td>HNRS297</td>
<td>Honors Independent Study for Honors</td>
<td>Developmental Progs-Curr</td>
<td>Undergraduate</td>
<td>1 TO 3 LEC</td>
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<tr>
<td>HORT290</td>
<td>Horticulture Special Topics in HORT</td>
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<td>HSCI210</td>
<td>Homeland-Digital Sec-Forensics</td>
<td>Intro to Digital Forensics BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<td>HSCI297</td>
<td>Homeland-Digital Sec-Forensics</td>
<td>Special Studies in HSCI BU Account, Finance, Info Systems</td>
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<td>1 TO 4 LEC</td>
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<td>HSET300</td>
<td>Heavy Equip Service Eng Tech</td>
<td>Applied Failure Analysis</td>
<td>Undergraduate</td>
<td>4 LEC</td>
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</table>

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Senior-level seminar course that serves as the capstone for BA History Majors. It is designed to introduce majors to the methods of historical research and various analytical approaches used to interpret historical data. Students will apply content knowledge they have acquired from their completed major course work. Students undertake a major research project, requiring them to execute primary and secondary research; as well as preparing a portfolio of the various drafts and final paper. This course meets General Education Requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisites: ENGL 321. Typically Offered On Demand

Students will develop first hand skills in developing, presenting, and evaluating instructional activities in various fields of history. Throughout the semester, students will develop content modules focusing on a specific event or issue in United States or World history. These modules will be presented in practice teaching sessions and accompanying assessment tools will be developed to evaluate the instructor and materials used. Pre-Requisites: EDUC 430. Typically Offered Fall Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Orientation to Honors is a one credit class required of all first semester freshmen in the honors Program. The course will serve as an intro to the honors community. Honors upperclassmen will serve as peer mentors to the freshmen cohort. Community service, cultural events, leadership and RSO requirements will be explained and investigated. Time management, study tips, stress reduction, study abroad, finding your niche at the university and the wisdom of having a faculty mentor will be addressed. Honors students only. Pre-Requisites-Honors Students only. Typically Offered Fall Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Students learn the fundamentals of digital evidence collection and basic analysis. Emphasis is on the process and techniques for digital evidence collection, and the basic analysis techniques are presented. Students will utilize various digital forensics tools and techniques for collection and analysis of digital evidence. Prerequisites: HSCI 202 Typically Offered Spring.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

A study of failure analysis methods, causes, and results. The application of practical situations will be stressed. Pre-Requisites: MATL 240. Typically Offered Fall, Spring
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<th>Subtitle</th>
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<td>HSET302</td>
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<td>HSET393</td>
<td>Industry Internship</td>
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<td>HSET403</td>
<td>Testing Systems and Analysis</td>
<td>TE</td>
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<td>HSET410</td>
<td>Interact Electronic Controls</td>
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<td>HSET460</td>
<td>Heavy Eq Adv Hydraulic Systems</td>
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<td>HSET497</td>
<td>Special Studies in HSET</td>
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<td>HSMG101</td>
<td>Orientation to Hospitality Mgt</td>
<td>BU</td>
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<tr>
<td>HSMG111</td>
<td>Principles of Food Science</td>
<td>BU</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>HSMG113</td>
<td>Sanitation and Safety</td>
<td>BU</td>
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<tr>
<td>HSMG114</td>
<td>Menu Planning and Nutrition</td>
<td>BU</td>
<td>3</td>
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<tr>
<td>HSMG127</td>
<td>Principles of Cooking &amp; Baking</td>
<td>BU</td>
<td>3</td>
<td>LEC</td>
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</table>

Management techniques and related topics such as planning, organizing, scheduling and controlling as applies to heavy-duty equipment fleets are introduced with emphasis on leadership qualities and people skills. Manual and computerized fleet maintenance systems are also covered with emphasis on the RTA computerized fleet maintenance systems. Other topics such as procurement, risk management, accident prevention and reporting will also be covered. Typically Offered Fall Only

Work experience with manufacturers, distributors, or dealerships. Written weekly progress reports are required. Course offered during summer sessions between third and fourth year. Meets General Education requirements for Collaboration. Typically Offered Summer Only

The study and application of the various types of testing methods used to qualify the durability of components used in industry are studied. Various types of control sensors and signal conditioning pertaining to cycling tests are emphasized. Hands-on experience in designing and setting up actual tests are the foundation of the course. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only

This course will present various data collection components that are utilized in interactive control systems. Components, electronic communication signal conditioning and interfaces will be studied. Hands-on experience and applied trouble-shooting procedures will be utilized through the use of instructor inserted problems in interactive and integrated systems/circuits. Pre-Requisites: HEQT 271 & HSET 460. Typically Offered Spring Only

A study of the various types of valving combinations used to control specific functions on heavy equipment machinery. The manual control of hydraulic systems, including motors and cylinders, is the primary emphasis of the course. The principles of closed loop hydrostatic pump motor controls are also studied. Pre-Requisites: MATH 126 or a minimum score of 26 on ACT or 590 on pre 2016 SAT or 610 post 2016 SAT & HEQT 160. Typically Offered Fall Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

The course is designed specifically for students in the Hospitality Programs. Career opportunities, the relationship between Management and the Hospitality Management and the role of the hospitality professional in this industry are some of the areas explored. The student will become familiar with FSU, the Hospitality Programs and the hospitality industry through class lectures, guest speakers and assignments. Typically offered Fall, Spring, Summer.

This course covers the principles of food science and food preparation in the context of current environmental world conditions. Students will explore the structure, properties and functions of different nutrients and conduct sensory evaluation of foods. Students will brew beer, make wine, and grow hydroponic vegetables and herbs. Typically offered Fall, Spring, Summer.

The application of sanitation and safety principles in the hospitality industry. Laws and regulations of sanitation and safety and the responsibility of the hospitality manager in upholding health regulations within hospitality operations. Discussion of food borne diseases transmitted by food and food handlers and the relationship of sanitary conditions to the preparation, storage, and service of food. Students are required to pass the National ServSafe certification and receive training in First Aid and CPR. Typically offered Fall, Spring, Summer.

This course examines the fundamentals of menu planning along with factors that impact menu development and design. Topics covered include industry trends, target markets, operational influences, nutrition concepts, menu types, costing, pricing, design, and sales analysis. Emphasis is placed on developing the skills necessary to effectively create a professional menu. Typically offered Fall, Spring, Summer.

This course covers the basic concepts involved in the production of the most common food items prepared in food service operations. Students will apply the principles learned in a lab setting by actually preparing and sampling varied types of foods and baked goods. Students will become familiar with ingredients, selection criteria, optimal storage, and techniques of preparation. Typically offered Fall, Spring, Summer.
HSMG133 Hospitality Management Brew Management Level 1 BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

In this course, students will learn about introductory level beer storage, sales and service, styles and culture, tasting and flavors, ingredients and processes, and pairings. Brew Management I will prepare students to pass the Cicerone Certification Program’s Certified Beer Server exam. Typically offered: Fall

This course introduces students to the basics of managing foodservice operations and aspects unique to private clubs. Topics and activities include practicing food preparation skills, understanding cost control processes, applying principles of sanitation & safety, and developing & designing menus. Typically offered Fall, Spring, Summer.

HSMG204 Hospitality Management Foodservice Ops in Clubs BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

Detailed study of beer, wine, distilled spirits, and the facilities they are served in. Study of the social impacts, trends, and responsibilities associated with the consumption of alcohol. Specific techniques are taught in the consumption of alcohol (TIPS). Typically offered Fall, Spring, Summer.

HSMG207 Hospitality Management Bar & Beverage Management BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

This course examines purchasing activities with product and information from a management perspective. Students will explore market analysis policies, procedures, specifications, standards of quality, methods of purchase, as well as care for: food, cleaning, supplies, paper goods, linens, and other supplies used in the hospitality industry. Typically offered Fall, Spring, Summer.

HSMG211 Hospitality Management Purchasing for F&B Operations BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

This course examines systematic relationships between food, beverage, and labor costs as well as financial statement analysis, forecasting, budgeting, menu pricing, and strategy. Students will learn methods of effective control, and be able to employ manager developed spreadsheets. Prerequisites: Math 109 or 110 w/C- or better or 19 on ACT or 460 on pre 2016 SAT or 500 post 2016 SAT. Meets General Education Requirements for Problem Solving. Typically offered Fall, Spring, Summer.

HSMG215 Hospitality Management Hospitality Cost Controls BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

This course will focus on international cookery covering cuisines from around the world. International Cuisine will give an understanding of flavor concepts and how the cuisine developed and evolved. Discussion will include: history and affects from invaders and bordering countries, toponography, geography, climate, indigenous foods, culture and influences from religion, foods and flavorings, cooking methods and regional variations. Meets General Education Requirements of Global Diversity and Collaboration. Typically offered Fall, Spring, Summer.

HSMG226 Hospitality Management Intl Cuisine & Culture BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

Designed to provide practical knowledge in class and through work experiences by being placed in local food service establishments. The course will provide an overview of the noncommercial food service sector including such enterprises as long-term residential living, business & institutional dining, vending, hospital feeding, etc. Topics such as contract food management, financial planning, menu management, customer service, cost controls, client relationships, and marketing will be discussed. Pre-Requisites: HSMG 113. Typically offered Fall, Spring, Summer.

HSMG227 Hospitality Management Industry Exploration BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

Concepts, principles and application of banquet basics. Students will learn about clients and contracts, staffing and training, room and buffet setup, as well as table presentation and planning for beverage sale and presentation. Prerequisite: Sophomore Status or Higher.

HSMG228 Hospitality Management Banquet Management BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

Concepts, principles and application of table service basics. Dining room operation stressing practical service experience and principles of supervision. Application of the principles of suggestive selling, customer service, and dining room organization. Prerequisite: Sophomore Status or Higher.

HSMG229 Hospitality Management Dining Room Management BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

In this course students will learn about intermediate level beer storage, sales and service, styles and culture, tasting and flavors, ingredients and processes, and pairings. Students will also learn about working with distributors and laws which affect breweries and beer sellers. Brew Management II will prepare students to pass the Cicerone Certification Program’s Certified Cicerone Exam. Pre-requisites: HSMG 113 and HSMG 133. Typically offered: Spring

HSMG233 Hospitality Management Brew Management Level 2 BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

In this course students will learn hands on craft brewing in an actual brewery. Instructed by an industry brewer, students will practice brew processes and experiment with equipment functions and upkeep with specific attention to sanitation, safety, and quality production. Pre-requisites: HSMG 113 and HSMG 133. Must be age 18 or older. Typically offered: Spring

HSMG280 Hospitality Management Brew Equipment and Processes BU Sports, Entertain, Hosp. Mgmt Undergraduate 3 LEC

The Hospitality Management academic internship promotes self-awareness and career development by integrating academic learning with workplace experience. Comprehensive written management report, weekly analytical update submissions, supervisor evaluations, and documented field experience hours are required for successful completion. Prerequisite: Departmental Approval.
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<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Type</th>
<th>Credits</th>
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<tr>
<td>HSMG300</td>
<td>Hospitality Management</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>This course focuses on the strategies, staffing, and systems behind excellent guest service. Students will discuss hospitality service concepts and principles, explore problem solving techniques and best practices, analyze ethical issues, and utilize case studies to understand what it means to exceed guest expectations and create the &quot;aha&quot; experience.</td>
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<td>HSMG301</td>
<td>Hospitality Facilities Mgt</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>Management of the property in the physical aspect, its problems, its staff and methodology to maintain facilities at peak efficiency. To study the housekeeping function in hotels and resorts including the staffing, work schedules, training and responsibilities of the housekeeping department. Special consideration is given to in-house laundry, use of cleaning supplies, and techniques of room maintenance. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>HSMG302</td>
<td>Hospitality Management</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>This mixed delivery course is presented through online, classroom, and field study components. Students will learn aspects of ski area management including lift ticket pricing and sales, ski rental and repair facilities, retailing, staffing, risk management, ski patrol responsibilities, lift operations and maintenance, snow making and grooming. Students will visit various Michigan ski resorts for training. Ability to ski or snowboard is not necessary, but recommended. Prerequisites: Recommended ability to ski or snowboard. Meets General Education requirements for Collaboration and Problem Solving. Typically offered Fall, Spring, Summer.</td>
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<td>HSMG305</td>
<td>Convention Sales and Service</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>Practical insight into the meetings and conventions industry. Markets that stage such events, site selection criteria, market mix optimization, and the selling methods used to reach industry professionals Also study of the highly specialized areas of service that align with meetings and conventions; function rooms with meeting setups, food and beverage service, audio/visual requirements, admission systems, exhibits and trade shows, convention billing and post-convention review. Meets General Education requirements for Collaboration. Prerequisite: Sophomore Status or Higher. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>HSMG312</td>
<td>Private Club Management</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>This course introduces students to the world of private club management and explores the role of the club's general manager as the lead employee and chief operating officer at a private facility. Types of clubs included for discussion include golf (including country), city, university, military, tennis, swimming and yacht clubs. Topics covered are designed to give a broad overview of private club operations and include club board of directors, by-laws, ethics, leadership, service, human resources, marketing, food and beverage, financial management, facility management and recreational activities. Prerequisite: Sophomore Status or Higher. Typically offered Fall, Spring, Summer. Gain an understanding of operations, staffing, and administrative procedures unique to the spa industry. Topics will include legal aspects, safety and sanitation, client file management, retail operations, employment selection, contracts, licensure, and financial management. Prerequisite: Sophomore Status or Higher. This course will provide experiential learning in non-profit fundraising events. Students will be responsible for planning and execution of the Hospitality Management Gala. Coursework will address event protocol, design, production and post-event wrap up. Involvement in vendor relations, committee communications, volunteer management and evaluations will be required. Prerequisite: Program Permit. Typically offered Fall, Spring.</td>
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<tr>
<td>HSMG350</td>
<td>Spa Operations and Management</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>The Hospitality Management academic internship promotes self-awareness and career development by integrating academic learning with workplace experience. Comprehensive written management report, weekly analytical update submissions, superviroevaluations and documented field experience hours are required for successful completion. Prerequisite: Departmental Approval.</td>
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<tr>
<td>HSMG355</td>
<td>NPO Fundraising Experience</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand. This course will give students a holistic understanding of food and beverage operation management, as a capstone experience for all food and beverage courses. Topics covered include trends, structure and organization, marketing, finances and cost control systems, safety, production, menus and services. Typically offered Fall, Spring, Summer.</td>
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<td>HSMG392</td>
<td>HSMG Internship II</td>
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<td>Undergraduate</td>
<td>1 TO 3 LEC</td>
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<td>HSMG397</td>
<td>Special Studies in HSMG</td>
<td>BU Sports, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
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<td>HSMG399</td>
<td>Food and Beverage Ops Mgt</td>
<td>BU Sports, Hosp. Mgmt</td>
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<td>HSMG402</td>
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<td>HSMG403</td>
<td>Hospitality Management Hospitality Law</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
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<td>HSMG404</td>
<td>Hospitality Management Front Office Operations</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
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<td>HSMG405</td>
<td>Hospitality Management International Travel &amp; Resorts</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate 3 LEC</td>
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<td>HSMG406</td>
<td>Hospitality Management Revenue Mgt &amp; Hotel Analytics</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate 3 LEC</td>
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<td>HSMG497</td>
<td>Hospitality Management Special Studies in Hospitality</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate 1 TO 6 LEC</td>
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<td>HSMG499</td>
<td>Hospitality Management Hospitality Senior Seminar</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
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<td>HUMN100</td>
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<td>HUMN101</td>
<td>Humanities Classical and Medieval Period</td>
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<td>Undergraduate 3 LEC</td>
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<td>HUMN102</td>
<td>Humanities Renaissance to 20th Century</td>
<td>AS Humanities</td>
<td>Undergraduate 3 LEC</td>
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Practical insight into the career of Special Event Planning. Study of characteristics of events, the development of event objectives, needs assessment practices. The financial structure of events and time management tools for the industry will be reviewed. The course provides an understanding of pertinent laws and regulations, insurance and security issues, and the application of risk management and contingency planning for the industry. Prerequisite: HSMG 305. Typically offered Fall, Spring, Summer.

Senior level capstone course focusing on the fundamentals of event design and production. Fundamentals of planned event services will be explored including marketing and promotional strategies. Students will develop knowledge and experience with on-site management operations and post event review. Prerequisite: HSMG 401. Typically offered Fall, Spring, Summer. Laws applying to the hospitality industry ranging from civil liability for contracts, employees, guests, and torts to others. Includes case histories. Prerequisite: Hospitality Management students only. Junior Status or Higher. Typically offered Fall, Spring, Summer.

This course provides students with an understanding of core activities involved in hotel front desk operations during each stage of the guest cycle. Topics include different types of lodging properties, target markets, distribution channels, industry terminology, front office formulas, accounting procedures, and revenue management. Typically offered Fall, Spring, Summer. Focuses on international travel and tourism and the resort segment of the hotel industry, its history, planning, operations, and special considerations. Special attention of the interaction between the area of tourism and its relationship to the resort hotel industry will be studied in its broader context. Emphasis is placed on the study of recreational activities as they relate to the operations of a resort hotel. Typically offered Fall, Spring, Summer.

This course focuses on the fundamental building blocks of an effective revenue management program along with property level benchmarking tools. Topics include key performance indicators, distribution channels, capacity management, forecasting supply and demand, strategic pricing, automated systems, displacement analysis, resource allocation, benchmarking, and competitive sets. Prerequisites: HSMG 305 and HSMG 404. Typically offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This advanced-level capstone course will cover the more complex issues facing Hospitality leaders today. This course will require students to perform research, apply professional presentation skills, engage an audience in a learning activity, and give professional peer evaluation within a business setting. Objective of this course is to prepare students to become entry-level managers in the Hospitality industry by exposing them to contemporary operational issues and situations and equipping them with the ability to analyze problems and develop, propose and implement strategic solutions. Previous working knowledge of the hospitality industry gained through academic studies and practical experiences will be the foundation for course success. Prerequisite: Senior status. Typically offered Fall, Spring, Summer.

An analytical study of the self-reflective nature of the fine and performing arts, the creative process and major thought trends of Western civilization. This course meets General Education requirement: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer

The major monuments of literature, music, drama, painting, architecture and sculpture as a reflection of the creative energies of western man in the classical through medieval periods. Shows the unity of the western intellectual tradition. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Fall Only

Continuation of HUMN 101, covering the Renaissance period to the twentieth century. This course meets General Education requirement: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Spring Only
An introduction to the cultural heritage and intellectual contribution of African Americans from the colonial era to the present. Contributions in the performing arts (music, dance, theater), visual arts (painting, sculpture, crafts, folk art, photography, film, fashion design), literature, religion, and culture will be explored as a means to understand changing social conditions affecting African Americans within the United States. This course meets General Education Requirements: Cultural Enrichment, Race/Ethnicity/Gender and new 201708 Culture and U.S. Diversity. Typically Offered On Demand

Women’s contributions to music, literature, theatre, art, religion, dance, and political and scientific thought throughout Western Civilization. The images and realities of the female experience from Old Europe to the present in order to understand what it meant to be female in each era. This course meets General Education Requirements: Cultural Enrichment, Race/Ethnicity/Gender, and new Fall 2017 Culture, US Diversity. Typically Offered On Demand

The cultural aspects of the twentieth century that have been or are the foundations for social changes. The impact of pop art, film, TV, radio, advertising, comics, literature, fashions and fads, and unique areas of the arts. This course meets General Education requirement: Cultural Enrichment, Global Consciousness, and new Fall 2017 Culture, Global Diversity. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Humanities 327 is text intensive. Students will do extensive readings in Mythology from different countries, using primary sources, and critically comparing common mythic themes. Students will be asked to consider myth in the light of history and religion, in order to understand where myth, history and religion intersect. A significant research project and semester journal are required. HUMN 327 meets general education, Cultural Enrichment, and Global Consciousness requirements and new Fall 2017 Culture and Global Diversity. Pre-Requisites:Engl 250. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

An introductory course covering the physical and chemical laws governing the principles of refrigeration. The basic refrigeration cycle and components will be covered. Applications include alternate refrigerants, evacuation, charging, transferring refrigerant, and system reprocessing. Co-Requisites: MATH 116. Typically Offered Fall, Spring

A continuation of the basic refrigeration cycle and application of the Mollier diagram and thermodynamics, including theoretical and actual refrigeration capacities, along with a study of refrigerants, oils, systems, metering devices and compressors. Emphasis on instrumentation, testing, system troubleshooting and problem solving. Students will study for EPA Section 608 certification. Prerequisites: HVAC 101 & HVAC 111 both with a grade of C- or better. Typically Offered Fall, Spring

A study of basic electricity, circuits and components with emphasis in HVACR applications. Layout and fabrication of duct, duct fittings (sheet metal and fiberglass) and piping/tubing (copper, iron and plastic) used in air-conditioning and heating systems. Soldering, brazing, pipe cutting and fitting, component use and proper use of hand and shop tools will be emphasized. Basics of blueprint reading and sketching techniques. Co requisite: MATH 116. Typically Offered Fall and Spring.
AC electrical theory and application, concentrating on the operation, installation and analysis of HVACR components and control circuits. The components include single and polyphase transformer and motors, heating and air conditioning controls, commercial timers, motor starters, contactors, relays and other control devices. Lab exercises focus on developing wiring diagrams; wiring, troubleshooting and analyzing circuits based on lecture material. Typically Offered Fall, Spring

The study of advanced controls related to residential and commercial applications. The course focuses on control components, wiring, and control sequences used in direct digital control systems. Lab exercises concentrate on control system wiring, operation, and troubleshooting. Pre-requisite: HVAC 117 with C- or better. Typically offered: Fall, Spring

A study of combination in conventional and high-efficiency units. Mechanical and building blueprints, symbols, drawing & sketching, and views will be covered. Laboratory work on heating, components, system identification, and the analysis of fuel consumption rates and cycles. Pre-Requisites: HVAC 111 with a grade of C- or better. Typically Offered Fall, Spring

A study of commercial and industrial refrigeration systems associated with supermarkets, restaurants and storage facilities. Topics include electrical and mechanical refrigeration systems found in today's applications. Laboratories will cover testing, adjusting and troubleshooting electrical and mechanical systems. Prerequisites: HVAC 102, HVAC 117, and MATH 116, all with a grade of C- or better. Typically Offered Fall and Spring.

A study of mechanical air conditioning equipment including heat pump, chiller, absorption refrigeration, cooling tower and evaporative cooling applications. Compressor types and capacity control systems are included. Hands on laboratories cover electrical systems, capacity testing and troubleshooting of residential and light commercial mechanical and electrical systems. Pre-Requisites: HVAC 102, HVAC 117, & MATH 116, all with a grade of C- or better. Typically Offered Fall, Spring

A continuation of the study of gas and oil fired heating appliances for residential and commercial applications. Includes the operating sequence of forced air and hydronic systems for safe, efficient combustion and flame safety. Application includes troubleshooting faulty electrical/electronic control systems, safety systems, mechanical systems and hydronic systems. Pre-Requisites: HVAC 132, HVAC 117, and MATH 116, all with a grade of C- or better. Typically Offered Fall, Spring

The study of residential and light commercial HVACR system design including load calculations and psychrometrics. Includes heat recovery methods, restaurant ventilations requirements, humidification, insulation, sound and measurement techniques and applicable codes. Pre-Requisites: HVAC 101 and HVAC 132, and MATH 116, all with a grade of C- or better. Typically Offered Fall, Spring

Design of mechanical systems for buildings using Building Information Modeling (BIM). For HVAC students only. Pre-requisite: Department approval. Typically offered: Fall, Spring, Summer

Special topics in HVAC - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

The study of control loop theory related to commercial and industrial comfort, process and safety applications. The course focuses on analog electronic and pneumatic control components and their systems used in new and existing installations. Lab exercises concentrate on system operation and analysis. Pre-requisite: C- or better in HVAC 285, HVAC 321 and HVAC 342. Typically Offered Spring Only

The study of control loop theory related to commercial and industrial comfort, process and safety applications. The course focuses on analog electronic and pneumatic control components and their systems used in new and existing installations. Pre-Requisites: HVAC 285 & 342 with a grade of C- or better. Typically Offered Fall, Spring, Summer

A laboratory course for online students which contains hands on learning experiences that complement HVAC 313. Lab exercises concentrate on control system operation and analysis. HVAC 313 and 314 meet same degree requirements as HVAC 312 on campus. Pre-Requisites: HVAC 313 with a grade of C- or better. Typically Offered Fall, Spring, Summer
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<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Type</th>
<th>Course Code</th>
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<tr>
<td>HVAC321</td>
<td>HVACR HVAC Air System Select-Design</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>4 LEC</td>
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<td>HVAC322</td>
<td>HVACR Air Systems Select Design</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
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<td>HVAC323</td>
<td>HVACR Air Systems Hands-on Lab</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>1 LEC</td>
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<td>HVAC325</td>
<td>HVACR HVAC Hydronic Systl-Dsgn</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>4 LEC</td>
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<tr>
<td>HVAC326</td>
<td>HVACR Hydronic Systems Select-Dsgn</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<tr>
<td>HVAC327</td>
<td>HVACR Hydronic Hands-on Lab</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>1 LEC</td>
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<tr>
<td>HVAC333</td>
<td>HVACR Secondary System Laboratory</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>1 LEC</td>
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<tr>
<td>HVAC337</td>
<td>HVACR Mech-Elec Systems for Building</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<tr>
<td>HVAC342</td>
<td>HVACR Load Analysis-Energy Modeling</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>4 LEC</td>
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<tr>
<td>HVAC350</td>
<td>HVACR Contracting Issues in HVACR</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>4 LEC</td>
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<tr>
<td>HVAC362</td>
<td>HVACR Primary Equipment Selection</td>
<td>TE</td>
<td>HVACR</td>
<td>Undergraduate</td>
<td>4 LEC</td>
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</table>

A study of air systems used in commercial and industrial buildings. Course emphasizes system design, equipment and component selection and selected problems and solutions. Instrumentation, testing and balancing will be emphasized for optimum energy conservation and maximum comfort. Prerequisites: Admissions to Bachelor of Science in HVAC Engineering Technology and Energy Management. Co-requisite: HVAC 285. Typically offered Fall.

A study of air systems used in commercial and industrial buildings. Course emphasizes system design, equipment and component selection and selected problems and solutions. Instrumentation, testing and balancing will be emphasized for optimum energy conservation and maximum comfort. Prerequisites: C- or better in HVAC 285, 313 & 342. Typically offered Fall, Spring, Summer.

This is the “Hands-on” lab experience for the HVAC322 On-Line course which is a study of air systems used in commercial and industrial buildings. Course emphasizes system design, equipment and component selection and selected problems and solutions learned in HVAC322. Instrumentation, testing and balancing will be emphasized for optimum energy conservation and maximum comfort. Prerequisites: HVAC 322 with a C- (or better).

A study of water systems used in commercial and industrial buildings. Course emphasizes system design, equipment and component selection and selected problems and solutions. Instrumentation, testing and balancing will be emphasized for optimum energy conservation and maximum comfort. Prerequisites: C- or better in HVAC 285, 321 & 342. Typically offered Spring.

A study of water systems used in commercial and industrial buildings. Course emphasizes system design, equipment and component selection and selected problems and solutions. Instrumentation, testing and balancing will be emphasized for optimum energy conservation and maximum comfort. Prerequisites: C- or better in HVAC 285, 322, 313 & 342. Typically offered Fall, Summer.

This is the “Hands-on” lab experience for the HVAC326 On-Line course which is a study of water systems used in commercial and industrial buildings. Course emphasizes system design, equipment and component selection and selected problems and solutions learned in HVAC326. Instrumentation, testing and balancing will be emphasized for optimum energy conservation and maximum comfort. Prerequisites: HVAC 326. Typically offered Summer.

A laboratory course containing hands-on learning experiences that complement HVAC 332. HVAC 332 and 333 meet same degree requirements as 331 on campus. Prerequisites: HVAC 332 with a C- grade or better. Typically Offered Fall, Spring, Summer.

Awareness of heating, ventilating, and air conditioning systems, water supply, sanitary and storm sewers, fire protection, electrical distribution, lighting and acoustical systems for buildings. Emphasis is placed upon systems integration, energy considerations and their effects upon building planning, detailing and construction. Discusses equipment, code requirements and building applications. Typically Offered Fall, Spring.

Complete heat loss and gain calculations for commercial and industrial buildings will be performed manually and through currently available computer software. Student will layout and design systems for maximum energy efficiency. Energy estimating methods will be studied and an analysis of an actual building using the Performance Rating Method as described in ASHRAE Standard 90.1 appendix G. Current federal, state and local codes and standards will be examined as they apply to HVAC systems. Prerequisites: Admission to Bachelor of Science in HVAC Engineering Technology and Energy Management. Co-requisite: HVAC 285. Typically Offered: Fall, Spring, Summer.

The study of contracting issues as related to the HVACR industry. The course focuses on plans and specifications, estimating, budget issues, project management, economic cost analysis and codes and standards, all from the perspective of an HVACR professional. Lab exercises focus on application of contracting issues to a sample project. Prerequisites: C- or better in HVAC 285, 321, and 342, or HVAC 285, 322, and 342. Typically Offered Fall and Spring.

The selection, application and layout of state-of-the-art equipment and systems for commercial and industrial buildings. Emphasis will be placed upon the appropriate alternate energy sources with cost analysis and paybacks being performed. Prerequisites: HVAC 331 and HVAC 342 both with a grade of C- or better, and MATH 116 or MATH 120. Typically Offered Fall and Spring.
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<tr>
<th>Course Code</th>
<th>Department</th>
<th>Course Title</th>
<th>Type</th>
<th>Level</th>
<th>Credits</th>
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<tr>
<td>HVAC390</td>
<td>HVACR</td>
<td>HVAC390 HVACR Special Topics</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
<td>Special Topics in HVAC - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>HVAC393</td>
<td>HVACR</td>
<td>HVAC393 HVACR Summer Internship</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4 LEC</td>
<td>Ten week minimum work experience. Students will gain a variety of commercial and industrial system and energy related experiences to include in part or in whole; new and retrofit system selection and design (including CAD); load calculation and system analysis or problem solving; system balance (testing, adjusting and balancing); system commissioning; control balancing and control work; energy related experience (e.g. energy auditing and payback calculation); estimating, bidding and proposal development; project management. Pre-Requisites: HVAC 313, 326 &amp; 350, or HVAC 312, 325 &amp; 350, all with a grade of C- or better. Typically Offered Summer Only</td>
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<tr>
<td>HVAC397</td>
<td>HVACR</td>
<td>HVAC397 HVACR Special Studies in HVAC</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered on Demand.</td>
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<tr>
<td>HVAC415</td>
<td>HVACR</td>
<td>HVAC415 HVACR Direct Digital Control</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4 LEC</td>
<td>Digital electronic control of HVAC mechanical systems to maximize their operating efficiency in commercial and industrial applications. The layout, programming, and operation of the building management system is emphasized. Pre-Requisites: MATH 126 and HVAC 393 with a grade of C- or better. Typically Offered Fall Only</td>
</tr>
<tr>
<td>HVAC451</td>
<td>HVACR</td>
<td>HVAC451 HVACR Energy Audit and Analysis</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4 LEC</td>
<td>The survey of utility rate structures, billing energy consumption, and energy profiling of commercial and industrial buildings. On-site audit projects will report on recommendations to building envelopes, HVACR systems, and control systems, with regard to paybacks. Oral and written presentations are a requirement of this senior project course. This course meets General Education Requirements: Writing Intensive and new Fall 2017 Comm Across the Curriculum, Collaboration, and Problem Solving. Pre-Requisites: HVAC 393 and MATH 126 all with a grade of C- or better. Typically Offered: Fall, Spring, Summer.</td>
</tr>
<tr>
<td>HVAC462</td>
<td>HVACR</td>
<td>HVAC462 HVACR Primary HVAC Equip Selection</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4 LEC</td>
<td>The selection, application and layout of state-of-the-art equipment and systems for commercial and industrial buildings. Emphasis will be placed upon the energy efficiency, integration of equipment into a complete system, and sequence of operation. Prerequisites: HVAC 393 and MATH 126 with C- or better in both. Typically offered Fall, Spring, Summer.</td>
</tr>
<tr>
<td>HVAC483</td>
<td>HVACR</td>
<td>HVAC483 HVACR Building Systems</td>
<td>TE</td>
<td>Undergraduate</td>
<td>3 LEC</td>
<td>The study of the HVAC systems and controls found in commercial and industrial buildings for facility managers. Emphasis is placed on the energy utilization, utility rates, and building management systems that optimize comfort and reduce energy costs for buildings. The course will include site visitations and reports. Typically Offered Spring Only</td>
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<tr>
<td>HVAC490</td>
<td>HVACR</td>
<td>HVAC490 HVACR Special Topics in HVAC</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
<td>Special topics in HVAC - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>HVAC497</td>
<td>HVACR</td>
<td>HVAC497 HVACR Special Studies in HVAC</td>
<td>TE</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>HVAC499</td>
<td>HVACR</td>
<td>HVAC499 HVACR Commercial HVAC System Design</td>
<td>TE</td>
<td>Undergraduate</td>
<td>4 LEC</td>
<td>Given building architectural plans, appropriate software, codes and standards, and owner's requirements, students will select appropriate HVAC system, conduct economic analysis, design system and produce working drawings, specifications, and control sequences for evaluation. This course meets General Education Requirements: Writing Intensive and Collaboration and Problem Solving and new Fall 2017 Comm Across the Curriculum. Prerequisites: HVAC 415 and HVAC 451 and HVAC 462 all with a grade of C- or better. Typically Offered: Fall, Spring, Summer.</td>
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<tr>
<td>IDSL805</td>
<td>InterDiscipl Studies in Leader</td>
<td>IDSL805 Past, Pres, Future - Comm Coll</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
<td>3 LEC</td>
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<tr>
<td>IDSL810</td>
<td>InterDiscipl Studies in Leader</td>
<td>Critical Issues in Com College</td>
<td>CP</td>
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<td>Doctorate</td>
<td>3 LEC</td>
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<td>IDSL825</td>
<td>InterDiscip Studies in Leader - Effective Ldrshp</td>
<td>Foundations</td>
<td>Doctorate</td>
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<td>LEC</td>
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<td>IDSL830</td>
<td>InterDiscip Studies in Leader - Lead Organ Trans - Cult Change</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
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<td>LEC</td>
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<td>IDSL835</td>
<td>InterDiscip Studies in Leader - Strat Plan/Instit Effectiveness</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
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<td>IDSL840</td>
<td>InterDiscip Studies in Leader - Qual Resrch Methods/Data Analy</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
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<td>LEC</td>
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<tr>
<td>IDSL845</td>
<td>InterDiscip Studies in Leader - Quan Resrch Methods/Data Analy</td>
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<td>Doctorate</td>
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<tr>
<td>IDSL855</td>
<td>InterDiscip Studies in Leader - Managing Financial Resources</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
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<td>IDSL860</td>
<td>InterDiscip Studies in Leader - Resource Development</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
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<td>IDSL865</td>
<td>InterDiscip Studies in Leader - Leveraging Human Resources</td>
<td>Professional-Tech Studies</td>
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<td>IDSL870</td>
<td>InterDiscip Studies in Leader - Mkt and Community Engagement</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
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<td>IDSL880</td>
<td>InterDiscip Studies in Leader - Leadership-Teaching &amp; Learning</td>
<td>Professional-Tech Studies</td>
<td>Doctorate</td>
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This course examines various leadership theories and the relationship between leadership styles and organizations, examining the optimal “fit” of an individual leader, leadership role, and organizational environment. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Fall only.

This course focuses on theories and best practices for leading organizational change. Students learn to apply change theories and strategies to organizational needs, develop change plans with articulated visions and strategic frameworks, and define processes for implementing and monitoring change for improvement and sustainability. Prerequisite: Admission to the doctoral program in Community College Leadership. Typically offered Fall only.

This course explores strategic planning for community colleges as driven by institutional mission, vision, and values. Applying a systems approach, students identify essential elements, integrate these into a strategic plan, and analyze their interrelationships. Students also analyze a strategic planning cycle, from creation and implementation to measuring effectiveness and continuous improvement. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Spring only.

This course addresses foundational principles of methods of qualitative inquiry, with emphasis on ensuring ethical standards, establishing assumptions and limitations for a study, developing appropriate research questions and approach, and designing effective data collection methods. Students also practice analyzing and interpreting data, identifying limitations and applications of the data and design a research project. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Spring only.

This course addresses foundational principles and elements of methods of quantitative inquiry, with emphasis on ensuring ethical standards, establishing assumptions and limitations for a study, designing effective data collection methods and interpreting quantitative results utilizing standard statistical techniques. Students also practice analyzing and interpreting data, identifying limitations and applications of the data. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Summer only.

This course provides an overview of the budgetary concepts and processes that are foundational to the financial health of community colleges, including decision-making frameworks, analytical tools, capital planning, technology planning, and state and federal regulations and practices. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Fall only.

This course covers the role, rationale, and basic principles of public and private resource development in community colleges, from millage and bond campaigns to grants and philanthropic fundraising. This course also explores the connections between strategic planning, community relations, entrepreneurship and resource development, as well as the leader’s role in guiding resource enhancement. Prerequisites: Admission to the doctoral program in Community College Leadership. This course examines methods for maximizing the college’s human resources. Students gain the expertise needed to provide leadership in designing effective models of employee involvement and development within the context of labor laws, agreements, and governance structures. Collaborative strategies in motivational theory, succession planning, and collective bargaining will be analyzed. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Fall only.

This course examines the concepts of community relations, engagement, and marketing as they apply to the community college. Topics include effective engagement and communication strategies, building the college brand or image, and methods for measuring stakeholder perceptions. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered in Fall.

This course focuses on current research, theories, and best practices and future possibilities for effective teaching and learning, with emphasis on methods for reaching diverse student populations, assessing learning, creating effective learning environments, developing essential skills, and exploring alternative curricular and instructional opportunities. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Spring only.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Type</th>
<th>Credit Hours</th>
</tr>
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<tr>
<td>IDSL885</td>
<td>InterDiscipl Studies in Leader</td>
<td>Creat Culr Studn Ln Success</td>
<td>CP</td>
<td>Professional-Tech Studies</td>
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<td>IDSL894</td>
<td>InterDiscipl Studies in Leader</td>
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<td>IDSL895</td>
<td>InterDiscipl Studies in Leader</td>
<td>Policy and Governance</td>
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<td>IDSL898</td>
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<td>INBI303</td>
<td>Integrated Biology</td>
<td>Integrated Ecology</td>
<td>AS</td>
<td>Biology</td>
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<tr>
<td>INCT317</td>
<td>Industrial Chemical Tech</td>
<td>Industrial Instrumental Analy</td>
<td>AS</td>
<td>Physical Sciences</td>
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<td>INFO400</td>
<td>Informatics</td>
<td>Introduction to Informatics</td>
<td>AS</td>
<td>Mathematics</td>
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<td>Informatics</td>
<td>Programming for Informatics I</td>
<td>AS</td>
<td>Mathematics</td>
</tr>
<tr>
<td>INFO402</td>
<td>Informatics</td>
<td>Programming for Informatics II</td>
<td>AS</td>
<td>Mathematics</td>
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This course evaluates past and current theories of and strategies for improving student success including best practices in persistence, completion, and student development. Focus is on continuous improvement strategies deriving from data analysis. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered in Spring.

This course provides an independent, individual learning experience designed specifically to meet the learner's professional goals. Each student works with the faculty to develop a practicum plan with specific learning outcomes. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Spring only.

This course addresses external and internal models of governance, their constituents, and their unique perspectives. It also focuses on leadership attributes that provide the agility needed to bring these groups together and develop a shared vision. Policy development at the federal, state, and local levels and their impact on operations are key elements of this course. Prerequisites: Admission to the doctoral program in Community College Leadership. Typically offered Summer only.

Each semester, learners demonstrate significant dissertation progress related to specific program goals with direction and assessment guided by the Dissertation Director and the dissertation committee. Learners demonstrate progress by submitting required deliverables and meeting key milestones defined in the DCCL Dissertation Guide. A written defense-ready dissertation is the primary deliverable expected at the completion of 15 dissertation credits. Prerequisite: Admission to the doctoral program in Community College Leadership. Typically offered Fall, Spring and Summer.

Explores living organisms found in Michigan through an ecological framework reflecting the Michigan Curriculum Framework. Each concept uses a model organism to illustrate one of the elementary life science standards and how to use these organisms to teach science in the elementary school classroom. Primary concepts include human ecology, ecosystem, function, classification and life cycles, evolution and adaptation to environments, human disease and nutrition, populations, naturalized species, and plant and animal pathogens. Prerequisites: BIDL 103, PHSC 110 and PHSC 115 with a grade of C- or better. Typically Offered Fall.

The theory and instrumentation of modern analytical techniques will be explored, including potentiometry, infrared (IR) spectroscopy, nuclear magnetic resonance (NMR) spectroscopy, atomic absorption (AA) spectroscopy and gas chromatography. Pre-Requisites: Department approval. Typically Offered On Demand.

This course will introduce the student to foundational Informatics concepts such as information, data storage, and statistical concepts that deal with uncertainty, modeling and computing algorithms. The focus of the course is applying Informatics concepts to solve real-world problems from a wide variety of disciplines, such as the humanities, mathematics, science and the health professions. Pre-requisites: [(MATH 130 & CPSC 130) or MATH 220] and [(MATH 251 or STQM 322)] with a B or better in all classes. Typically offered: Every other Fall, Spring, Summer.

This hands-on course introduces the student to programming languages used in the Informatics field. The course employs modern-day programming languages to solve Informatics data intensive problems from a wide variety of disciplines. The focus of the first course will be on data preparation techniques and reporting. Pre-requisites: [(MATH 130 & CPSC 130) or MATH 220] and [(MATH 251 or STQM 322)] with a B or better in all classes. Typically offered: Every other Fall, Spring, Summer.

This course is a continuation of INFO 401. The course will dive deeper into programming techniques commonly used in Informatics fields. Some advanced topics in the course include arrays, handling XML files through Application Programming Interfaces (API), parsing text files, structured query language (SQL) and macro coding. Pre-requisite: INFO 401 with a B or better. Typically offered: Every other Fall, Spring, Summer.
<table>
<thead>
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<td>INFO403</td>
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<td>Big Data &amp; Visualization Tech</td>
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<td>INF500</td>
<td>Introduction to Informatics</td>
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<td>INF504</td>
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<td>INPS320</td>
<td>Integrating Physical Sciences</td>
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<tr>
<td>INSR390</td>
<td>Special Topics in INS R</td>
<td>Insurance</td>
<td>Management</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
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</table>

Data mining and predictive modeling offer a means of analysis of large and complex data. Data mining and predictive modeling are capable of automatic extraction of knowledge deeply hidden in data, enabling discovery of knowledge not otherwise attainable. This course will provide the student an in-depth study of predictive modeling concepts such as data partitioning, performing variable selection and choosing the optimal model. Specific models, such as decision trees and neural networks, will be studied and applied in a variety of different applications. Pre-requisites: INFO 400 and INFO 401 with a B or better in both classes. Typically offered: Every other Fall, Spring, Summer

Big data is a reality in many disciplines. Big data is defined as data sources that are so large that traditional software and hardware cannot manage and store the data. This course will introduce the student to the 4 V's of big data and review case studies of organizations that have been successful using big data. The student will be introduced to visualization techniques that can be applied to big data such as dashboards and data stories and the student will create data visualizations based on a big data source of their choosing. Pre-requisites: INFO 400 and INFO 401 with a B or better in both classes. Typically offered: Every other Fall and Summer

This course will introduce the student to foundational Informatics concepts such as information, data storage, and statistical concepts that deal with uncertainty, modeling and computing algorithms. The focus of the course is applying Informatics concepts to solve real-world problems from a wide variety of disciplines such as the humanities, mathematics, science and the health professions. Pre-requisites: [(MATH 130 & CPSC 130) or MATH 220] and [(MATH 251 or STQM 322) with a B or better in all classes. Typically offered: Every other Fall, Spring, Summer

This hands-on course introduces the student to programming languages used in the Informatics field. The course employs modern-day programming languages to solve Informatics data intensive problems from a wide variety of disciplines. The focus of the first course will be on data preparation techniques and reporting. Pre-requisites: [(MATH 130 & CPSC 130) or MATH 220] and [(MATH 251 or STQM 322) with a B or better in all classes. Typically offered: Every other Fall, Spring, Summer

This is a continuation of INFO 501. The course will dive deeper into programming techniques commonly used in Informatics fields. Some advanced topics in the course include arrays, handling XML files through Application Programming Interfaces (API), parsing test files, structured query language (SQL) and macro coding. Pre-requisite: INFO 501 with a B or better. Typically offered: Every other Fall, Spring, Summer

Data mining and predictive modeling offer a means of analysis of large and complex data. Data mining and predictive modeling are capable of automatic extraction of knowledge deeply hidden in data, enabling discovery of knowledge not otherwise attainable. This course will provide the student an in-depth study of predictive modeling concepts such as data partitioning, performing variable selection and choosing the optimal model. Specific models, such as decision trees and neural networks, will be studied and applied in a variety of different applications. Pre-requisites: INFO 500 and INFO 501 with a B or better in both classes. Typically offered: Every other Fall and Summer

Big data is a reality in many disciplines. Big data is defined as data sources that are so large that traditional software and hardware cannot manage and store the data. This course will introduce the student to the 4 V's of big data and review case studies of organizations that have been successful using big data. The student will be introduced to visualization techniques that can be applied to big data such as dashboards and data stories and the student will create data visualizations based on a big data source of their choosing. Pre-requisites: INFO 500 and INFO 501 with a B or better in both classes. Typically offered: Every other Fall and Summer

INPS 320 presents students with an opportunity to learn how scientists use knowledge of the physical sciences (earth-space sciences, chemistry, and physics) to develop hypotheses and theories that explain a variety of phenomena observable in the natural world. Multidisciplinary topics serve as organizing themes for this class to promote a unified and integrated approach to learning science. Prerequisites: BIOL 103, PHSC 110 and PHSC 115. Typically Offered Spring.

Special topics in INS R - 300 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Instructor</th>
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<tr>
<td>INTB310</td>
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<td>INTB320</td>
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<td>INTB335</td>
<td>Cross-Cultural Business</td>
<td>BU Management</td>
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<td>INTB380</td>
<td>Regional Business Systems</td>
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<td>INTB390</td>
<td>Special Topics in INTB</td>
<td>BU Management</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
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<tr>
<td>INTB397</td>
<td>Special Studies in INTB</td>
<td>BU Management</td>
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<td>1 TO 4</td>
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<tr>
<td>INTB410</td>
<td>Intl Economics-Comm Policies</td>
<td>BU Management</td>
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<tr>
<td>INTB420</td>
<td>Comparative International Law</td>
<td>BU Management</td>
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<td>INTB440</td>
<td>International Finance</td>
<td>BU Management</td>
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<tr>
<td>INTB455</td>
<td>Managing Foreign Operations</td>
<td>BU Management</td>
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<td>INTB490</td>
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<td>INTB497</td>
<td>Special Studies in INTB</td>
<td>BU Management</td>
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<tr>
<td>INTB656</td>
<td>Global Business Management</td>
<td>BU Management</td>
<td>Graduate</td>
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</table>

Foreign cultures, foreign business practices, physical characteristics of nations, legal differences, international organizations, international monetary system, international marketing, international labor relations, foreign investment, international management, economic theory, and international production systems. The student learns how the world is a fast and complex environment that is built around the interrelationships among nations. This course meets General Education Requirements: Global Consciousness, and new Fall 2017 Global Diversity. Typically Offered Fall, Spring, Summer

Covers the basic subjects needed by a manager to understand methods and entry into foreign markets, international contracts, terms of trade, terms of payments, managing transaction risk, international commercial documents, international insurance, international ocean freight, international air freight, international land, and multi-modal transportation, packaging for export, custom clearance, and international logistic infrastructure. Prerequisites: Junior Standing. Typically Offered Fall, Spring, Summer

An intellectual forum for developing an understanding, through case study and application, the impact that cross-cultural communications and negotiations have on international business. Typically Offered Fall Only

Designed to give student indepth information on specific market regions of the world. One region will be featured each semester: Latin America, Europe and Russia, Asia, Middle East and Africa. Each regional study includes the following elements: current issues and opportunities, foreign investment, foreign trade, import/export policy and procedures, industry review, business culture, labor, business law and financial institutions. May be repeated for different regions. Pre-Requisites: INTB 310. Typically Offered Fall Only

Special Topics in INTB - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

The institutions, forces and problems that are involved when business managers try to operate in many economies at once, and sorting out threats and promises when they try to link their operations across national boundaries. Pre-Requisites: INTB 310. Typically Offered Spring Only

Identifies and expounds upon the two major doctrines of law (common, code) and their application within the major nations with reference to foreign countries doing business within their boundaries. Identifies law governing relations between and among the nations and examines its sources, present concepts, institutions and methods of enforcement. Pre-Requisites: INTB 310 and BLAW 301. Typically Offered Spring Only

Topics essential to the understanding of international finance, including basic foreign exchange and stabilization procedures and institutions; methods for short and intermediate export financing and for long-term overseas corporate investment financing; export insurance; relationship between the national balance of payments and development; and founding and growth of regional development banks. Prerequisites: Junior Standing or Instructor Permission. Typically Offered Fall, Spring

The management of foreign operations. Several approaches to entry into the world of international trade: import/export, licensing, joint ventures, and wholly-owned subsidiaries. The problems of technological innovations and transfers of technology. The design, strategy, and management of global operations including questions of the political risks involved. Pre-Requisites: INTB 310. Typically Offered Spring Only

Special Topics in INTB - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course examines historical and contemporary issues as well as new and emerging developments influencing the decision making process and leadership styles and choices of international managers. Considerable discussion will focus on the attributes of strategy, culture, and behavior and the impact they have in the global management process. Prerequisite: BUS graduate student. Typically offered Fall, Spring, Summer.
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Description</th>
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<tr>
<td>ISIN121</td>
<td>Information Security and Intel</td>
<td>Students are introduced to digital security exposures and safeguards from a personal to global perspective. Implications of various types of online activities and practices will be investigated. Students learn why safe and secure practices are essential in daily interaction with digital information and devices. Global and cultural issues, as well as ethical and privacy issues will be examined. Typically offered Fall, Spring, Summer.</td>
<td></td>
</tr>
<tr>
<td>ISIN190</td>
<td>Information Security and Intel</td>
<td>Special Topics in ISIN - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand. Students are introduced to digital security, terminology, and concepts. Computer hardware, digital devices, software, and operating systems are introduced from a security perspective. Communication methods and networking are also explored. Typically Offered Fall only. This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.</td>
<td></td>
</tr>
<tr>
<td>ISIN200</td>
<td>Information Security and Intel</td>
<td>Secure Digital Technologies</td>
<td></td>
</tr>
<tr>
<td>ISIN297</td>
<td>Information Security and Intel</td>
<td>Special Studies in ISIN - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand. Students are introduced to digital security, terminology, and concepts. Computer hardware, digital devices, software, and operating systems are introduced from a security perspective. Communication methods and networking are also explored. Typically Offered Fall only. This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.</td>
<td></td>
</tr>
<tr>
<td>ISIN300</td>
<td>Information Security and Intel</td>
<td>Link and Visual Analysis</td>
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<tr>
<td>ISIN301</td>
<td>Information Security and Intel</td>
<td>Data-Intelligence Comp Theory</td>
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<td>ISIN302</td>
<td>Information Security and Intel</td>
<td>Business Intel in Health Care</td>
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<tr>
<td>ISIN305</td>
<td>Information Security and Intel</td>
<td>Developing a Web Presence</td>
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<td>ISIN306</td>
<td>Information Security and Intel</td>
<td>Security Informatics</td>
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<tr>
<td>ISIN308</td>
<td>Information Security and Intel</td>
<td>Principles of Info Security</td>
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<tr>
<td>ISIN312</td>
<td>Information Security and Intel</td>
<td>Applications of Info Security</td>
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</table>

Students examine the scientific process as it applies to hypothesis development. Investigation includes the analysis of various approaches to explaining events and developing competing hypothesis. The role of data and information in the development and support of intelligence in organizational, national and international realms is also studied. Prerequisites: ISIN 300. Typically Offered Fall only.

The course will provide best practices on the use of Business Intelligence methodology, processes and technologies in the healthcare domain. We will examine the history of business intelligence and its technology and process components. We will discuss and utilize Business Intelligence analysis tools such as data mining and performance management. This course will focus on how Business Intelligence can assist health care organizations in achieving improved quality of care and demonstrate evidence based medicine. Typically Offered Fall, Spring.

This course is intended to explore what is involved in developing a web presence for people with no programming background. Students examine technologies used to create and maintain a presence on the World Wide Web. Development of web pages, utilization and integration of graphics, social media, and usability will be explored. Security and management issues, as well as site promotion will also be covered. Prerequisites: Sophomore standing or instructor permission. Typically offered Fall and Spring.

This course is intended to explore what is involved with developing information security projects for people with no programming background. Students examine and apply technologies used to create and maintain security informatics projects. A leading information security framework will be utilized to deliver course projects. Management concerns related to the developed projects will also be covered. Prerequisites: Sophomore standing or instructor approval. Typically offered: Fall semester. Students explore the foundations of information security from both historical and emerging perspectives. Topics include critical characteristics of information attacks, defenses, risk, physical security, disaster recovery, business planning, incident response, cryptography, and malware. Prerequisites: ISIN 200 or instructor approval. Typically offered Fall.

Students apply the tools and concepts of information security in the context of Internet web applications. Students will analyze web application architecture, tools, and technologies. Students will examine common web application vulnerabilities, how to discover and exploit vulnerabilities, and how to prevent these flaws and vulnerabilities. Students will also apply attack methods for common web application vulnerabilities using ethical hacking and penetration testing techniques. Prerequisites: ISIN 308 and ISIN 305 or ISIN 306. Typically offered Fall.
<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>ISIN317</td>
<td>Information Security and Intel</td>
<td>Fraud Examination</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
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<tr>
<td>ISIN325</td>
<td>Information Security and Intel</td>
<td>Database Security</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
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<td>ISIN335</td>
<td>Information Security and Intel</td>
<td>Pen Testing and Cloud Security</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
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<td>ISIN351</td>
<td>Information Security and Intel</td>
<td>Global Security and Policy</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<td>ISIN352</td>
<td>Information Security and Intel</td>
<td>Role of Intel in Natl Security</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<tr>
<td>ISIN380</td>
<td>Information Security and Intel</td>
<td>Current Issues in ISIN</td>
<td>BU Account, Finance, Info Systems</td>
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<td>3 LEC</td>
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<td>ISIN390</td>
<td>Information Security and Intel</td>
<td>Special Topics in ISIN</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>1 TO 3 LEC</td>
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<tr>
<td>ISIN397</td>
<td>Information Security and Intel</td>
<td>Special Studies in ISIN</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
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<tr>
<td>ISIN409</td>
<td>Information Security and Intel</td>
<td>Network Forensics and Analysis</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3 LEC</td>
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<tr>
<td>ISIN429</td>
<td>Information Security and Intel</td>
<td>Legal-Ethical Issues Infor Sec</td>
<td>BU Account, Finance, Info Systems</td>
<td>Undergraduate</td>
<td>3 LEC</td>
</tr>
</tbody>
</table>

Students will examine the fundamental reasons of why people commit fraud. Participants will investigate and explore how opportunity, pressures and rationalization are linked together to foster an atmosphere that can allow fraud to occur. Additionally, students will learn basic examination techniques for discovering fraud and more importantly, how to deter fraud from taking place. Typically offered: Fall, Spring, Summer

This course covers secure database management. Topics include data encryption, data hashing, secure data access, secure design, configuration, scripting, and database forensics. Emerging database management systems and security implications are also explored. Prerequisites: ISIN 312. Typically offered Fall.

Students will examine secure software applications and cloud computing architecture utilizing a leading cloud computing service. Students will be introduced to cloud architecture and security best practices within a cloud-computing environment. Students will apply security services that are required to prevent common cyber security attacks as well as promote confidentiality, integrity, and availability within cloud computing. This course will introduce both offensive and defensive security mechanisms to promote information assurance. Prerequisites: ISIN 312. Typically offered Spring.

Students examine organizational structure, environment and planning strategies to determine associated risks. Study includes the implications of various approaches to security on the overall safety of the organization, as well as development of risk plans, security measures and countermeasures to address organizational needs. Prerequisites: HSCI 202. Typically Offered Spring only.

The class explores the global aspects of national and international security policies, laws, investigations as well as other relevant issues and topics. This class will also explore the societal impact of information security policies from an international perspective. Prerequisites: HSCI 202. Typically Offered Fall.

The class examines the role of intelligence and intelligence analysis techniques in supporting national security efforts. The course will examine the structure and roles of the various intelligence agencies and will review in detail intelligence analysis techniques through case studies. Prerequisites: HSCI 202. Typically Offered Spring.

Information security and intelligence threats and issues are constantly evolving and it is essential that a security and intelligence professional remains current in their skills and awareness. This course is focused on analyzing current security and intelligence threats and issues facing individuals, companies, governments, and the world. Current issues will include malicious attack vectors and methods, social engineering, technology based risks such as cloud computing and data loss prevention, and intelligence challenges in information security. Prerequisites: ISIN 308. Typically Offered Spring.

Special Topics in ISIN - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course examines the underlying theory of networking protocols and the most prevalent application protocols. Students will apply forensic packet and protocol analysis to understand common protocols, their usage, network intrusions, covert tunneling, protocol and traffic anomalies, and other current and common network attack vectors/security events. Network analysis, log correlation and other forensics strategies will be applied to identify, investigate, protect, detect, respond and recover from network intrusions and attacks. Prerequisites ISIN200 and ISIN308 with C- or better. Typically offered: Fall, Spring

This course is intended to investigate the legal and ethical issues in Information Security. Ethical practices, privacy, copyright and licensing issues are researched. This course dealing with proprietary and personal information, as well as electronic technologies will be studied. An understanding of current and future impact on information systems and management strategies will be explored. Prerequisites: Sophomore Standing. Typically Offered Spring only.
ISIN430 Information Security and Intel Pen Testing & Mobile Security BU Account, Finance, Info Systems Undergraduate 3 LEC

Students will apply a penetration testing methodology using a mobile application assurance framework. Students will complete course projects that incorporate penetration testing techniques against applications that integrate data and utilize cloud services in a mobile environment. This course will utilize both offensive and defensive security mechanisms to promote quality software assurance. Prerequisites: ISIN 312 and ISIN 325. Typically offered Fall.

ISIN491 Information Security and Intel ISI Internship BU Account, Finance, Info Systems Undergraduate 1 TO 6 LEC

Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student’s academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 15 weeks with the total hours worked approved by the department head. Prerequisites: Junior standing and advisor approval. Typically offered Fall, Spring and Summer.

ISIN497 Information Security and Intel Special Studies in ISIN BU Account, Finance, Info Systems Undergraduate 1 TO 4 LEC

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Offered on demand. This course provides students with an opportunity to demonstrate the skills and knowledge they have obtained in their program through project and/or portfolio methodologies and how they would be utilized in the workplace. Students will also investigate how information security and intelligence is incorporated in their chosen career path. Prerequisites: Senior standing and instructor approval. Typically offered Spring only.

ISYS103 Information Systems Word & Presentation Apps BU Account, Finance, Info Systems Undergraduate 1 LEC

Learn to use a word processor and a presentation application in real-world college and business situations to create reports and presentations that are suitable for business and college audiences. Typically offered Spring, Summer and Fall.

ISYS104 Information Systems Spreadsheet & Integration Apps BU Account, Finance, Info Systems Undergraduate 2 LEC

Learn how to use a common office spreadsheet application to solve real-world personal and business problems and combine it with word processing and presentation applications to make an integrated presentation of the solution. Prerequisite: ISYS 103. Typically offered Spring, Summer and Fall.

ISYS105 Information Systems Intro Micro Systems-Software BU Account, Finance, Info Systems Undergraduate 3 LEC

Use of common office application software, including: word processing, spreadsheets, presentation software, and integration of the three products. Typically offered Fall, Spring, Summer.

ISYS110 Information Systems Fund of Prog Design and Logic BU Account, Finance, Info Systems Undergraduate 3 LEC

This course is designed to provide an understanding of the fundamentals of computer systems, computer programming and software development. Students will gain experience in software programming, and development by writing software using a high level programming language using an integrated development environment (IDE). Typically Offered Fall, Spring.

ISYS200 Information Systems Database Design-Implementation BU Account, Finance, Info Systems Undergraduate 3 LEC

Visual BASIC, an Object-Oriented Event Driven (OOED) Programming language, interwoven with logical problem solving will be used to create programs for Windows-based applications that are used in industry today. The programs will include multiple forms, buttons, input boxes, IF then ELSE and loop processing, frames, and option buttons. Pre-Requisites:ISYS 105 or Demonstrated Competency in ISYS 105. Typically Offered Fall, Spring, Summer.

ISYS204 Information Systems Introduction to Visual Basic BU Account, Finance, Info Systems Undergraduate 3 LEC

Introduces the Java platform and the essentials of non-graphical, object-oriented Java programming. Topics include primitive data types and operations, flow control, language syntax and debugging, packaged classes and methods, custom methods, strings, arrays, custom classes and subclasses, and fundamentals of object-oriented programming. Pre-Requisites: C or higher in MATH 114, 115, 116, 120, 126, 130, 132, or 135, or MATH ACT 24 or SAT 580; and ISYS 110 or CPSC 130 either w/C or higher. Typically Offered Fall, Spring.

ISYS216 Information Systems Intro to Java Programming BU Account, Finance, Info Systems Undergraduate 3 LEC
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<tr>
<th>Course Code</th>
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<td>ISYS221</td>
<td>Mobile Application Development</td>
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<td>Fundamentals of Database Sys</td>
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<td>ISYS280</td>
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<td>ISYS288</td>
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<td>ISYS304</td>
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<td>ISYS316</td>
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Introduction to a common, business-oriented programming language. Coverage of COBOL divisions and basic sequential access programs including input data edits, file updates, control breaks, and tables. Emphasis on structured programming methodology. A popular commercial COBOL programming environment will be used to develop projects. Pre-Requisites: MATH 115 grade C or better; or ACT 24 or pre 2016 SAT 560 or post 2016 SAT 580; and ISYS 110. Typically Offered Fall Only

The purpose of this course is to provide students with an exposure to the major platforms used by various mobile computing devices. Students will then develop, install and test applications for various mobile devices. Prerequisites: ISYS 216 or CPSC 130 w/C or higher. Typically offered Fall and Spring.

Developing and managing efficient and effective database applications requires understanding of database management systems, techniques for the design of databases, and principles of database administration. This course covers database design and use of database in applications. It includes extensive coverage of relational models, relational algebra, and SQL. The course also features database design and relational design principles based on dependencies and normal forms. Many other key database topics from the design and application-building perspectives are also covered, including indexes, views, transactions, and integrity constraints. Pre-requisites: ISYS 110 or CPSC 130 w/C grade or higher. Typically offered: Fall, Spring.

A study of software topics not currently covered in other information systems courses. A course description will be provided for each offering. Pre-Requisites: Sophomore status or instructor approval. Typically Offered Fall, Spring.

This course is designed to provide the student with the necessary skills to effectively develop Web applications. Specifically, the course will explore the Web application development techniques using current programming languages. Topics include Web servers, client side and server side scripting, and data base interfaces. Other topics discussed in this class may include Computer Human Interaction, security, and session management. Advanced topics such as graphics and frameworks may also be introduced. Prerequisites: ISYS 200 or ISYS 272 w/C or higher. Typically Offered: Fall, Spring.

Special Topics In ISYS - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student’s academic pursuits, personal development, and professional preparation. Summer internship experience must last a minimum of 12 weeks. Credits awarded based on total hours worked during the internship. 1 credit minimum 80 hours, 2 credits minimum 160 hours, 3 credits minimum 240 hours. Detailed summary report of work experience required at end of internship. Pre-Requisites: Sophomore standing and 30+ earned credits in program. Typically Offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Visual BASIC will be used to solve advanced business problems. These programs will include (OLE) interface to other programs, databases, business reports and error handling. The final program will include a program using setup, that can be used on any windows machine. Pre-Requisites: ISYS 204. Typically Offered Spring Only.

Examines the use of commercial software products to meet an organization’s information systems needs. Presents a methodology for analyzing information system requirements, evaluating competing software products, selecting and installing the product, training users, and supporting the product. Pre-Requisites: ISYS 105 or Demonstrated Competency in ISYS 105. Typically Offered Fall, Spring, Summer.

Introduces graphical and advanced Java features to develop event-driven Windows programs and applets. Topics include the Abstract Windows Toolkit, containers and layout managers, components, listeners and event handler, menu bars, exception handling, file and database access, client/server applications, and server-side (Web-based) applications. Pre-Requisites: ISYS 216 or ECNS 311 either w/C or higher. Typically Offered Spring Only.
ISYS 321 Information Systems  Business Information Systems  BU  Account, Finance, Info Systems  Undergraduate  3 LEC

Introduction to strategic information systems functions. Provides an integrating experience that enables a student to demonstrate the capacity to synthesize and apply knowledge from an organizational perspective. Included are the uses of information technology to grow, expand, and efficiently and profitably manage an organization. Of particular focus are the interrelationships between information systems. An interdisciplinary team project(s) is required. Meets General Education requirements for Problem Solving and Collaboration. Pre-Requisites: ACCT 202 & MKTG 321 & MGMT 301. Typically Offered Fall, Spring, Summer

Learners who will gain employment programming for the Web, cloud and mobile markets must be able to maximize the capabilities of the operating environments within which programs will operate. This course will build an understanding of networking and operating systems by combining hands-on experience, lecture, and projects. The successful learner in the course will be able to analyze project requirements, and then create or customize an operating environment suitable for achieving project goals. Pre-requisites: ISYS 216 or CPSC 130 w/C grade or higher. Typically offered: Fall

This course is designed to provide the student with the necessary skills to effectively analyze the information system requirements for business applications and successfully design an information system to meet those requirements. This course focuses on constructing problem frames, identifying and describing the problems and providing an alternative design solution. Leading edge tools, techniques, and concepts will be presented through the course. This course meets General Education Requirements: Writing Intensive Requirement and new Fall 2017 Comm Across the Curriculum. Pre-Requisites: ISYS 216 with a C or better and ISYS 272 with a C or better. Typically Offered Spring only.

The course starts with the more complex database programming notions such as triggers, stored procedures, and cursors. The learner will then be exposed to SQL server and database installation, configuration and tuning, administering servers and server groups, managing and optimizing schemas, tables, indexes, and views, creating logins, configuring permissions, assigning roles and performing other essential security tasks, backup and recovery strategies, automation, and maintenance. Pre-requisites: ISYS 216 and ISYS 272 both w/C grade or higher. Typically offered: Fall Special Topics in ISYS - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course is designed to provide the student with the necessary skills to effectively analyze the information system requirements for business applications and successfully design an information system to meet those requirements. This course focuses on constructing problem frames identifying and describing the problems and providing an alternative design solution. Leading edge tools, techniques, and concepts will be presented through the course. Meets General Education requirements for Collaboration and Problem Solving. Prerequisites: ISYS 330 with a C or better and ISYS 371. Typically offered Fall only.

This course has two objectives, it aims to expose the learner to the importance of organizational data integration, and the course introduces the learner to Business Process Design techniques in order to improve the organization's efficiency. A brief review of relational database is done at the beginning of the course. The rest of the course unfolds as follows: The course starts with the introduction of organizational structures, database organization and workflow design, then moves on to the internal controls and their effects on business processes. Lastly, more emphasis is put on learning some of the more common business processes such as accounting, material management, production, sales, and distribution. Prerequisites: Junior Standing. Typically offered: Fall, Spring

This course covers the principles, methods and tools of system development and implementation. The course will explore major software development and implementation techniques by working on a case project. This is a team-oriented course designed to implement systems design specifications with using web-based programming tools and techniques. Students also learn about various software engineering techniques such as quality management, risk management, configuration and change management. Meets General Education requirements for Collaboration and Problem Solving. Prerequisites: ISYS 221, ISYS 288, ISYS 431 and PROJ 320, all with C or higher. Typically Offered Winter only.
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<th>Code</th>
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<td>JRNL251</td>
<td>Journalism Understanding Mass Media</td>
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<td>JRNL297</td>
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<td>JRNL328</td>
<td>Journalism Feature and Opinion Writing</td>
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<td>JRNL330</td>
<td>Journalism Publication Editing</td>
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<td>LANG100</td>
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<td>LANG103</td>
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Special Topics in ISYS BU Account, Finance, Info TO covers various diverse faculty topics in ISYS490 Information Systems not be offered every semester. Typically Offered On Demand

Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student’s academic pursuits, personal development, and professional preparation. Summer internship experience must last a minimum of 12 weeks with a minimum of 240 total hours worked. Detailed summary report of work experience required at end of internship. Pre-Requisites: Junior standing and 60+ earned credits in program. Typically Offered Fall, Spring and Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Introduction to journalism writing: news values, leads and story structure, writing a basic news story, interviewing, journalistic style and editing. Typically Offered Fall Only

An in depth view into specialized news writing that includes covering courts, police and investigative reporting, as well as introducing publicity writing and broadcast writing. Prerequisites: JRNL 121 and ENGL 150 with a min grade of C in both. Typically offered Spring.

Upon completion of this course students will have written articles for the newspaper; gained experience in one or more of the following: writing articles, editing articles, designing newspaper pages, photographing events for the paper. Pre-Requisites: Instructor approval. Typically Offered Fall, Spring

An introductory media literacy course in which the history, theory, functions, processes, and psychological, social and cultural effects of print, broadcast, and digital media are examined. This course meets General Education Requirements: Social Awareness, new Fall 2017 Self and Society. Typically Offered Spring

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Introduces feature and opinion styles, feature writing variety in newspapers and magazines, research techniques, and a variety of writing techniques such as description, narration and dialogue. Examines a wide variety of authors and their writing styles. Prerequisites: ENGL 250 with a min grade of C. Typically offered Spring.

Publication editing in both copy editing and publication design, copy editing, headlines and cutlines, handling artwork, design principles and skills. Prerequisites: ENGL 250 with a min grade of C. Typically offered Spring.

Language 100 stresses basic language survival skills for a potential business associate/tourist. A comparative study of cultural differences between the United States and Italy, focusing specifically on situations commonly encountered by U.S. travelers in Italy. Some attention will be paid to historical influences that have shaped the two cultures. This course does not count toward the foreign language requirement for the B.A. degree. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Fall, Spring, Summer

Language 103 stresses basic language survival skills for a potential business associate/tourist. A comparative study of cultural differences between the United States and Russia, focusing specifically on situations commonly encountered by U.S. travelers in Russia. Some attention will be paid to historical influences that have shaped the two cultures. This course does not count toward the foreign language requirement for the B.A. degree. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Spring Only
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Language 105 stresses basic language survival skills for a potential business associate/tourist. A comparative study of cultural differences between the United States and China, focusing specifically on situations commonly encountered by U.S. travelers in China. Some attention will be paid to historical influences that have shaped the two cultures. This course does not count toward the foreign language requirement for the B.A. degree. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Fall, Spring, Summer

Language 107 stresses basic language survival skills for a potential business associate/tourist. A comparative study of cultural differences between the United States and Japan, focusing specifically on situations commonly encountered by U.S. travelers in Japan. Some attention will be paid to historical influences that have shaped the two cultures. This course does not count toward the foreign language requirement for the B.A. degree. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Spring Only

The Summer Intensive Japanese Language Program is designed for students who want to concentrate on Japanese language study while experiencing life in Japan. No prior Japanese language study is required. The summer program runs from the end of May through the first full week in August. The JCMU program involves several hours of daily instruction, supplemented by time in the language lab and with Japanese conversation partners. The instruction emphasizes all four basic skills of speaking, listening, reading, and writing. Students are placed into one of four levels based on placement exams given at the beginning of the program. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered on Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered on Demand

The major genres of literature: short story, novella, poetry, drama, and analytical prose, to help students read, understand, enjoy, and reflect upon such works. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Fall, Spring

Women’s literature as viewed from literary, historical, psychological, political, sociological, and multicultural perspectives. Includes study of writings by and about women. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender and new Fall 2017 Culture and U.S. Diversity. Typically Offered Fall, Spring

Alternating between a variety of issues affecting the American experience, this course helps students understand the significance of American literature and culture in their own lives. Each issue is studied from the social, historical, economic, and political perspectives that define it. Recent topics have included: the American work experience; the moral and ethical issues in American business literature; the wilderness in American experience; and American literary responses to the Vietnam War. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Fall, Spring

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered on Demand
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<tr>
<td>LITR203</td>
<td>Literature Intro-African Literature</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
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<tr>
<td>LITR204</td>
<td>Literature Native American Literature</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
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<tr>
<td>LITR231</td>
<td>Literature Poetry</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
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<tr>
<td>LITR233</td>
<td>Literature Science Fiction &amp; Fantasy</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>LITR241</td>
<td>Literature Intro to World Short Fiction</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
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<tr>
<td>LITR242</td>
<td>Literature American Popular Literature</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>LITR243</td>
<td>Literature Literature and Film</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
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<tr>
<td>LITR250</td>
<td>Literature Practical Criticism</td>
<td>AS</td>
<td>3</td>
<td>LEC</td>
<td>Undergraduate</td>
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</table>

**LITR202 Literature Black Literature**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR203 Literature Intro-African Literature**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR204 Literature Native American Literature**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR231 Literature Poetry**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR233 Literature Science Fiction & Fantasy**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR241 Literature Intro to World Short Fiction**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR242 Literature American Popular Literature**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR243 Literature Literature and Film**
- Undergraduate 3 LEC
- English, Lit and World Lang

**LITR250 Literature Practical Criticism**
- Undergraduate 3 LEC
- English, Lit and World Lang

Recurring themes, images, symbols, and ideas that one sees in the works of some of the twentieth century's most important African-American writers. The substance will vary; poetry, fiction (i.e., the novel and the short story) and some drama will be read. Nella Larsen, Wright, McPherson, Brooks, and Baraka will be studied. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender Issues, and new Fall 2017 Culture and US Diversity. Pre-Requisites: ENGL 150. Typically Offered Fall Only

The most important voices and talents in post-colonial Africa, both novelists and poets. Includes the works of Armah, Ngugi, Soyinka, Achebe, Besie Head, Diop, Coetzee, Brutus, Bernard, and Lessing. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender, and new Fall 2017 Global Diversity, Culture, and US Diversity. Pre-Requisites: ENGL 150. Typically Offered Fall Only

Oral and written works by and about North American Indians. The social, historical, cultural and political issues which have influenced the lives of Native American people of the past and present. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender, and new Fall 2017 Culture and US Diversity. Pre-Requisites: ENGL 150. Typically Offered Fall Only

Selected poems and poetic forms are studied for themes and elements of poetry and for appreciation of poetic technique. Emphasis on reading methods useful for improving comprehension and appreciation. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ENGL 150. Typically Offered Fall Only, Even Year

This course explores how works of science fiction and/or fantasy imaginatively construct important global cultural and historical themes such as gender, the body, power, desire, science and technology, difference, the monstrous within diverse cultures. The course will provide students with an understanding of the historical and cultural development of these global genres as well as the critical tools to effectively analyze works in a variety of media such as graphic novels, short stories, novels, movies, television, digital games and fan fiction. The course satisfies the cultural enrichment general education criteria. Pre-Requisites: ENGL 150. Typically offered Spring Only

Genre structure, narrative techniques, and thematic traditions. Extensive reading and discussion of works by European, British, American, and Third World authors. This course meets General Education requirements: Cultural Enrichment and Global Consciousness, and new Fall 2017 Culture and Global Diversity. Pre-Requisites: ENGL 150. Typically Offered Fall, Spring

Survey of popular reading in America: science fiction, detective, spy and mystery stories, love stories, western, historical and adventure fiction, and success stories. Influence of popular literature on American culture and implications of certain kinds of popular writings for the historical period in which they flourished. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ENGL 150. Typically Offered Spring Only

This course will cover a variety of works of literature and film interpretations of them. Students will read and critically analyze literature, dealing with such matters as theme, plot, characterization, the writer’s art, cultural and social influences, and other subjects common to literature courses. They will also view films based on the works they have read, examine changes between the written and film version, and analyze possible influences behind those changes. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ENGL 150. Typically Offered Spring Only

LITR 250 introduces major genres and critical approaches to literature, focuses on close reading and textual interpretation, and provides practice in oral and written responses to literature. LITR 250 prepares students to analyze, discuss, and write critically about literature at a level appropriate for English majors and minor. Enrollment limited to majors and minors in English BA and English Education programs, or with instructor’s permission. Pre-Requisites: ENGL 150 Co-requisite: ENGL 250. Meets General Education requirements for Collaboration and Problem Solving. Typically offered Fall, Spring.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Level</th>
<th>Schedule</th>
<th>Format</th>
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<tbody>
<tr>
<td>LITR251</td>
<td>Literature World Drama</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>World Drama is a basic course in the development of drama, designed to acquaint the student with what constitutes the dramatic form in its various manifestations. Emphasis will be placed upon a diversity of dramaturgic works representing both the western canon and a global perspective. This course meets General Education requirements: Cultural Enrichment, new Fall 2017 Culture. Pre-Requisites: ENGL 150. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>LITR261</td>
<td>Literature World Novels</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>World Novels is a basic course in the development of the novel, designed to acquaint the student with what constitutes the novel form in its various manifestations. Emphasis will be placed upon a diversity of works representing both the western canon and a global perspective. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ENGL 150. Typically Offered Spring Only.</td>
</tr>
<tr>
<td>LITR280</td>
<td>Literature Intro American Folklore</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>Surveys genres of American Folklore emphasizing folk narratives and genres found in literature. These forms will be examined from multiple perspectives, including anthropology, sociology, folklore, and literature. In addition to surveying the folk traditions of the United States, the course surveys the theories that folklorists have developed to explain the continuation of such traditions in a society that is highly literate. Materials are drawn from student experience, literature, and collections of folklore and material culture. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Pre-Requisites: ENGL 150. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>LITR286</td>
<td>Literature Justice in Literature</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>In this course students will study several aspects of the theme of justice. The short fiction, essays, novels, articles, plays, and films selected will enable students to study the moral and legal definitions of justice, the images and characters that illustrate themes of justice, and how our perceptions of justice have shaped our values and language. This course meets General Education requirements: Cultural Enrichment and Writing Intensive Requirement, and new Fall 2017 Comm Across the Curriculum. Culture. Pre-Requisites: ENGL 250. Typically Offered Fall, Spring. Special Topics in LITR - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>LITR290</td>
<td>Literature Special Topics in LITR</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.</td>
</tr>
<tr>
<td>LITR297</td>
<td>Literature Special Studies in LITR</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>The literature of the indigenous, colonial, and post-colonial cultures, excluding that of western Europe, the classical world, and the United States. Repeatable with permission of adviser up to two times. This course meets General Education Requirements for Cultural Enrichment, Race-Ethnicity-Gender, Global Consciousness, and Writing Intensive and new Fall 2017 Culture, Diversity (US and Global) and Communication Across the Curriculum. Prerequisites: ENGL 250 with C or better. Typically Offered: Fall, Spring. Summer.</td>
</tr>
<tr>
<td>LITR306</td>
<td>Literature Topics Non-Western World Lit</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>Surveys major authors, cultural background and literary developments from the 17th century to the advent of Realism in the 1870s. Includes writers active during the Trans-Atlantic, Enlightenment, and Romantic periods. This course meets General Education requirements: Cultural Enrichment Writing Intensive, and new Fall 2017 Comm Across the Curriculum and Culture; Prerequisites: LITR 250. Typically Offered Fall, Spring.</td>
</tr>
<tr>
<td>LITR311</td>
<td>Literature Early American Literature</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>Surveys major authors, cultural background and literary developments from the 19th century advent of Realism to the present day. Includes writers active during the periods of Realism, Naturalism, Modernism, and Contemporary literature. This course meets General Education requirements: Writing Intensive and Cultural Enrichment. Pre-Requisites: LITR 250. Typically Offered Fall, Spring, Summer. A study of Shakespeare's poetry and dramas, including the comedies, histories, and tragedies. The format will emphasize characterization, literary craftsmanship, and major themes. His works will be placed in the historical, cultural, and literary perspective of his times. This course meets General Education requirements: Cultural Enrichment and Writing Intensive Requirement and new Fall 2017 Culture and Comm Across the Curriculum. Pre-Requisites: LITR 250. Typically Offered Fall, Summer.</td>
</tr>
<tr>
<td>LITR312</td>
<td>Literature Modern American Literature</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>Surveys major authors, cultural background and literary developments from the 19th century advent of Realism to the present day. Includes writers active during the periods of Realism, Naturalism, Modernism, and Contemporary literature. This course meets General Education requirements: Writing Intensive and Cultural Enrichment. Pre-Requisites: LITR 250. Typically Offered Fall, Spring, Summer. A study of Shakespeare's poetry and dramas, including the comedies, histories, and tragedies. The format will emphasize characterization, literary craftsmanship, and major themes. His works will be placed in the historical, cultural, and literary perspective of his times. This course meets General Education requirements: Cultural Enrichment and Writing Intensive Requirement and new Fall 2017 Culture and Comm Across the Curriculum. Pre-Requisites: LITR 250. Typically Offered Fall, Summer.</td>
</tr>
<tr>
<td>LITR323</td>
<td>Literature Shakespeare</td>
<td>3</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>Surveys major authors, cultural background and literary developments from the 19th century advent of Realism to the present day. Includes writers active during the periods of Realism, Naturalism, Modernism, and Contemporary literature. This course meets General Education requirements: Writing Intensive and Cultural Enrichment. Pre-Requisites: LITR 250. Typically Offered Fall, Spring, Summer. A study of Shakespeare's poetry and dramas, including the comedies, histories, and tragedies. The format will emphasize characterization, literary craftsmanship, and major themes. His works will be placed in the historical, cultural, and literary perspective of his times. This course meets General Education requirements: Cultural Enrichment and Writing Intensive Requirement and new Fall 2017 Culture and Comm Across the Curriculum. Pre-Requisites: LITR 250. Typically Offered Fall, Summer.</td>
</tr>
</tbody>
</table>
LITR326 Literature Children's Literature AS English, Lit and World Lang Undergraduate 3 LEC
A survey of literature for children from infancy through elementary school age: picture books, nursery rhymes, folk literature, poetry, fantasy, realism, biography and informational books. Assess the literary quality of children's literature, methods of acquainting children with the literature, as well as the social, psychological, and philosophical issues raised by literature. This course meets General Education requirements: Cultural Enrichment and Writing Intensive Requirement and new Fall 2017 Culture and Comm Across the Curriculum. Pre-Requisites: ENGL 250 or 211. Typically Offered Fall, Spring

LITR327 Literature Adolescent Literature AS English, Lit and World Lang Undergraduate 3 LEC
A survey for children from school age: rhymes, folk literature, fantasy, quality children's literature, methods of acquainting children the literature, as well as the social, psychological, and philosophical raised by General Education Cultural Enrichment and Writing Intensive and Pre-Requisites: ENGL 250 or 211. Typically Offered Fall, Spring

LITR328 Literature Golden Age-Children's Lit AS English, Lit and World Lang Undergraduate 3 LEC
Historical survey of British and American literature for children. Focus on masterworks published between 1850 - 1950. Authors include Lewis Carroll, Mark Twain, R.L. Stevenson, C.S. Lewis, Laura Ingalls Wilder, and others. Pre-Requisites: ENGL 250 or 211. Typically Offered Spring Only

LITR330 Literature Contemporary Literature AS English, Lit and World Lang Undergraduate 3 LEC
Survey of major literary trends of post-modern era (WWII to present). Major schools include the Beats, The Angry Young Men, Metafictionists, Confessional Poets, Surrealists and other contemporary schools of Fiction, Poetry and Drama. This course meets General Education requirements: Cultural Enrichment, Writing Intensive and new Fall 2017 Culture and Comm Across the Curriculum. Pre-Requisites: ENGL 250 or 211. Typically Offered Fall Only. A philosophical study and discussion emphasizing the themes of crime and violence in various literary works from the nineteenth century to the present. Pre-Requisites: ENGL 250. Typically Offered Fall, Spring

LITR351 Literature Early British Literature AS English, Lit and World Lang Undergraduate 3 LEC
Surveys major authors, cultural background and literary developments from the beginnings of British literature up to the late 18th century. Includes writers active during the Middle Ages, the Renaissance, and Restoration, and the 18th Century. This course meets General Education requirements: Writing Intensive and Cultural Enrichment and new Fall 2017 Culture and Comm Across the Curriculum. Pre-Requisites: LITR 250. Typically Offered Fall Only.

LITR352 Literature Modern British Literature AS English, Lit and World Lang Undergraduate 3 LEC
Surveys major authors, cultural background and literary developments from the Romantic era to the 20th century. Includes writers active during the Romantic, Victorian, Modernist and Contemporary periods. This course meets General Education requirements: Writing Intensive and Cultural Enrichment and new Fall 2017 Culture and Comm Across the Curriculum. Pre-Requisites: LITR 250. Typically Offered Fall, Spring

LITR371 Literature Topics in Women's Literature AS English, Lit and World Lang Undergraduate 3 LEC
Readings in literature by women organized by theme, genre, or period. Topic changes each time offered. Prerequisites: ENGL 250 with C or better. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender and new Fall 2017 Culture and U.S. Diversity. Typically offered Fall and Spring.

LITR380 Literature World Folk Literature AS English, Lit and World Lang Undergraduate 3 LEC
A study of traditional oral literature and folklore from around the world, including ancient mythologies, legends, tall tales and fairy tales from Europe, Native America, Africa, India, the Middle and Far East. The origins of folk literature and folklore, their dissemination, their social and psychological implications, and their place in the modern world will all be explored. Students with credit for LITR 380 cannot take LITR 380. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and Writing Intensive Requirement and new Fall 2017 Culture, Global Diversity, and Comm Across the Curriculum. Pre-Requisites: ENGL 250. Typically Offered On Demand Special topics in LITR 380. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

LITR390 Literature Special Topics in LITR AS English, Lit and World Lang Undergraduate 1 TO 3 LEC
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand
A study of the works of a major literary movement of English literature, British or American. A major literary movement is defined as recognizable trend in literary history when a number of writers shared similar influences, tastes, and literary goals. The course may focus on a broad period, such as Medieval English Literature, or on a narrower field, such as American Naturalism. The topic will change with each offering and will be announced when the course is listed. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisites: ENGL 250 and LITR 250. Typically Offered: Spring Even Years

A study of the works of one or more major writers of English literature, British or American. A major writer is one whose work has been acknowledged over the course of time as having a significant impact on the literary world and/or whose works are universally acknowledged as being of the highest artistic achievement. The course may focus on the work of a single writer, such as Chaucer or Twain, or on the works of two or more writers who share some common ground, such as British Romantic poets or American Southern writers. The topic will change with each offering and will be announced when the course is listed. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisites: ENGL 250 and LITR 250. Typically Offered Spring Only, Odd Years

Planning, implementation, and evaluation of teaching literature. Examines the role and function of literature in the schools, critical approaches to literature, current issues (e.g., cultural literacy, censorship, values education, inclusion, discipline, etc.), book selection, planning objectives, interdisciplinary relationships, classroom activities, and methods of assessing student performance. Incorporates a 4-6 week practicum in conjunction with local public schools that will require the student to plan, design, implement, and assess sample teaching units. Typically Offered: Spring

This course will focus on the major issues in literary theory including the definition of literature, the place of literature in cultures, debate over the canon, and survey of literary critical approaches. The course requires two major papers, asking students to draw upon knowledge gained from core courses within the major. Papers will serve as the basis for capstone assessment within the major. Pre-Requisites: Department approval. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only

Special Topics in LITR - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

A study of the most recent award-winning children's books, including Newbery, Caldecott, Coretta Scott King, Scott O'Dell and Phoenix Award winners as well as Canadian and British books when available. The books and their authors will be discussed, with particular attention to literary trends, cultural milieu, and the general status of children's literature. Pre-Requisites: Graduate status or Instructor approval. Typically Offered Fall, Summer

A study of traditional oral literature and folklore from around the world, including ancient mythologies, legends, tall tales and fairy tales from Europe, Native America, Africa, India, the Middle and Far East. The origins of folk literature and folklore, their dissemination, their social and psychological implications, and their place in the modern world will all be explored. Students will complete a research paper, a review of the current research, and make a classroom presentation. Students with credit for LITR 380 cannot take LITR 580. This course meets General Education requirements: Cultural Enrichment, Global Consciousness and Writing Intensive Requirement and new Fall 2017 Culture, Global Diversity, and Comm Across the Curriculum. Pre-Requisites: ENGL 250 & Graduate status. Typically Offered On Demand

Examines the purpose of law and the roles of legal professionals within the legal system. Includes a survey of substantive and procedural law including state and federal courts, constitutional law, administrative law, torts, contracts and an overview of civil litigation. Typically Offered Fall Only
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<th>Course Code</th>
<th>Course Title</th>
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<th>Type</th>
<th>Credits</th>
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<tr>
<td>LLAW161</td>
<td>Legal Studies Law: Law in the United States 2</td>
<td>BU</td>
<td>Management</td>
<td>4 LEC</td>
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<tr>
<td>LLAW251</td>
<td>Legal Studies Law: Criminal Law and Procedures</td>
<td>BU</td>
<td>Management</td>
<td>3 LEC</td>
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<tr>
<td>LLAW253</td>
<td>Legal Studies Law: Adv Legal Research Writing</td>
<td>BU</td>
<td>Management</td>
<td>2 LEC</td>
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<tr>
<td>LLAW260</td>
<td>Legal Studies Law: Real Estate Law</td>
<td>BU</td>
<td>Management</td>
<td>3 LEC</td>
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<td>LLAW261</td>
<td>Legal Studies Law: Probate and Estate Planning</td>
<td>BU</td>
<td>Management</td>
<td>3 LEC</td>
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<tr>
<td>LLAW280</td>
<td>Legal Studies Law: Civil Litigation</td>
<td>BU</td>
<td>Management</td>
<td>4 LEC</td>
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<tr>
<td>LLAW290</td>
<td>Legal Studies Law: Special Topics in LLAW</td>
<td>BU</td>
<td>Management</td>
<td>1 TO 4 LEC</td>
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<tr>
<td>LLAW291</td>
<td>Legal Studies Law: Practice Studies</td>
<td>BU</td>
<td>Management</td>
<td>2 LEC</td>
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<tr>
<td>LLAW297</td>
<td>Legal Studies Law: Special Studies in LLAW</td>
<td>BU</td>
<td>Management</td>
<td>1 TO 4 LEC</td>
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<tr>
<td>MATH010</td>
<td>Mathematics: Fundamentals of Mathematics</td>
<td>AS</td>
<td>Mathematics</td>
<td>4 LEC</td>
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<tr>
<td>MATH109</td>
<td>Mathematics: Quantitative Reason for Pro 1</td>
<td>AS</td>
<td>Mathematics</td>
<td>4 LEC</td>
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<tr>
<td>MATH110</td>
<td>Mathematics: Fundamentals of Algebra</td>
<td>AS</td>
<td>Mathematics</td>
<td>4 LEC</td>
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A continuation of LLAW 160 with an emphasis on legal research and writing. Laboratory sections are held in the law library. Survey of business organization, labor and employment, family law and motor vehicle law. Pre-Requisites: LLAW 160. Typically Offered Spring Only

Concentrates on research of criminal law and procedure; provides the steps for prosecuting and defending a criminal case; discusses constitutional rights and criminal appeals. Pre-Requisites: LLAW 160. Typically Offered Spring Only

Students work independently in the law library to do in-depth legal research in pre-selected narrow areas of the law. Information is used to prepare legal memorandum. Periodic conferences with the instructor for progress reports and assistance. Pre-Requisites: LLAW 161. Typically Offered Spring Only

Concerns the study of the law that governs real property transactions. Includes surveys and land descriptions, real estate contracts, deeds, financing, title examinations, leases, and ethical consideration for the real estate legal assistant. Pre-Requisites: LLAW 161. Typically Offered Spring Only

A survey of probate law including interstate succession, wills, trusts, probating of estates, guardians and conservators. Students prepare documents and pleadings necessary for probate and estate planning. Pre-Requisites: LLAW 161. Typically Offered Fall Only

Comprehensive review of procedures in civil litigation. Includes review of pretrial tasks such as interviewing, investigation, timekeeping, and data control techniques. Michigan court rules, code of professional responsibility, and the Michigan rules of evidence are studied. Students prepare routine pleadings for a civil case, discovery materials, and a brief. One class each week is held in the library. Pre-Requisites: LLAW 161. Typically Offered Fall Only

Special Topics in LLAW 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Independently arranged experience of performing paralegal assistant duties in a law office or related environment for a period of not less than 90 hours. The particular work station must be approved and the student may be required to write a written report on the work experience. Pre-Requisites: LLAW 280. Typically Offered Fall, Spring

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Mathematical concepts concerning whole numbers, both common and decimal fractions, percentage and elementary algebraic operations are covered. Credit does not count toward graduation but will count in the calculation of the GPA. Typically Offered Fall, Spring

An introductory course in college mathematics in professional contexts. Topics include proportional reasoning, data-based decision making, constructing and interpreting algebraic formulas, and manipulating algebraic formulas including those involving linear equations, expressions with exponents, rational expressions, and expression with radicals. Additional mathematical topics may include polynomials and factoring. Prerequisites: MATH 010 with a grade of C- or better or 15 or better on ACT (Math) or 350 or better on pre 2016 SAT (Math) or 400 on SAT (MATH) and ENGL 074 or 14 or better on ACT (Verbal) or 370 or better on pre 2016 SAT (Verbal) or 450 SAT (Evidence Based Reading and Writing). Typically offered Fall, Spring

An introductory course in algebra covering linear equations, exponents, polynomials, factoring, solving quadratic equations by factoring, rational expressions, solving linear systems of equations, and applications. Integrated into the course at appropriate points are the following topics of arithmetic: prime factoring, GCF, LCD, numerical fractions, and signed number. Pre-Requisites: MATH 010 with grade of C- or better, or 15 on ACT or 350 on pre 2016 SAT or 400 post 2016 SAT. Typically Offered Fall, Spring, Summer
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Discipline</th>
<th>Degree</th>
<th>Type</th>
<th>Credits</th>
<th>Notes</th>
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<tbody>
<tr>
<td>MATH114</td>
<td>Mathematics Quantitative Reason for Pro 2</td>
<td>Mathematics</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>4</td>
<td>A study of modeling and analyzing quantitative relationships in professional contexts. Focus on linear and exponential models, linear systems of equations and inequalities, linear programming, linear regression, solving equations with logarithms, and using logarithms to transform non-linear models into linear models. Additional topics may include quadratic functions, logistic functions, and periodic functions. Meets General Education Requirements for Quantitative Studies and new Fall 2017 Quantitative Literacy. Prerequisites: MATH 109 with a grade of C- or better, or MATH 110 with a grade of C- or better, or 19 on ACT (Math) or 460 on pre 2016 SAT (Math) or SAT 500 (MATH) and ENGL 074 or 14 or better on ACT (ENGLISH) or 370 or better on pre 2016 SAT (Verbal) or 450 or higher SAT (Evidence Based Reading and Writing). Typically offered Fall, Spring.</td>
</tr>
<tr>
<td>MATH115</td>
<td>Mathematics Intermediate Algebra</td>
<td>Mathematics</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>3</td>
<td>Special factoring forms, exponents, roots and radicals, scientific notation, fractions, first and second degree equations and inequalities, functions and graphs, logarithms, and solutions of logarithmic and exponential equations, systems of equations up to 3x3 and Cramer’s Rule, numerical trigonometry including vectors, Law of Sines and Cosines, and graphs of trigonometric functions. Meets General Education requirements for Quantitative Literacy. Pre-Requisites: MATH 109 with a grade of C- or better, or MATH 110 with a grade of C- or better, or 19 on ACT or 460 on pre 2016 SAT or 500 post 2016 SAT. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>MATH116</td>
<td>Mathematics Intermediate Algebra-Num Trig</td>
<td>Mathematics</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>4</td>
<td>A terminal course in mathematics satisfying the General Education quantitative skills requirement. Exposes students to a wide variety of mathematical concepts and their applications. Topics include algebraic applications, geometry, statistics, probability and mathematics of finance. Note: Math 117 cannot be used as a prerequisite for courses requiring Math 115 as a prerequisite. Should a student change his or her academic program to one that requires Math 115 as a prerequisite for subsequent courses the student will be required to complete Math 115. Pre-Requisites: MATH 109 with a grade of C or better, or MATH 110 with a grade of C- or better, or 19 on ACT or 460 on pre 2016 SAT or 500 post 2016 SAT. Meets General Education requirements for Quantitative Literacy. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>MATH117</td>
<td>Mathematics Contemporary Mathematics</td>
<td>Mathematics</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>4</td>
<td>An elementary course in plane trigonometry. Includes the trigonometric functions, their properties, solution of right and oblique triangles, radian measure, graphs, identities, trigonometry equations, vectors, and applications. Related topics in Geometry included. Calculators with trigonometric functions required. Pre-Requisites: MATH 114 with a grade of C- or better, or MATH 115 with a grade of C- or better, or 24 on ACT or 360 on pre 2016 SAT or 580 post 2016 SAT. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>MATH120</td>
<td>Mathematics Trigonometry</td>
<td>Mathematics</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>3</td>
<td>A study of mathematical models of linear equations and linear inequalities. Topics to be covered include: matrices, business applications, linear programming including both the geometrical approach and the simplex approach, maximizing and minimizing of standard and non-standard problems, duality, linear regression and correlation. Pre-Requisites: MATH 115 with a grade of C- or better, or 24 on ACT or 560 on pre 2016 SAT 580 post 2016 SAT. Typically Offered Fall, Spring.</td>
</tr>
<tr>
<td>MATH122</td>
<td>Mathematics Math Analysis for Business</td>
<td>Mathematics</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>3</td>
<td>This college-level course continues the study of algebra from the material learned in Elementary and Intermediate Algebra. Topics include a more extensive look at solving linear and nonlinear equations and inequalities in one variable, graphs of circles, symmetry, functions (linear, polynomial, rational, exponential, and logarithmic), graphs of functions and their transformations, inverse functions, operations with functions, solving linear and nonlinear systems of equations and inequalities in two variables, sequences and summation notation. Applications will include the use of technology to determine regression models from bivariate data. Pre-requisites: C- or better in MATH 114, MATH 115, or MATH 116 OR 24+ on the ACT-Math, OR 580+ on the SAT-Math. Typically offered: Fall, Spring, Summer</td>
</tr>
<tr>
<td>MATH125</td>
<td>Mathematics College Algebra</td>
<td>Mathematics</td>
<td>Undergraduate</td>
<td>LEC</td>
<td>4</td>
<td>A study of modeling and analyzing quantitative relationships in professional contexts. Focus on linear and exponential models, linear systems of equations and inequalities, linear programming, linear regression, solving equations with logarithms, and using logarithms to transform non-linear models into linear models. Additional topics may include quadratic functions, logistic functions, and periodic functions. Meets General Education Requirements for Quantitative Studies and new Fall 2017 Quantitative Literacy. Prerequisites: MATH 109 with a grade of C- or better, or MATH 110 with a grade of C- or better, or 19 on ACT (Math) or 460 on pre 2016 SAT (Math) or SAT 500 (MATH) and ENGL 074 or 14 or better on ACT (ENGLISH) or 370 or better on pre 2016 SAT (Verbal) or 450 or higher SAT (Evidence Based Reading and Writing). Typically offered Fall, Spring.</td>
</tr>
</tbody>
</table>

Notes:
- Prerequisites vary by course.
- Most courses are typically offered in Fall, Spring, or Summer.
- Specific course details and prerequisites are subject to change. Always consult the latest academic catalog for the most accurate information.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Course Title</th>
<th>Division</th>
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<th>Credits</th>
<th>Type</th>
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<td>Mathematics</td>
<td>Algebra-Analytic Trigonometry</td>
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<td>Undergraduate</td>
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<td>MATH130</td>
<td>Mathematics</td>
<td>Adv Algebra-Analytical Trig</td>
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<td>LEC</td>
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<td>MATH132</td>
<td>Mathematics</td>
<td>Survey of Calculus</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<td>MATH190</td>
<td>Mathematics</td>
<td>Special Topics in MATH</td>
<td>AS</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
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<td>MATH197</td>
<td>Mathematics</td>
<td>Special Studies in MATH</td>
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<td>Undergraduate</td>
<td>1 TO 4</td>
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<td>MATH216</td>
<td>Mathematics</td>
<td>Applied Calculus</td>
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<td>MATH218</td>
<td>Mathematics</td>
<td>Math for Elementary Teachers 1</td>
<td>AS</td>
<td>Undergraduate</td>
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<tr>
<td>MATH219</td>
<td>Mathematics</td>
<td>Math for Elementary Teachers 2</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>MATH220</td>
<td>Mathematics</td>
<td>Analytical Geometry-Calculus 1</td>
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<tr>
<td>MATH226</td>
<td>Mathematics</td>
<td>Fourier Series-Appl Diff Equat</td>
<td>AS</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC</td>
</tr>
</tbody>
</table>

Analytic trigonometry and trigonometric equations, the j-operator, DeMoivre's Theorem, non-linear inequalities, applications of logarithmic and exponential equations and plane analytic geometry with polar sketching. Equations of higher degree including the remainder theorem, factor theorem, synthetic division, rational and irrational roots of polynomials. Pre-Requisites:MATH 116 with a grade of C- or better, or 24 on ACT or 560 on pre 2016 SAT or 580 post 2016 SAT. Typically Offered Fall, Spring, Summer

Quadratic equations, inequalities, straight lines, graphing equations, functions and inverse functions, exponential and logarithmic functions, trigonometry from an analytical point of view, sequences, mathematical induction, and the binomial theorem. Pre-Requisites:MATH 120 with a grade of C- or better, or 24 on ACT or 560 on pre 2016 SAT or 580 post 2016 SAT. Typically Offered Fall, Spring, Summer

A survey of differential and integral calculus, introducing students to calculus concepts through realistic applications. Students will model and solve problems involving differentiation and integration of algebraic, exponential, logarithmic, and trigonometric functions, using technology regularly to assist with experimentation, computation, and interpreting results. A multi-representational approach will be emphasized with concepts, problems, and results being expressed graphically, numerically, analytically, and verbally. Appropriate for students who do not plan to continue the study of calculus, but want a fundamental understanding of calculus and hands-on applications that they can relate to. Pre-Requisites: MATH 116 or MATH 120 or equivalent with a grade of C- or better, or 24 on ACT Math or 580 on SAT Math. Typically Offered Fall, Spring

Special Topics in MATH - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project management requirements will be negotiated jointly between the faculty member and the student. Typically offered on demand.

The derivative and applications of the derivative and integration and applications of the integral. Derivatives of the trigonometric and inverse trigonometric functions with applications and derivatives of the transcendental functions with applications. Techniques of integration and integrations using tables and approximate integration. Pre-Requisites:MATH 126 or MATH 130 with grade of C- or better, or 26 on ACT or 590 on pre 2016 SAT or 620 post 2016 SAT. Typically Offered Fall, Spring

The first in a two course sequence designed to develop pre-service elementary teachers' conceptual understanding of mathematics. Topics include problem solving, set theory, number theory, rational and real numbers, and algebraic concepts. Emphasis is placed on learning through problem solving. Open only to prospective elementary teachers. Prerequisites: MATH 114 with a grade of C- or better, or MATH 115 with a grade of C- or better, or 24 on ACT or 560 on pre 2016 SAT or 580 post 2016 SAT. Typically Offered Fall, Spring

The second in a two course sequence designed to develop pre-service elementary teachers' conceptual understanding of mathematics. Topics include elementary probability and statistics, geometric concepts, and measurement concepts. Emphasis is placed on learning through problem solving. Open only to prospective elementary teachers. Prerequisites: MATH 218 with a grade of C or better or placement or 580 on post 2016 SAT. Typically Offered Fall, Spring

The first of a three-semester sequence in analytical geometry and calculus. Topics include: the limit, the derivative, differentiation of algebraic and transcendental functions, and definite and indefinite integration. Pre-Requisites: MATH 126 or MATH 130 with grade of C- or better, or 26 on ACT or 590 on pre 2016 SAT or 620 post 2016 SAT. Typically Offered Fall, Spring, Summer

MATH230 Mathematics Analytical Geometry-Calculus 2 AS Mathematics Undergraduate 4 LEC

MATH251 Mathematics Stats for the Life Sciences AS Mathematics Undergraduate 3 LEC

MATH290 Mathematics Special Topics in MATH AS Mathematics Undergraduate 1 TO 4 LEC

MATH317 Mathematics Geometry Elem-Middle Sch Teach AS Mathematics Undergraduate 3 LEC

MATH318 Mathematics Probability-Stats for Teachers AS Mathematics Undergraduate 3 LEC

MATH319 Mathematics Math Modeling-Problem Solving AS Mathematics Undergraduate 3 LEC

MATH320 Mathematics Analytical Geometry-Calculus 3 AS Mathematics Undergraduate 4 LEC

MATH322 Mathematics Linear Algebra AS Mathematics Undergraduate 3 LEC

MATH324 Mathematics Fund Concepts in Mathematics AS Mathematics Undergraduate 3 LEC

MATH325 Mathematics College Geometry AS Mathematics Undergraduate 4 LEC

MATH326 Mathematics Discrete Mathematics Teachers AS Mathematics Undergraduate 3 LEC

MATH328 Mathematics Discrete Structures AS Mathematics Undergraduate 3 LEC

The second of a three-semester sequence in analytical geometry & calculus. Topics include: applications of integration, integration techniques, infinite series, conic sections, parametric equations, & polar coordinates. Pre-Requisites:MATH 220 with a C- or better. Typically Offered Fall, Spring, Summer

A first course in statistics, including a broad range of applications from science. Topics include: Data display, descriptive statistics, probability, estimation, inference, and regression. Pre-Requisites:MATH 130 with a grade of C- or better, or 26 on ACT or 590 on pre 2016 SAT or 620 post 2016 SAT. Typically Offered Fall, Spring.

Special Topics in MATH-200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Concepts of geometry and measurement appropriate for elementary and middle school teachers. This course will focus on using activities to develop geometric concepts as well as the use of Geometer’s Sketchpad. Includes Euclidean, coordinate and transformational geometry, the history of geometry and applications to problem-solving. Prerequisites: MATH 219 and MATH 130 with a grade of C or better. Typically Offered Fall Only, Odd Years.

This course covers basic concepts of statistics and probability appropriate for K-12 school teachers. Topics include methods of organizing, displaying, analyzing, and interpreting data; methods of collecting data and making predictions and inferences based on data; and the theory of probability and probability distributions. Graphing calculators and computers will be used throughout the course to reinforce major course ideas. Prerequisites: MATH 219 or higher with a grade of C or better. Typically Offered Spring

This course introduces students to a wide variety of mathematical problem solving strategies and should also greatly enhance students writing, oral communication, and collaboration skills. Topics include the following strategies: drawing a diagram, making a systematic list, use of matrix logic, looking for a pattern, identifying sub problems, analyzing units, creating an easier related problem or physical representation, working backwards, converting to algebra, changing the focus of how we look at a problem, and visualizing spatial relationships. Group projects will be assigned with the results presented both orally and in writing. Pre-Requisites: MATH 219 or higher with a grade of C or better. Typically Offered Fall Only.

The third of a three-semester sequence in analytic geometry and calculus. Topics include: vector valued functions, functions of several variables, and multiple integrals. Pre-Requisites:MATH 230 with a C- or better. Typically Offered Fall Only

An introduction to the theory of vector spaces with emphasis on matrix algebra. Topics included are linear transformation, independence, rank, and inverses. Pre-Requisites:MATH 230 with a C- or better. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring.

An introduction to mathematical structure and deductive logic through the study of fundamental systems. Topics include logic, arguments, set theory, relations, induction, and algebraic structures. Standard methods of mathematical proof are emphasized. Pre-Requisites:MATH 220 with a C- or better. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall Only.

A primarily axiomatic development of Euclidean geometry with an emphasis on writing of geometric proofs. The course includes measurement and area, the use of geometry software, geometric constructions, coordinate geometry, and transformational geometry. Prerequisites: MATH 324. Typically offered Spring Only.

This course focuses on logic and reasoning, as well as the role of axiomatic systems and proofs. It includes a study of patterns, relations and functions to model and solve problems, how counting is used to enumerate and order, finite graphs and trees and how they are used to model problems, and a study of probability concepts and the use of probability in real-world situations. The course aims to give students a deep experience of the mathematics in a larger context by studying both theoretical foundations and applications of the topics of the course. Prerequisites: MATH 219 or higher with a grade of C or better. Typically Offered Spring.

Discrete Mathematics topics for Applied Mathematics and Computer Science, including: Sets, Algorithms, Recursion, Combinatorics, and Graph Theory. Pre-Requisites:MATH 216 or 220 and CPSC 130. all with a C- or better. Typically Offered Spring Only, Even Year.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>AS</th>
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<th>Units</th>
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<td>Mathematics</td>
<td>Differential Equations</td>
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<tr>
<td>MATH340</td>
<td>Mathematics</td>
<td>Numerical Analysis</td>
<td>AS</td>
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<td>MATH360</td>
<td>Mathematics</td>
<td>Operations Research</td>
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<tr>
<td>MATH385</td>
<td>Mathematics</td>
<td>Actuarial Sci Prof Exam Prep 1</td>
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<td>MATH397</td>
<td>Mathematics</td>
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<td>1 TO 4</td>
<td>LEC</td>
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<td>MATH414</td>
<td>Mathematics</td>
<td>Mathematical Statistics 1</td>
<td>AS</td>
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<td>MATH416</td>
<td>Mathematics</td>
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<td>MATH417</td>
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<td>Prblm Solv Strat - Prob Theory</td>
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<tr>
<td>MATH418</td>
<td>Mathematics</td>
<td>Teaching Elem-Middle Sch Math</td>
<td>AS</td>
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<td>LEC</td>
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<tr>
<td>MATH420</td>
<td>Mathematics</td>
<td>Intro to Abstract Algebra</td>
<td>AS</td>
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<td>MATH430</td>
<td>Mathematics</td>
<td>Advanced Calculus</td>
<td>AS</td>
<td>Mathematics</td>
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<td>LEC</td>
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<tr>
<td>MATH438</td>
<td>Mathematics</td>
<td>Teaching and Learning-HS Math</td>
<td>AS</td>
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<tr>
<td>MATH440</td>
<td>Mathematics</td>
<td>Mathematics Modeling</td>
<td>AS</td>
<td>Mathematics</td>
<td>3</td>
<td>LEC</td>
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</table>

Ordinary linear differential equations and classical solutions to special types of non-linear equations. Also, numerous applications, series solutions, and solutions of systems of linear differential equations. Pre-Requisites: MATH 230 with a C- or better. Typically Offered Fall Only.

Numerical Algorithms for Root Finding, Interpolation, Integration, Linear Algebra, and Differential Equations. Pre-Requisites: MATH 230 and CPSC 130 with a grade of C- or better. Typically Offered Spring Only, Even Years.

This course covers the main topics of operations research, including model formulation, linear programming, integer programming, nonlinear programming, network analysis, deterministic and stochastic dynamic programming, game theory and decision theory. Pre-Requisites: MATH 322 with a C- or better. Typically Offered Fall Only, Even Years.

This course will help prepare students to take the Society of Actuaries' Professional Exam #100. Emphasis will be given to analysis of previous exams, study of sample questions, and general test taking techniques. Grading will be credit/no credit only. Pre-Requisites: MATH 414. Co-Requisites: MATH 320 with a C- or better. Typically Offered Fall, Spring, Summer.

A theoretical course in probability and statistics including distributions and densities, expectation, moment generating functions and functions of random variables. Pre-Requisites: MATH 320 and MATH 251 with a C- or better. Typically Offered Fall Only.

A continuation of MATH 414, including sampling distributions, estimation, hypothesis testing, regression and ANOVA. Pre-Requisites: MATH 414 with a C- or better. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only. Review and practice of problem solving for the Society of Actuaries Exam P. Additional topics include the specific application of probatory to risk management and insurance settings. Prerequisites: MATH 414 with a grade of C- or better. Typically offered Spring.

This course is designed to provide pre-service elementary/middle school teachers a fundamental core of strategies to help them become effective mathematics teachers. It will provide perspectives on trends in mathematics education and the process of doing mathematics and develop the core ideas of learning, teaching, assessment and planning. It will focus on how children learn mathematics, and how to promote that learning through problem-solving, and the use of technology. It will also provide perspectives on teaching special children and on the history of mathematics. Prerequisites: Completion of 18 hours in the math minor for elementary Education. Typically Offered Fall Only, Odd Years. A study of abstract algebra. Topics to be covered include: sets, equivalence relations, groups, rings, fields, integral domains, homomorphisms, isomorphisms, and their elementary properties. Pre-Requisites: MATH 324. Typically Offered Spring Only, Odd Years. A more rigorous approach to limits, continuity, sequences, and multivariable calculus, plus additional topics such as line and surface integrals. Fourier series, and gamma and beta functions. This is the capstone course for the Mathematics BA degree. Pre-Requisites: MATH 320 and MATH 324. Typically Offered Fall, Spring, Summer.

Provide pre-service secondary mathematics teachers with a fundamental core of strategies to help them become effective mathematics teachers. This will include study of and experience with cooperative and active learning strategies; formative and summative assessment techniques; and instructional approaches that involve the use of manipulatives, technology, multiple perspectives. Students will develop the core ideas of learning, teaching, assessment, and planning. Mathematical content will also be integrated with pedagogy; topics include logic and reasoning, geometry and measurement algebra, data analysis and probability, and precalculus. Prerequisite: MATH 2201 or higher and junior or senior status. Typically offered Fall Odd Years.

Introduction to mathematical models. Includes topics dependent upon student interests and backgrounds. A broad mathematics background is required. Pre-Requisites: MATH 322 or MATH 328 with a C- or better. Typically Offered Fall Only, Odd Years.
<table>
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<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
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<th>Credits</th>
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<td>Theory of Interest</td>
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<td>MATH451</td>
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<td>Mathematics Research</td>
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<td>MATH491</td>
<td>Mathematics</td>
<td>Mathematics Internship</td>
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<td>Math</td>
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<td>MATH597</td>
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<td>MATL240</td>
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<td>MEBM101</td>
<td>Music</td>
<td>Music and Entertainment Bus</td>
<td>BU</td>
<td>Bus</td>
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The fundamental concepts of financial mathematics, and how these concepts are applied in calculating present and accumulated values for various streams of cash flows as a basis for future use in: reserving, valuation, pricing, asset/liability management, investment income, capital budgeting, and valuing contingent cash flows. Emphasis on preparing students for the Society of Actuaries Exam FM.

Prerequisites: MATH 230, with a grade of C- or better. Typically Offered Fall semester, Odd-numbered years.

Review and practice of problem solving for the Society of Actuaries Exam FM. Additional topics include financial derivatives and the concept of no-arbitrage as it relates to financial mathematics.

Prerequisites: MATH 450 with a grade of C- or better. Typically Offered Spring, even years.

The student will participate in a basic or applied research project in their major or a closely related discipline. The course will be designed to provide the student with hands-on experience in research design, informational gathering and management, analysis and interpretation. One credit hour equals 45 contact hours per semester. May be repeated for up to 12 credits. Pre-Requisites: Mathematical students only and instructor approval. Typically Offered On Demand

Special Topics in MATH - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student's academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 8 weeks with a total hours worked approved by the program coordinator. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Special Topics in MATH - Graduate Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Selected study of topics in the teaching and learning of mathematics. Typically offered on demand.

Introduction to the study of the science of engineering materials: metals, polymers, and ceramics. Included in topics of study are atomic structure and bonding, properties selection, and testing of materials, failure modes, methods of production and fabrication, methods of changing properties including heat treatment of metals, alloying and surface treatments, mechanical working, composites and compound bonding. The common classification systems used to identify the various engineering materials are also covered. Typically Offered On Demand

A lecture course covering formability characteristics of ferrous, non-ferrous, and non-metallic materials used in stamping, as well as evaluative techniques. Pre-Requisites: MFGT 151 and MATL 240. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

A lecture-demonstration course on analysis and comparison of metals in engineering service applications. Coursework will involve evaluation of existing metal in design components and analysis of metallic alternatives. A comparison of alloying and heat treatment to determine the optimum materials will be included. The effects of manufacturing and service environment on the metal selection process will be analyzed. Students will submit case studies of existing metal applications. Pre-Requisites: MATL 240. Typically Offered On Demand

An overview of the expectations for completing the MEBM program, including the history of the music business, career pathways, and a survey of career opportunities in the music and entertainment industry. Pre-Requisites: MEBM majors only. Typically Offered Fall Only
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Department</th>
<th>Credits</th>
<th>Unit</th>
<th>Prerequisites</th>
</tr>
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<tbody>
<tr>
<td>MEBM192</td>
<td>Music and Entertainment Bus</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>MEBM292</td>
<td>Music and Entertainment Bus</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>2</td>
<td>LEC</td>
</tr>
<tr>
<td>MEBM351</td>
<td>Music and Entertainment Bus</td>
<td>BU Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>MECH111</td>
<td>Mechanical Engineering Tech</td>
<td>TE Mechanical Design</td>
<td>Undergraduate</td>
<td>1</td>
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<tr>
<td>MECH122</td>
<td>Mechanical Engineering Tech</td>
<td>TE Mechanical Design</td>
<td>Undergraduate</td>
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<tr>
<td>MECH211</td>
<td>Mechanical Engineering Tech</td>
<td>TE Mechanical Design</td>
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<tr>
<td>MECH212</td>
<td>Kinematics of Mechanisms</td>
<td>TE Mechanical Design</td>
<td>Undergraduate</td>
<td>2</td>
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<tr>
<td>MECH222</td>
<td>Machine Design</td>
<td>TE Mechanical Design</td>
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<tr>
<td>MECH223</td>
<td>Thermodynamics</td>
<td>TE Mechanical Design</td>
<td>Undergraduate</td>
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<tr>
<td>MECH250</td>
<td>Fluid Power With Controls</td>
<td>TE Mechanical Design</td>
<td>Undergraduate</td>
<td>2</td>
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<tr>
<td>MECH297</td>
<td>Special Studies in MECH</td>
<td>TE Mechanical Design</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
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<tr>
<td>MECH311</td>
<td>Finite Elem Analysis/Modeling</td>
<td>TE Mechanical Design</td>
<td>Undergraduate</td>
<td>2</td>
<td>LEC</td>
</tr>
</tbody>
</table>

A full time (160-hour minimum) supervised internship experience at an approved music or entertainment related business (retail stores or commercial industry). Evaluation made by weekly reports from student, and evaluation from designated internship host. Pre-Requisites: MEBM 101 (w/ a C- or higher), MEBM majors only. Typically Offered Fall, Spring, Summer

A full time (160-hour minimum) supervised internship experience at an approved music or entertainment related business (retail store or commercial industry). Evaluation made by weekly reports from student, and evaluation from designated internship host. Pre-Requisites: MEBM 101 (w/ a C- or higher), MEBM majors only. Typically Offered Fall, Spring, Summer

Introduction to a variety of computer applications used in technology. Students will demonstrate basic proficiency in word processing, spreadsheet creation and graphing, and use of presentation software. Students will also be introduced to basic text-based programming to solve engineering and technology problems. Typically offered: Fall and Spring

Concerned with the study of mechanisms and devices. Position, velocity, and acceleration are determined graphically and analytically. Four-bar linkages, slider cranks, intermittent motion devices, cams, and other mechanisms are covered. Pre-Requisites: PHYS 211 or PHYS 241 and MATH 216 or MATH 220. 2-D CAD experience expected. Typically Offered Spring Only

Concerned with the study of mechanisms and devices. Position, velocity, and acceleration are determined graphically and analytically. Four-bar linkages, slider cranks, intermittent motion devices, cams, and other mechanisms are covered. Pre-Requisites: PHYS 211 or PHYS 241 and MATH 216 or MATH 220. 2-D CAD experience expected. Typically Offered Spring Only

Thermodynamics is that branch of physics that deals with the science of energy. This includes the study of the laws of thermodynamics, non-flow and steady-flow systems and conservation of mass. It also includes gas vapor processes, steam tables, psychrometric charts and air tables. It looks at power cycles, refrigeration cycles, and combustion. The course concludes with a study of basic heat transfer, energy efficiency, heat recovery and conformation. Pre-Requisites: MATH 216 or MATH 220 and PHYS 211 or PHYS 241. Typically Offered Spring Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

An introduction to computer based solid modeling and finite element analysis. To include introduction to element types, boundary conditions, stiffness, heat transfer, significance of results. Prerequisites: ETEC 140 and MECH 340 with a grade of C- or better. Typically Offered Fall only.
A foundation course in computer programming and application for MET students. Fundamental concepts including variables, arrays, loops, and Boolean logic. Introduction to programming with a text language, a C++ code language, and mathematics software. Problem solving applications including statistics and numerical methods. Prerequisites: MECH 340 with a grade of C- or better and MECH 122 with a grade of C- or better or ISYS 105 and MATH 216 or MATH 220. Typically Offered Spring only. This course introduces the student to the fundamentals of heat transfer that are commonly found in many processes and products. The physical concepts of conduction, convection, and radiation heat transfer are covered with emphasis on problem solving and practical application. Computer solutions are included. Pre-Requisites: MATH 216 OR MATH 220 AND PHYS 211 OR PHYS 241. Typically Offered Fall Only

An introduction to methods of instrumentation, collection, and analysis of data. The emphasis will be on methods of measurements of stress, temperature, pressure, force and torque. Signal conditioning, data acquisition, data reduction, calibration, and report writing are included. Prerequisites: MECH 340 with a grade of C- or better and EEET 201. Typically Offered Spring only.

Statics and strength of materials is a part of physics known as mechanics: forces, components, resultants, equilibrium, friction, centroids, and stress/strain relationships. Dynamics will be introduced. Covers strength of materials; the concepts of stress and strain, axial stress and deformation, thermal stress and deformation, stress concentrations, factor of safety, torsional stress and deformation, beam stresses, combined stress, riveted joints, welded joints, and Mohr’s circle. Pre-Requisites: MATH 120 or MATH 126 or MATH 216 or MATH 220 or ACT 26 in MATH and PHYS 211 OR PHYS 241. Typically Offered Fall, Spring, Summer

This laboratory course supports MECH 340 Statics and Strength of Materials. The student will perform hands-on experiments and demonstrations that explore the concepts covered in MECH 340 lectures. Measurement of physical phenomena, resolution of practical design problems, and exploration of computer resources will be included. Pre-Requisites: MECH 340. Typically Offered Fall Only

Kinematics and kinetics of particles in two and three dimensions. Planar kinematics and kinetics of rigid bodies. Applications of the principles of work and energy, impulse and momentum. Pre-Requisites: MECH 340 with a grade of C- or better and MATH 216 or MATH 220. Typically Offered Spring Only

Special Topics in MECH - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This course places the student in an industrial setting to face the realities of the working world, after completing their junior year. The unique experience that the student will receive is a combined effort to the training site, university, and student. Students will be involved in the industrial projects and daily activities of their employer. Pre-Requisites: Completion of third year in Mechanical Engineering Technology or Energy Systems Engineering; Instructor Permission. Typically Offered Summer Only

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Measurement of torque, power, temperature, pressure, heat flow, vibrations, and strain are included in this lab-oriented course. Computerized data acquisition will be used. Results will be compared with those from finite element and other forms of analysis. Pre-Requisites: MECH 332 with a grade of C- or better and instructor permission required. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall Only

This course introduces the student to the fundamental concepts of noise and vibration that are encountered daily in our environment and many manufacturing processes. The physical concepts of the generation, transmission, and reception of sound waves are covered, as well as the nature of mechanical vibrations. The practical applications of noise and vibration are emphasized with problem solving and computer solutions. Non-majors with MATH 216 or MATH 220 should contact instructor for permission to enroll. Pre-Requisites: MATH 216 or MATH 220 and MECH 360 with a grade of C- or better. Typically Offered Fall Only
<table>
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<td>MFG3325</td>
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<td>Die Design</td>
<td>4</td>
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As a capstone, the course includes a demonstration of the ability to solve complex technical problems, ability to communicate both orally and in writing, and understanding of ethical and globalization issues. Projects will utilize prior MET coursework in a project that involves design, analysis, and testing. Pre requisites: MECH 421 with a grade of C- or better and instructor permission. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring only.

This course introduces the student to techniques used in industry for work methods design, work measurement, methods analysis, and the fundamentals that apply to the development of manufacturing costs. Laboratory exercises will provide the student with opportunities to conduct time studies on typical manufacturing operations, evaluate work environments in regard to methods improvement and ergonomic requirements, and to use basic cost estimating techniques to arrive at manufacturing cost for a variety of piece parts and assemblies. Pre requisites: MATH 116 or MATH 120. Typically Offered Fall, Summer.

Provides basic processing, programming, and machining skills related to conversational and computer assisted programming. Exposure to 2-D and 3-D CAD/CAM, and knowledge of common numerical control technology. Program output used to machine parts on CNC lathe and mill. Includes introduction to coordinate measuring machine and CNC programming machine. Typically Offered On Demand.

The purpose of this course is to introduce the manufacturing student to computer hardware and software which they are required to use in the Manufacturing Engineering Technology curriculum. Software includes Microsoft Excel (Windows version), Wordperfect, QuickBASIC, Aldus Pagemaker, and IBM/CAD. Pre requisites: Junior status. Typically Offered Fall, Spring.

Exposes the student to the fundamentals of dimensional metrology, production gages and gaging techniques. Interpretation of geometric tolerances will also be covered with respect to their implications for inspection. Pre requisites: MATH 116 or MATH 120 or MATH ACT 24 or SAT 500 pre 2016 or SAT 550 post 2016. Typically Offered Fall, Spring.

A survey course covering production machining, metal casting, powder metallurgy, bulk deformation, pressworking, and non-traditional machining. Typically Offered Spring Only. Studies statistically based industrial quality control methods. Statistical Process Control (SPC) is covered in an in-depth manner along with the contemporary tools of quality. An overview of Design of Experiments (DOE) is discussed as a natural interdependent part of any Total Quality Improvement effort. Typically Offered Spring Only.

Includes lecture on tool engineering fundamentals as well as application of these fundamentals in the lab. Principles of cutting tools, machine ability, tool life, power requirements, as well as high performance tool materials will be studied. Also included is special tooling applications and fixtureing. This course meets General Education requirements: Writing Intensive, Collaboration and Problem Solving. Pre requisites: MFG311 and MFG312. Co prerequisites: MFG321 and MFG326. Typically Offered Fall, Summer.

Described to develop knowledge and ability to design various types of stamping dies. Product designs are evaluated to determine type of die design, press selection, press accessories and feeding mechanisms as they relate to stamping die design. All facets of safety standards and safety equipment as demanded by state and federal standards are evaluated. Possible dies evaluated include: blanking, forming, drawing, progressive, cam operated, trimming and piercing dies. All varieties of standard and special components will be incorporated into assignments. Computer aided design, as pertaining to die design, will be investigated. Pre requisites: Manufacturing Engineering Technology or Instructor approval. Typically Offered On Demand.
<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Type</th>
<th>Degree</th>
<th>Credits</th>
<th>Pre-Requisites</th>
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<td>MFGE326</td>
<td>Proc Tolerance Design-Analysis</td>
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<td>MFGE341</td>
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<td>TE</td>
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<td>MFGE342</td>
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<td>MFGE352</td>
<td>Design For Manufacturing Engineering</td>
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<td>Statistical Quality Control</td>
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<td>MFGE354</td>
<td>Lean Manufacturing</td>
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<td>MFGE355</td>
<td>Manufacturing Sys Simulation</td>
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<td>MFGE393</td>
<td>Internship-MFG Engineer</td>
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<tr>
<td>MFGE411</td>
<td>Manufacturing Engin Tech Prin of Process Planning 2</td>
<td>2</td>
<td>LEC</td>
<td>MFGE412, MFGE324, MFGE342</td>
<td>Process Planning is central to the Manufacturing Engineers role in industry. All manufactured products require an effective process plan that defines all manufacturing systems and processing parameters necessary for production of that product. This course covers principles of process planning common to all products meeting product drawing specifications. The student will be required to prepare process plans both working individually on single piece parts, and as part of a process design team on complex assemblies. Prerequisites: MFGE 322, MFGE 324 and MFGE 342. Typically Offered Fall, Spring.</td>
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<tr>
<td>MFGE412</td>
<td>Manufacturing Engin Tech Sheetmetal Process Planning</td>
<td>4</td>
<td>LEC</td>
<td>MFGE411, MFGE322, MFGE342</td>
<td>Process planning is at the heart of a manufacturing engineer’s role in industry. Manufactured products require an effective process plan which defines manufacturing systems and processing parameters necessary for economical production. Principles of process planning common among products required to meet product drawing specifications are covered. Students must prepare process plans, working individually on single piece parts and as part of a process design team on complex assemblies. Assemblies may be comprised of any type of part made from any type of material. Pre-Requisites: Senior Status. Typically Offered On Demand.</td>
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<tr>
<td>MFGE421</td>
<td>Manufacturing Engin Tech Automation-Systems Design</td>
<td>4</td>
<td>LEC</td>
<td>MFGE411, MFGE324, MFGE342</td>
<td>Designed to familiarize the student with the design and application principles of automation commonly practiced in manufacturing industry. Soft- versus hard-automation, turn key systems versus user constructed systems, and special- versus modular-componentry will be studied, as well as part orientation and transfer, and techniques for automating manual operations. A special assembly machine will be designed as a term project. This course meets General Education requirements: Writing Intensive and new Fall 2017 Comm Across the Curriculum. Pre-Requisites: MFGE 411. Co-Requisites: MFGE 422. Typically Offered Fall, Spring.</td>
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<tr>
<td>MFGE422</td>
<td>Manufacturing Engin Tech MFG Facilities Planning</td>
<td>3</td>
<td>LEC</td>
<td>MFGE411, MFGE324, MFGE342</td>
<td>Senior capstone experience, encompassing the layout and integration of a manufacturing system within a manufacturing facility. Students will implement basic principles and techniques of plant layout, determine material handling equipment requirements and production equipment arrangement for optimum product flow. Quantitative techniques for departmental arrangement and evaluative techniques for layout comparison will be utilized in conjunction with computer simulation of competing solutions. Lab experiences culminate in a term project involving the layout of a manufacturing facility. Pre-Requisites: MFGE 411. Co-Requisites: MFGE 421. Typically Offered Spring Only.</td>
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<tr>
<td>MFGE423</td>
<td>Manufacturing Engin Tech Engineering Economics</td>
<td>2</td>
<td>LEC</td>
<td>MFGE411, MFGE324, MFGE342</td>
<td>Designed to advance the student’s knowledge in the subject of engineering economic analysis.Money and time relationships in respect to capital purchases and equipment justification are discussed in detail. Pre-Requisites: MATH 116 or MATH 120 or MATH ACT of 24 or pre 2016 SAT of 500 or post 2016 SAT of 550. Typically Offered Fall, Summer.</td>
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<tr>
<td>MFGE424</td>
<td>Manufacturing Engin Tech Stamping-Assembly Automation</td>
<td>3</td>
<td>LEC</td>
<td>MFGE411, MFGE324, MFGE342</td>
<td>Concentrates on part orientation and part/material transfer techniques (dedicated, modular, and flexible systems are covered). Automatable operations are addressed. Pre-Requisites: MFGE 412 or Instructor approval. Typically Offered On Demand.</td>
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<tr>
<td>MFGE425</td>
<td>Manufacturing Engin Tech Emerging Technologies</td>
<td>1</td>
<td>LEC</td>
<td>MFGE411, MFGE324, MFGE342</td>
<td>A survey course concentrating on emerging technology in the stamping industry. Guest speakers give presentations on latest processes and techniques. Students are required to research applications of new processes and techniques with respect to their particular applications. Pre-Requisites: MFGE 424. Typically Offered Fall Only.</td>
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<td>MFGE442</td>
<td>Manufacturing Engin Tech Design of Experiments 1</td>
<td>3</td>
<td>LEC</td>
<td>MFGE411, MFGE324, MFGE342</td>
<td>A detailed study of the design of experiments and the application of advanced quantitative data analysis techniques, as well as common experimental design methodologies used in the manufacturing industries to collect data for the purpose of improving or better understanding a design or process. Pre-Requisites: MFGE 341. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall Only.</td>
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<td>MFGE444</td>
<td>Manufacturing Engin Tech Quality Auditing</td>
<td>3</td>
<td>LEC</td>
<td>MFGE411, MFGE324, MFGE342</td>
<td>A detailed study of the technology concerned with quality auditing with emphasis on the international ISO 9000 standards. Topics include: types of quality audits, planning for the audit, conducting the audit, follow-up activities to improve operations, and reporting results. Typically Offered Fall Only.</td>
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<td>MFGT130</td>
<td>Manufacturing Tooling Tech</td>
<td>Theory of Prod Fix Assemblies</td>
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<tr>
<td>MFGT131</td>
<td>Manufacturing Tooling Tech</td>
<td>Prod Fixture Assemblies</td>
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An advanced study of the technology concerned with the design of experiments. Topics include: comparing two treatments, comparing more than two treatments, measuring the effects of variables, and building and using models.  Pre-Requisites: MFGE 442. Typically Offered Spring Only

Students learn to manage the complete process for quality planning regarding a particular product. Steps include Design and Process FMEA, pre-production parts layout, preliminary capability analysis, and other steps required to prepare a part submission packet similar to those used in industry. Students should be prepared to spend significant amounts of time on a major project. Prerequisites: MFGE 341 or STQM 260 or equivalent. Typically Offered Spring only, Odd Years

An introductory-level course to familiarize the student with the basic principles, techniques, and types of automation, material handling systems, and equipment layouts found in manufacturing facilities. Subjects include: automatic parts loading and unloading devices, parts feeding systems, automatic assembly machines, modular automation components, material handling equipment, departmental arrangement paradigms for optimum material flow, and evaluative techniques. The student is required to submit two term projects: a design for a special purpose assembly machine, and then a layout of manufacturing facility to maximize output of that machine. Prerequisites: Technology students only. Typically Offered On Demand

This course is designed to introduce the student to the concepts of environmentally-conscious, sustainable, and energy-efficient manufacturing practices as currently applied in industry, and develop in them skill in applying those principles. Topics include the ISO 14000 series of standards, recycling, eco labeling, life cycle assessment, and sustainable manufacturing. Decision-making aspects are also covered. Guest speakers and plant tours (if available) will help illustrate applications of concepts. Prerequisites: By instructor permit. Typically Offered Summer only. Special Topics In MFGE-400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

In this course focus is placed on developing an in-depth understanding of the science and methodology used in producing machined components. This course covers process planning, speeds and feeds, an in-depth study of the core machining processes (i.e.: sawing, drilling, milling, turning, and grinding), indexable cutting tools, and metalworking fluids. Typically Offered Fall only.

In this course focus is placed on developing skill in producing machined components. This course covers general shop safety, equipment startup and operation, machine setups, workholding setups, cutting tool setups, workpiece locating, and application of the core machining processes (i.e.: sawing, drilling, milling, turning, and grinding). Co-Requisites: MFGT 110 and MFGT 160. Typically Offered Fall only.

In this course focus is placed on developing skill in producing machined components. This course covers general shop safety, equipment startup and operation, machine setups, workholding setups, cutting tool setups, workpiece locating, and in-depth application of the core machining processes (i.e.: sawing, drilling, milling, turning, and grinding). Co-requisites: MFGT 110, MFGT 113 and MFGT 160. Typically Offered Fall only.

In this course focus is placed on developing an in-depth understanding of the science and methodology used in processing fixture assemblies. This course covers advanced measurement and inspection, advanced machining operations, and in-depth study of jigs and fixtures (i.e.: applications, design, construction, and assembly), specialized workholding systems, and cost estimating. Prerequisites: MATH 115. Typically Offered Spring only.

In this course focus is placed on developing skill in processing fixture assemblies. This course covers the application of advanced precision measuring equipment, application of advanced machining operations, in-depth application of jig and fixture concepts (i.e.: design, construction, assembly, and try out/troubleshooting), and application of specialized workholding systems. Prerequisites: MFGT 110, MFGT 113, MFGT 114, MFGT 160, PDET 122 and MATH 115. Co-requisite: MFGT 130. Typically Offered Spring only.
MFGT140 Manufacturing Tooling Tech Basic CNC Programming TE Manufacturing Eng Tech Undergraduate 2 LEC

In this course focus is placed on developing an in-depth understanding of the science and methodology used in programming CNC machining equipment. This course covers an overview of CNC technology, EIA coding systems, coordinate data input, NC program formatting and layout, G-code programming, conversational programming, and an introduction to CAM programming. Prerequisites: PDET 122 and MFGT 150 and MATH 115. Co-requisite: MFGT 141 Typically Offered Spring only.

MFGT141 Manufacturing Tooling Tech CNC Machine Operation TE Manufacturing Eng Tech Undergraduate 1 LEC

In this course focus is placed on developing an in-depth understanding of the science and methodology used in programming CNC machining equipment. This course covers the construction, maintenance, startup, and operation of CNC milling and turning equipment as well as tool presetting and probing. Prerequisites: MFGT 150 and PDET 122 and MATH 115. Co-requisite: MFGT 140 Typically Offered Spring only.

MFGT150 Manufacturing Tooling Tech Manufacturing Processes TE Manufacturing Eng Tech Undergraduate 2 LEC

A basic machine process course. The fundamental operations on machine tool equipment including engine lathe, band saw, and horizontal and vertical milling machine. Measuring and inspection tools, drill press, and surface plate. Typically Offered On Demand

MFGT153 Manufacturing Tooling Tech Die Construction and Repair TE Manufacturing Eng Tech Undergraduate 3 LEC

Covering die component fabrication, assembly, maintenance, and refurbishing. Typically Offered On Demand

MFGT160 Manufacturing Tooling Tech Basic Metrology TE Manufacturing Eng Tech Undergraduate 1 LEC

In this course focus is placed on developing an in-depth understanding of the science and methodology used in precision measuring applications. This course covers the calibration, application, and maintenance of common precision measuring equipment. Typically Offered Fall only.

MFGT210 Manufacturing Tooling Tech Theory of Prod Metaform Tooling TE Manufacturing Eng Tech Undergraduate 2 LEC

In this course focus is placed on developing an in-depth understanding of the science and methodology used in metal forming and stamping operations. This course covers: die design interpretation, die components, stamping methods, material bending calculations, tool steel selection, heat treating operations, mathematical formulations for die building, and an in-depth study of metal stamping and forming operations. Prerequisites: MATH 115. Typically Offered Fall only.

MFGT213 Manufacturing Tooling Tech Prod Metaform Tooling TE Manufacturing Eng Tech Undergraduate 2 LEC

In this course focus is placed on developing skill in processing metal form tooling. This course covers the application of die design, program management, computer numerical control machining, die component manufacturing, measurement and inspection, application of advanced machining operations, in-depth application of metal forming and stamping (i.e.: design, construction, die assembly, and die tryout/troubleshooting). Prerequisites: MFGT 130, MFGT 131, MFGT 140 and MFGT 141. Co-requisite: MFGT 210. Typically Offered Fall only.

MFGT220 Manufacturing Tooling Tech Advanced CNC Programming TE Manufacturing Eng Tech Undergraduate 2 LEC

In this course focus is placed on developing an in-depth understanding of the science and methodology used in programming CNC machining equipment via advanced programming technologies. This course covers developing tool paths from both surface geometry and solids, automating tool path development routines, programming wire EDM burns, high-speed machining, hard milling, and 4th and 5th axis machining. Prerequisites: MFGT 140 and MFGT 141. Typically Offered Fall only.

MFGT222 Manufacturing Tooling Tech CNC System Utilization TE Manufacturing Eng Tech Undergraduate 1 LEC

In this course focus is placed on developing skill in applying advanced programming technologies and utilizing CNC machining systems. This course covers modular work holding systems, the construction, maintenance, startup, and operation of wire EDM equipment, as well as high-speed machining applications, hard milling applications, and 4th and 5th axis machining applications. Prerequisites: MFGT 140 and MFGT 141. Co-requisites: MFGT 220. Typically Offered Fall only.

MFGT231 Manufacturing Tooling Tech Prod Plastic Mold Tooling TE Manufacturing Eng Tech Undergraduate 2 LEC

In this course focus is placed on developing skill in processing plastic mold tooling. This course covers the application of plastic part design, plastic mold design, and the in-depth application of mold making processes (i.e.: utilizing modular work holding systems, toolpathing 3-D mold cavities, utilizing high-speed machining techniques, utilizing plunge EDM, and mold try out and trouble shooting. Prerequisites: MFGT 130, MFGT 131, MFGT 140 and MFGT 141. Co-requisites PLTS 325. Typically Offered Fall only.

MFGT251 Manufacturing Tooling Tech Die Tryout TE Manufacturing Eng Tech Undergraduate 4 LEC

Shows how to determine if process or material variables are to blame for stamping problem at die tryout. Various methods taught to allow correlation between suspected variables and the forming performance. Various techniques of finalizing die and blank shape during die tryout are explained in detail. A checklist of die buy-off and release procedures are taught to ensure that no aspects of die tryout have been overlooked. Typically Offered On Demand
MFGT252 Manufacturing Tooling Tech Advanced Machine Tools TE Manufacturing Eng Tech Undergraduate 2 LEC

MFGT253 Manufacturing Tooling Tech Die Estimating-Project Mgmt TE Manufacturing Eng Tech Undergraduate 3 LEC

MFGT290 Manufacturing Tooling Tech Special Topics in MFGT TE Manufacturing Eng Tech Undergraduate 1 TO 4 LEC

MFGT297 Manufacturing Tooling Tech Special Studies in MFGT TE Manufacturing Eng Tech Undergraduate 1 TO 4 LEC

MGMT301 Management Applied Management BU Management Undergraduate 3 LEC

MGMT302 Management Team Dynamics - Org Behavior BU Management Undergraduate 3 LEC

MGMT305 Management Managerial Leadership BU Management Undergraduate 3 LEC

MGMT310 Management Small Business Management BU Management Undergraduate 3 LEC

MGMT315 Management Entrepreneurial Strategy-Plan BU Management Undergraduate 3 LEC

MGMT320 Management Growing the Small Business BU Management Undergraduate 3 LEC

Exercises in part processing, job routing, mill duplicating, pantograph, external grinder, electrical discharge, and numerical control machining, introduction to jig, fixtures, sheetmetal dies, and plastic mold tooling with respect to construction and operation. Additional instruction will be given on the punch press, mold wax tryout, numerical control machines, and internal as well as tool post and centerless grinding. Pre-Requisites: MFGT 150. Typically Offered On Demand

Covering the steps required in estimating total costs to construct and tryout stamping dies. Pre-Requisites: MFGT 153. Typically Offered On Demand

Special Topics In MFGT-200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

A description and analysis of business activities designed to manage an organization to efficiently serve employees, customers, and the community. Topics studied include planning, organizing, leading, and controlling; the business environment, business institutions, government regulations, organizational structure, human resources, human behavior, and current practices. Designed to meet the needs of graduates and employers in the global economy. Typically Offered Fall, Spring, Summer

Explores the fundamental processes and skills essential for the success of individual and group/team behavior in contemporary organizational settings. MGMT 302 emphasizes the importance of team formation and decision making, effective conflict management, and the impact of diverse individual personality and cultural backgrounds on team and organizational success. Pre-Requisites: Sophomore Standing. Typically Offered Fall, Spring, Summer

This course will focus on applying leadership behaviors to management practices. Using theoretical and practical methodology students will critically analyze, identify, and creatively apply leadership & management techniques. A practical, experiential learning approach is emphasized and crucial to the success of the course. Students will gain first-hand experience in resolving workplace conflict, ethical dilemmas, cultural bias, and other professional tensions through participating and completing community service projects, team role playing, case analysis, and discussion related assignments. Self-assessment and constructive peer/superior feedback will allow students to identify their existing strengths and weaknesses. Students will be well-prepared to contribute to any professional organization using the numerous skills, knowledge, and abilities they obtained from taking the course. Pre-Requisites: Second Semester Sophomore Status. Typically Offered Fall, Spring, Summer

Fundamentals of starting and operating a successful small business. Traces the development of a business from the entrepreneurial concept to the profitable operating stage. Provides opportunities to discuss and solve small business problems in such areas as marketing, personnel, finance, and operations. Pre-Requisites: Second Semester Sophomore Status. Typically Offered Fall, Spring, Summer

Introduce the student to the hyper-growth, highly-specialized entrepreneurship industry. Prepare students to recognize business opportunities, screen venture prospects, model and assess commercial potential, cultivate innovations, build distinctive competencies, and develop investment-grade entrepreneurial strategy and business models. Prepare students to purposefully manage in a highly-creative, rapid-paced venture environment. Typically Offered Fall only.

The student will focus on those activities that identify, database, and promote a small business, with the objective of a planned growth in volume of revenue and profitability. Small businesses have the potential for substantial growth, but this needs to be done in the context of company strengths and resources. Also, a structured, repeatable and transferable approach is needed to professionally create as much value as possible. Typically Offered Spring only.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
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<tr>
<td>MGMT338</td>
<td>Management Employee Benefits</td>
<td>BU Management</td>
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<tr>
<td>MGMT350</td>
<td>Mgmt Metrics &amp; Decision Making</td>
<td>BU Management</td>
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<tr>
<td>MGMT355</td>
<td>Managerial Economics</td>
<td>BU Management</td>
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<tr>
<td>MGMT370</td>
<td>Quality-Operations Mgmt</td>
<td>BU Management</td>
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<td>LEC</td>
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<tr>
<td>MGMT371</td>
<td>Production-Operations MGMT</td>
<td>BU Management</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>MGMT373</td>
<td>Human Resource Management</td>
<td>BU Management</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>MGMT375</td>
<td>Negotiations</td>
<td>BU Management</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT377</td>
<td>Managing a Global Workforce</td>
<td>BU Management</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT380</td>
<td>Business Forecasting</td>
<td>BU Management</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
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Course focuses on the formulation, features, funding methods, and administration of employer-sponsored benefits including: health, life, and disability insurance, retirement plans, unemployment compensation, workers' compensation, Social Security, paid time off, and flexible work schedules.

Prerequisites: MGMT 373 or permission of instructor. Typically Offered Fall and Spring

Covers the basic subjects needed by a manager to understand financial statements, the budgeting process, cash flow management, working capital, forecasting, monitoring and controlling capital and expense budgets, pricing strategy, cost analysis, pro forma development, avenues of corporate finance, risk analysis/management, project and corporate level valuations and international finance. Meets General Education requirements for Collaboration and Problem Solving.

Typically Offered Fall, Spring, Summer

Studies the applications of microeconomics, finance, and accounting to business decision making; especially decision making about organization, pricing, levels of output, and resource allocation. Uses problems and cases to illustrate microeconomic principles relevant to specific current business situations as market structure, re-engineering, integration and outsourcing, leadership, etc. Pre-Requisites: ECON 222 and MGMT 301. Typically Offered Fall, Spring, Summer

The philosophy of continuous quality improvement, basic process improvement tools, basic management and planning tools, teaming, and models for improvement. Maximizing customer service and satisfaction, optimizing inventory investment, and maximizing operations efficiency. Principles of operations management; dependent and independent demand, forecasting; work measurement; work standards. Practical application of these techniques (in team settings) on a variety of business-related problems will enhance the ability to carry out the operations aspect of a business. Pre-Requisites: STQM 260 and Sophomore Standing or Instructor Permit. Typically Offered Fall, Spring, Summer

Examines the concepts, principles and techniques of production and operations management, and focuses on capacity, location, process, product, materials purchasing and scheduling of resources with an integrated systems approach that includes CIM (Computer Integrated Manufacturing), JIT (Just in Time) and MRPII (Manufacturing Resource Planning). Pre-Requisites: Junior status. Typically Offered Fall, Spring, Summer

Course focuses on the objectives, functions, and organization of Human Resource systems including: equal employment opportunity, job analysis, selection, training, compensation and benefits, performance management, employee rights and discipline, workplace safety and health, and labor relations. Pre-Requisites: Sophomore Standing. Typically Offered Fall, Spring, Summer

This course focuses on the behavioral aspect of human resources, specifically negotiations. The course covers the broad spectrum of negotiations from common negotiations that occur in everyday life (e.g. buying/selling a car, negotiation a job offer, etc.) to specific labor-management negotiations. In addition to studying the subject from a theoretical and empirical standpoint, students will participate in a variety of in-class role-plays and simulations, and complete a personal negotiation project outside of class. Pre-Requisites: Junior standing. Typically Offered Spring Only

The management of people may be the most critical component of a firm’s ability to implement its strategy effectively and compete in an increasingly complex and dynamic global economy. Beginning with understanding the dimensions and consequences of globalization, this course will offer students the opportunity to enhance their understanding of global organizations, and through project and assignment based assessment, allow them to develop critical skills in applying concepts from HRM in a global business context. Meets General Education requirements: Global Consciousness and new Fall 2017 Global Diversity. Pre-Requisites: MGMT 373 or Instructor approval. Typically Offered Spring Only

Long-term trends of the business environment and the factors that influence those trends; methods and results of business forecasting techniques. Pre-Requisites: ECON 222 and STQM 260 or Instructor approval. Typically Offered Fall, Spring
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Hours</th>
<th>Type</th>
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<tbody>
<tr>
<td>MGMT385</td>
<td>Management Recruitment and Selection</td>
<td>BU</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT390</td>
<td>Management and Special Topics in MGMT</td>
<td>BU</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
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<tr>
<td>MGMT397</td>
<td>Management and Special Studies in MGMT</td>
<td>BU</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT402</td>
<td>Management and Six Sigma Process Management</td>
<td>BU</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT411</td>
<td>Management and Small Business Sys-Operations</td>
<td>BU</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT412</td>
<td>Management and Lean Culture &amp; Skills Dvlpmnt</td>
<td>BU</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT415</td>
<td>Management and Entrepreneurial Opportunities</td>
<td>BU</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT420</td>
<td>Management and Small Business Consulting</td>
<td>BU</td>
<td>Undergraduate</td>
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<tr>
<td>MGMT422</td>
<td>Management and Cost Mgmt. for Lean Systems</td>
<td>BU</td>
<td>Undergraduate</td>
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<td>LEC</td>
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This course introduces students to the Human Resource functions of Recruitment and Selection in organizations. This course focuses on the effective management of the flow of talent into and through organizations. It gives particular attention to the impact of business strategy on recruiting, selection, and organizational staffing practices. Another key issue is the efficacy of recruitment and selection practices. We will discuss internal and external labor markets, recruiting, selection, and person-job and person-organization match on staffing practices in this context. Staffing is now being integrated across global units in firms, and we will focus on international staffing when we discuss trends in staffing.

Prerequisites: MGMT 373 or Instruction permit. Typically Offered Spring only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

This course includes a multi-faceted approach to improve organizational processes that meets or exceeds customer needs/expectations. Students will learn how to apply the Six Sigma, DMAIC (Define, Measure, Analyze, Improve and Control) methodology. Specifically, statistical analysis tools/metrics will be used as techniques to reduce process variability, increase process control and sustainability to increase the organization’s process quality. The course is designed to assist students with preparation for the Six Sigma Green Belt Certification. Prerequisites: MGMT 492 or MFGE 354. Typically offered Fall, Spring, Summer.

This course will be an opportunity to experience in depth, selected areas that are the key to a small business' performance. These include Marketing, Selling, Accounting and Finance, People and Administration, Suppliers and Distribution, Legal and other selected objects. Typically Offered Fall only.

The course will concentrate on the leadership, management and employee behaviors as well as capabilities required to implement a lean culture and sustain optimal organizational performance. Areas of concentration include evaluating an organization’s current leadership and management techniques, applying the Training Within Industry method (identifying employee’s development needs, creating appropriate organization training plans, and developing an internal coaching/mentor program) and how the continuous learning/improvement culture enhances organizational growth, innovation, profitability and process excellence. MGMT 492 or MFGE 354 or instructor permission. Typically offered Fall, Spring, Summer.

Introduce students to the specialized world of entrepreneurial finance. Develop appreciation of venture stages and avenues of funding. Learn methods of protecting proprietary interests. Understand how strategic alliances can mitigate investment risk. Develop an understanding of the structure of venture capital markets. Learn entrepreneurial risk measures along with corresponding risk management and mitigation techniques. Understand how to model business ventures as investment grade pro forma. Develop an appreciation for venture harvesting and exit strategies. Prerequisites: ACCT 201, ACCT 202, FINC 322 and MGMT 350. Typically Offered Spring only.

Students participate in the Small Business Institute assisting entrepreneurs and small business owners in solving business problems. Assignments involve a wide array of business problems including marketing, cost analysis, organization, facilities planning, product line, profitability, and business start-up. Students are assigned to a business based on their academic pursuits and areas of interest. A comprehensive report and presentation of student recommendations are provided to the business owner. This course can be taken multiple times for credit. Practicum Hours: 1 credit hour granted for each 45 hours of consulting. Typically Offered Fall, Spring, Summer.

The course concentrates on utilizing a lean-focused set of simplified accounting, control, and measurement tools to develop accurate, timely, and understandable financially driven strategies to motivate and sustain a lean transformation throughout a service or manufacturing organization resulting in increased customer value, organizational growth, and profitability. Areas of concentration include developing value stream costing, performance management, target costing, operational planning and the financial impact of lean improvements. Prerequisites: MGMT 492 or MFGE 354 and Junior Standing. Typically offered Fall and Spring.
The theories and strategies associated with Inventory Management as it relates to the supply chain will be analyzed. Initiatives, like Lean Operations (Just-In-Time) and Quick Response, will be studied to examine their impact on inventory. Students will evaluate the inventory management practices and trade-offs associated with the strategic and tactical issues associated with capacity, labor, shelf life, quality, lead times, forecasting accuracy, and supply chain members as it relates to internal and external environmental conditions. Prerequisites: MGMT 370 with a grade of D- or better or Instructor approval. Typically Offered Spring.

The course will focus on how to examine the wastes involved with the existing processes and the lean tools required for turning logistics and supplier issues into a competitive advantage. Areas of concentration including managing the flow of incoming and outbound goods, services, and related information, reducing logistics costs, improving logistics service, and removing impediments/bottlenecks to create an efficient, effective synergistic lean logistics and supplier operation network. Prerequisite: MGMT 492 or MFGE 354 and Junior standing. Typically offered Fall, Spring, Summer.

Course provides an in-depth view of the total compensation system. Design, develop, and implement a complete compensation system and the aspects of which include: establishing the compensation objectives, analyzing and evaluating jobs, establishing the organization’s pay policy relative to the external labor market, and utilizing the compensation system to adjust employee wages. Emphasis will be placed on balancing internal consistency and external competitiveness while equitably rewarding individuals’ contributions. Pre-Requisites: MGMT 373 with a grade of D- or better or Instructor approval. Typically Offered Spring Only.

This course provides an opportunity to apply knowledge of Human Resource Management concepts in a variety of contexts to solve organizational challenges. The focus is on discussing solutions of core HRM concepts including strategy, and current trends in the workplace such as changing workforce demographics, talent management and succession planning. Pre-Requisites: MGMT 373 with a grade of D- or better. Typically Offered Fall Only.

Integrates all management disciplines and concerns through intensive case analysis. A generalist point of view is assumed, where managers, and particularly senior managers, make critical decisions for the future of their organizations. Through a combination of activities intended to reflect corporate decision-making conditions, students have an opportunity to utilize their skills and advance their understanding of complex management situations. Pre-Requisites: MKTG 321 & MGMT 370 & FINC 322 with a grade of D- or better. Typically Offered Fall, Spring, Summer.

Work experience with organization in business, industry, government, not-for-profit, and education. The experience is designed to be relevant to the student’s academic pursuits, personal development, and professional preparation. The internship experience requires a minimum of 80 hours per credit hour be completed. Detailed summary reports of experience required during and at end of internship. Pre-Requisites: Completion of 80 credits and department approval. Typically Offered Fall, Spring, Summer.

This course concentrates on how to design, continuously improve, and lead a lean service business process initiative. Specific areas of concentration include Systems Planning and Thinking (seeing the whole business as a value stream), Human relations skills (leadership, strategy development and deployment, change management, and team problem solving) and Lean Principles (kaizen, PDCA, S, pull, leveling process stability, standardized work, root-caused problem resolution and A3 Reporting). Prerequisites: MGMT 305 or junior status. Typically offered Fall, Spring, Summer.
<table>
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<th>Course Title</th>
<th>Degree</th>
<th>Level</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MGMT497</td>
<td>Management Special Studies</td>
<td>BU</td>
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<td>1 TO 4</td>
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<tr>
<td>MGMT636</td>
<td>Leadership &amp; Org. Change</td>
<td>BU</td>
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<tr>
<td>MGMT736</td>
<td>Lean Enterprise Systems</td>
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<td>MGMT746</td>
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<td>MGMT751</td>
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<td>MGMT752</td>
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<td>MGMT753</td>
<td>Lean Cost Management</td>
<td>BU</td>
<td>Graduate</td>
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</table>

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course emphasizes a practical approach to understanding the essentials of successful leadership as well as one of its top tasks, that of successfully implementing organization-wide change. After exposure to various leadership frameworks, students will apply these approaches to current national and/or international business situations. Students will also create a personal leadership development plan. An organizational change process will be highlighted that focuses on understanding the need for change, anticipating and overcoming resistance, and developing a process that enhances opportunities for successful implementation. Based on the suggested process, students will evaluate past organizational changes they have experienced as well as develop a comprehensive change program for a perceived needed change at a past or current employer. Prerequisite: BUS graduate student. Typically offered Fall, Spring, Summer.

This experiential learning focused course concentrates on how to evaluate, design, and improve business process initiatives using Systems Planning and Thinking (seeing the whole business as a value stream) and Lean Principles (kaizen, PDCA, SS, pull, leveling process stability, standardized work, root-cause problem resolution and A3 Reporting). This assists in the continuous learning/improvement culture that enhances organizational growth, innovation, profitability and process excellence. Prerequisites: Statistics Foundation Competencies and BUS Graduate Student. Typically offered: Fall, Spring, Summer

This course will present a disciplined process of establishing and maintaining a purposeful business direction, aimed at achieving sustainable competitive advantage. The process entails; efficiently identifying opportunities via industry and technology scanning, isolating critical opportunities from the noise, memorializing Mission & Strategies (exemplified via the boilerplate Balanced Score Card model), integrating enterprise-level and functional-level (i.e. marketing, operations, and finance) strategies, making resource commitments, effectively executing strategies, monitoring results and making course corrections, celebrating successes and dissecting failures for embodied learnings. The concept of fact-based strategic decision-making will be introduced. And finally, specialized approaches involving globalization and entrepreneurial strategies will be presented. Prerequisite: BUS graduate student. Typically Fall, Spring, Summer.

The course includes a multi-faceted approach to improve organizational processes that meets or exceeds customer needs/expectations. Students will learn how to apply the Six Sigma, DMAIC (Define, Measure, Analyze, Improve and Control) methodology. Specifically, statistical analysis tools/metrics will be used as techniques to reduce process variability, increase process control and sustainability to increase the organization’s process quality. The course is designed to assist students with preparation for the Six Sigma Green Belt Certification. Prerequisite: MGMT 736. Typically offered Fall, Spring, Summer.

The course is designed to assist students with understanding how to appropriately apply lean tools in an organization as a leader. Additional emphasis associated with how to manage and identify employee’s development needs, creating appropriate organization training plans, and developing an internal coaching/mentor program will be included. This assists an organization with the creation of a positive horizontal and vertical flow that effectively supports an organizational transformation that aligns purpose, processes and people. Prerequisite: MGMT 736. Typically offered Fall, Spring, Summer.

The course concentrates on utilizing a lean-focused set of simplified accounting, control, and measurement tools to develop accurate, timely, & understandable financially driven strategies to motivate and sustain a lean transformation throughout a service or manufacturing organization resulting in increased customer value, organizational growth, and profitability. Areas of concentration include developing value stream costing, performance management, target costing, operational planning and the financial impact of lean improvements. Prerequisite: MGMT 736. Typically offered Fall, Spring, Summer.
The course will focus on waste creation, identification & elimination at the industrial level. Students learn to identify the wastes involved with existing processes. Lean tools are applied to specific inefficiencies. Areas of concentration include managing incoming & outbound goods, services, and related information; reducing logistics costs; improving logistics service; and removing impediments. Measured waste elimination will create a more efficient, synergistic, lean logistics operation network. Prerequisite: MGMT 736. Typically offered Fall, Spring, Summer.

Strategic development of how to effectively manage domestic & global supply chains using lean performance, and institutional accountability. Students will design a lean supply stream process that improves customer satisfaction and relationships while increasing efficiencies. Results will be measured and presented to peer review. Prerequisite: MGMT 736. Typically offered Fall, Spring, Summer.

This course will focus on the steps involved in the design and implementation of new products within an organization employing the practices of Lean techniques. The premise of the class will involve students understanding the concepts of waste in a system as it applies to new product development and the pitfalls to avoid in the design and launch of new products. The discussion portion of the class will also involve looking at supplier’s involvement, the use of technology, and the effect on the Lean culture. Prerequisite: MGMT 736. Typically offered Fall, Spring, Summer.

This course will explore the role of information technology in logistics, supply planning and operations. Quantitative statistical methods and innovative methods will be implemented to develop a model facility layout. Using logistics simulation techniques students will defend their design by documenting increases in overall efficiencies. Applying value stream mapping and other lean tools, will assist students with customizing a floor design within spatial and financial constraints. Prerequisites: MGMT 754. Typically offered Fall, Spring, Summer.

The world is smaller and more volatile than ever. A company can only compete in a global economy by developing an international network of contacts & suppliers. This course will examine how to cultivate appropriate business strategies essential to global supply and logistics issues. The topics include alliances; logistics; sourcing integration; inventory planning & management; transportation; and warehousing. Emphasis is on developing an optimized global network which leverages global procurement to maximize customer service at the lowest cost. Prerequisites: MGMT 754 and MGMT 755. Typically offered Fall, Spring, Summer.

An overview of the expectations for completing the MIMG program, including a survey of career opportunities; the relationship between marketing and music industry and the role of management in music industry. Also, discussion of membership requirements for NAMM (National Association of Music Merchants) Affiliated Music Business Institutions (NAMBI) and other music industry organizations. Pre-Requisites:Music Industry Management students only. Typically Offered Fall Only

A full time (600 hour) supervised work experience at an approved music store or business (retail store or commercial industry). Preferably a member of the National Association of Music Merchants (NAMM). Includes a pre- and post- co-op meeting. Evaluation made by combined report from faculty and designated business representative. Pre-Requisites:Music Industry Management students only. Typically Offered Fall Only

A full time (600 hour) supervised work experience at an approved music store or business (retail store or commercial industry). Preferably a member of the National Association of Music Merchants (NAMM). Includes a pre- and post- co-op meeting. Evaluation made by combined report from faculty and designated business representative. Pre-Requisites:Music Industry Management students only. Typically Offered Fall, Spring, Summer

An overview of the business music industry including the songwriting market, music publishing, music copyright, music licensing, unions and guilds, agents and attorneys, artist management, concert promotion, theatrical production, music merchandising, arts administration, the record industry, record markets, recording contracts, record distribution and merchandising, studios and engineers, environmental music, music in telecommunications and advertising, film scoring, career development and options. Typically Offered Fall Only
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Area of Study</th>
<th>Institution</th>
<th>Level</th>
<th>Credits</th>
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<tr>
<td>MIMG497</td>
<td>Special Studies in MIMG</td>
<td>MIMG BU Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
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<td>MISI605</td>
<td>Master Info Security and Intel</td>
<td>Intelligence Vulnerabilities</td>
<td>BU Account, Finance, Info Systems</td>
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<td>MISI629</td>
<td>Master Info Security and Intel</td>
<td>Legal, Ethical and Fraud Iss</td>
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<td>Graduate</td>
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<td>Information Security/Assurance</td>
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<td>MISI662</td>
<td>Master Info Security and Intel</td>
<td>Pen Test/Vulnerability Assess</td>
<td>BU Account, Finance, Info Systems</td>
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<td>MISI664</td>
<td>Master Info Security and Intel</td>
<td>Digital Forensics/Incident Res</td>
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<td>Graduate</td>
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<td>MISI689</td>
<td>Master Info Security and Intel</td>
<td>Current Topics in ISI</td>
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<td>MISI691</td>
<td>Master Info Security and Intel</td>
<td>ISI Internship</td>
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<td>Graduate</td>
<td>1 TO 6</td>
<td>LEC</td>
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This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer

Students will research vulnerabilities to intelligence, including processes and technical threats such as malware, criminal activities, and technological exposures. Unusual environments such as power and transportation systems, artificial intelligence, and robotics, as well as various file and storage technologies will be evaluated. The potential security exposure of nano technology and incorporating environments will also be incorporated. Prerequisites: Graduate Status. Typically Offered Fall and Spring Even Years, Summer Odd Years.

Students investigate progressive database management and administration principles. Topics include design, implementation, management, and security techniques. Students utilize data definition and manipulation languages on leading database platforms. Emerging trends in database technology are also scrutinized. Prerequisites: Graduate Status. Typically Offered Fall, Spring Odd Years, Summer Even Years.

Students explore Information Systems Strategy from multiple perspectives including effectiveness of the use of information systems and data, as well as digital security exposures and safeguards from a personal, organizational, and global perspective. Aligning information systems resources with organizational goals in an efficient and secure environment throughout an organization while potentially relying on third parties will be examined. Pre-requisite: Graduate level. Typically offered: Spring.

Students will analyze legal and ethical issues as they relate to the business environment. Ethical practices, privacy, privacy by design, copyright and licensing issues as they relate to proprietary and personal information are incorporated. Methods to detect and prevent fraudulent practices on a personal and organizational scale are explored. Domestic and international issues, including organized criminal activity, and the role of technology to carry out fraudulent schemes is incorporated into the course framework. Prerequisites: Graduate Status. Typically Offered Fall, Spring, Summer.

Students investigate the concepts, methodologies and lifecycle of information security/assurance and management practices. Topics include risk analysis, legal regulations and compliance, security audits, security policies and governance and threat and vulnerability assessment. Students evaluate various standards and guidelines and security technologies to devise effective security controls. Prerequisites: Graduate Status. Typically Offered Fall.

Students investigate the purposes and practice of network penetration testing as a component of an information security program. Students research the purposes of network penetration testing and various options for executing network penetration tests. Students design, conduct, and interpret network penetration tests on laboratory networks and systems, to include the application and validation of corrective measures. Prerequisites: MISI 660 and Graduate Status. Typically Offered Fall.

Students will learn the digital evidence collection and analysis process utilizing a variety of methods and technologies. Nano technology forensics using Digital Laser Microscopy will be incorporated. Threat and response plans, as well as proactive security measures will be developed and applied to multiple scenarios including computer and mobile technology. Reporting, analysis, and security improvement feedback cycle will also be reviewed. Prerequisites: MISI 660 and MISI 605 or instructor permission. Typically Offered Spring.

Current Topics in ISI covers various topics in Information Security and Intelligence and may not be offered every semester. Prerequisites: Graduate Standing or permission of instructor. Typically Offered Fall, Spring, Summer.

An internship with work experience designed to be relevant to the student's™ academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 10 weeks with credits based on total hours worked. 1 credit = 80 hours minimum, 2 credits = 160 hours minimum, 3 credits = 240 hours minimum. Detailed reports of work experience required. Internship may be repeated for additional credits not to exceed six total credits. Prerequisites: Successful completion of 15 MISI credits and Department approval. Typically Offered Fall, Spring, Summer.
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<tr>
<th>Course Code</th>
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<td>MISM 799 or permission of instructor</td>
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<td>MISI740</td>
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<td>Integration</td>
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This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Graduate Status and Department approval. Typically Offered Fall, Spring, Summer.

Continuing Studies in ISI is for students who have completed all the required courses and are working on completion of their thesis. This continuing credit allows the student to remain active in the program. Prerequisites: MISM 799 or permission of instructor. Typically Offered Fall, Spring, Summer.

An investigation of business intelligence and evaluation of analytical data used in strategic decision making. Topics include tracking, managing and understanding organized data, as well as identifying and measuring performance metrics. Includes applied decision making using appropriate tools and techniques. Decision support systems, data warehousing and emerging topics are explored. Prerequisites: MISM 610. Typically Offered Fall, Spring Odd Years, Summer Even Years.

Students evaluate and apply governance, risk, and compliance aspects of information Assurance. Topics include the professional audit process, domestic and international compliance, control frameworks, and service delivery. Students will utilize a leading framework to audit an infrastructure and apply proper remediation procedures. Pre requisite: BU Graduate Student. Typically offered: Spring.

Investigates legal and ethical issues including ethical practices, privacy, copyright licensing, proprietary and personal information, and electronic technologies. Current and future impact on information systems, corporate liability, and management strategies will be explored. Pre Requisites:Graduate Status. Typically Offered Fall, Spring, Summer.

Students examine budgets and financial information from an IS/IT managerial perspective. The course covers discussion of basic financial statements and formulas and tools used for evaluating business financial issues. Financial tools and techniques are applied to situations commonly encountered by IS/IT managers. Also included is a discussion of the non-financial issues related to making business decisions (i.e., the balanced scorecard). Prerequisites: Graduate Standing. Typically Offered Spring, Summer and Fall.

Students examine the effective strategies for social media and virtual worlds in a global business environment. Topics include Web 2.0 tools such as blogs, podcasts, social networking, and evolving technologies that bring business closer to customers. Particular emphasis is placed on business integration, secure practices and privacy. Prerequisites: Graduate standing or instructor permission. Typically offered: Fall, Spring, Summer Alternating semesters.

This course investigates concepts, technologies, and solutions for integrating multiple applications and platforms. Strategies dealing with multiple platforms, domains, technologies, and their challenges are explored. Students will learn Web service integration and other middleware techniques. Pre Requisites:MMBA 665. Typically Offered Fall, Spring.
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<td>Network Penetration Testing</td>
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<td>MKTG291</td>
<td>Marketing Internship</td>
<td>BU</td>
<td>1 TO 9</td>
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Students investigate concepts and methodologies for managing information-related risks. Design, implementation, and operation of relevant techniques and systems are presented and discussed. Students review current standards and regulations relating to information assurance and information security. Students learn both strategic risk management and tools and tactics.  
Typically Offered Fall, Spring

Students investigate the purposes and practice of network penetration testing as a component of an information security program. Students research the purposes of network penetration testing and various options for executing network penetration tests. Students design, conduct, and interpret network penetration tests on laboratory networks and systems, to include the application and validation of corrective measures.  
Pre-Requisites: MISM 661.  
Typically Offered Fall, Spring

Students develop and understand the strategic framework in which contemporary organizations evaluate, develop and utilize management information systems. The student will be introduced to the information system life cycle, fundamental structures and tools used in system development, and an understanding of current and future trends in information system technology through hands-on and theoretical practice. An integrating course project is required.  
Pre-Requisites: Graduate standing or instructor permission.  
Typically Offered Fall, Spring and Summer.

Students will examine the basic components of Local Area Networks including topologies, protocols, and wiring schemes. Operating environments explored will be both peer to peer and at least one server based network. Once exposed to managing these environments, the student will employ their analytical skills in determining the strengths and weaknesses of each of the environments.  
Pre-Requisites: Graduate status or Instructor approval.  
Typically Offered Spring

Examines and evaluates current issues related to information systems management that may not be covered in other courses in the MSISM program. Students will be exploring management trends as they relate to working with information systems. The structure of the course is designed to enhance the student’s knowledge of current issues as well as the ability to work in teams.  
Pre-Requisites: Graduate status.  
Typically Offered On Demand

Internship with work experience relevant to the student’s academic pursuits, personal development, and professional preparation. Work experience must last a minimum of 10 weeks, with credits based on total hours worked. 1 credit = 80 hours minimum, 2 credits = 160 hours minimum, 3 credits = 240 hours minimum. Detailed reports of work experience required. May be repeated for additional credits not to exceed six total credits.  
Pre-Requisites: Successful completion of 15 MISM credits and Departments approval.  
Typically Offered Fall, Spring, Summer

An investigation of business intelligence and evaluation of analytical data used in strategic decision making. Topics include tracking, managing and understanding organized data, as well as identifying and measuring performance metrics. Includes applied decision making using appropriate tools and techniques. Decision support systems, data warehousing and emerging topics are explored.  
Pre-Requisites: MISM 610.  
Typically Offered Fall, Spring, Summer

The Capstone Project is required for graduation in the MBA programs. One of the strategic goals of the College of Business Graduate Program (CBGP) is to ensure that the Capstone Projects integrate learning across the curriculum to provide value.  
Pre-Requisites: Final semester status or department approval.  
Typically Offered Fall, Spring, Summer

Basic course in selling, covering development of a sales personality, sales speech, opening and closing sales, buying motives and sales psychology, organization of sales talk, meeting objectives, suggestive selling, and building a customer following. Sales demonstrations in class are evaluated by both the class and the professor.  
Pre-Requisites: COMM 121 or COMM 122.  
Typically Offered Fall, Spring, Summer

Special Topics in Marketing -  200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester.  
Typically Offered Fall, Spring, Summer

Work experience with cooperating employer organizations in program specific/related industry. The work experience is designed to be relevant to the student’s academic program, personal development, and professional preparation. The work experience must last a minimum of 10 weeks with total number of weeks and hours approved by the department head.  
Pre-Requisites: Sophomore Status and Department Approval.  
Typically offered Fall, Spring, Summer.
MKTG321 Marketing Principles of Marketing BU Marketing Undergraduate 3 LEC

Introduction to the basic functions of marketing. Included as topics of study are: consumer behavior, marketing research, marketing planning, physical distribution, selling, promotion, pricing, wholesaling, purchasing, international marketing, and e-commerce. Pre-Requisites: Sophomore status or higher; ENGL 150 w/C- or higher. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer

MKTG322 Marketing Consumer Behavior BU Marketing Undergraduate 3 LEC

A study of the motivational factors influencing purchasing decisions. Emphasis is placed on the psychological, sociological and anthropological factors as they affect consumer decision making. Pre-Requisites: MKTG 321 w/C- or higher and PSYC 150. Typically Offered Fall, Spring, Summer

MKTG375 Marketing Mktg for Non-Profit Organiz BU Marketing Undergraduate 3 LEC

Relationship and application of selected marketing principles to problems faced by foundations, health care agencies, government entities, charities, educational and human service agencies. Marketing efforts are concentrated on improving communication between an organization and its various publics. Pre-Requisites: MKTG 321 w/C- or higher. Typically Offered Fall Only

MKTG378 Marketing Marketing Data Analysis BU Marketing Undergraduate 3 LEC

Statistical applications of specific marketing problems using market research data. Extensive use of computers to analyze marketing data and coverage of sample and inference procedures (confidence intervals, chi-square, t-tests, and ANOVA). Concentration on both statistical applications and summary report writing. Emphasis to career paths in many areas of marketing management, marketing research, and sales. Pre-Requisites: STQM 260 and MKTG 321, both w/C- or higher. Typically Offered Fall, Spring

MKTG383 Marketing Direct Marketing BU Marketing Undergraduate 3 LEC

An introduction to direct marketing with emphasis on database marketing, strategic business planning, importance of the offer, selecting and selling merchandise, business-to-business direct marketing, fundraising, mailing lists, magazines, newspapers, electronic media, co-ops, telemarketing, production, lead generation, direct marketing math, idea development, research, and integrating direct marketing into the overall marketing mix. Pre-Requisites: AIMC 300 and MKTG 321, both w/C- or higher. Typically Offered Fall, Summer

MKTG391 Marketing Marketing Internship II BU Marketing Undergraduate 1 TO 9 LEC

Work experience with cooperating employer organizations in program specific/related industry. The work experience is designed to be relevant to the student’s academic program, personal development, and professional preparation. The work experience must last a minimum of 10 weeks with total number of weeks and hours approved by the department head. Prerequisites: Junior Status and Department Approval. Typically offered Fall, Spring, Summer.

MKTG397 Marketing Special Studies in MKTG BU Marketing Undergraduate 1 TO 3 LEC

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

MKTG410 Marketing Industrial Marketing BU Marketing Undergraduate 3 LEC

Concepts of industrial marketing systems, its products and services, channels, promotion and pricing strategies. Marketing plan development for industrial products and services. Characteristics of industrial customers, market potential, and buying process. Pre-Requisites: MKTG 321 w/C- or higher. Typically Offered Fall Only

MKTG420 Marketing Sports Marketing BU Marketing Undergraduate 3 LEC

An introduction to the sports industry and the specific application of marketing principles and processes to sports products and to the marketing of non-sports products through association with sport. An emphasis is placed on the spectator as a consumer and the strategic application of the marketing mix to collegiate and professional sports. Prerequisites: MKTG 321 w/C- or higher. Typically Offered Fall only.

MKTG425 Marketing Marketing Research BU Marketing Undergraduate 3 LEC

Methods for designing market research studies, methods of collecting data, problem formulation, sampling methods and techniques, data analysis, and research reporting. Students design and execute a complete research project in the following possible areas: advertising/promotion, customer satisfaction, target markets, sales, product development, pricing, or distribution. Pre-Requisites: STQM 260 and MKTG 321, both w/C- or higher. Typically Offered Fall, Spring, Summer

MKTG434 Marketing Advanced Selling BU Marketing Undergraduate 3 LEC

Methods and techniques for higher-level selling. Refine and polish sales skills with emphasis on application and practice of sales principles studied in prerequisite courses. Roleplay exercises are used along with video and audio recording. Pre-Requisites: MKTG 231 & MKTG 321, both w/C- or higher, and Senior status. Typically Offered Spring Only
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Degree</th>
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<tr>
<td>MKTG436</td>
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<td>MKTG441</td>
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<td>MKTG490</td>
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<td>BU</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
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<td>MKTG Internship</td>
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<td>MKTG497</td>
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<td>BU</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC</td>
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**MKTG436 Marketing Sales Management BU Marketing Undergraduate 3 LEC**

Principles and policies of sales organization; career opportunities; recruiting selection and training salespeople; motivation, supervision and evaluation of salespeople; compensation plans, territory and quota assignments; expense accounts and transportation. Pre-Requisites: MKTG 231 and 321, both w/C or higher. Typically Offered Fall Only

**MKTG441 International Marketing BU Marketing Undergraduate 3 LEC**

Focuses on the international marketer's sphere of operation, dwelling particularly on the uncontrollable environmental variables in foreign markets and how they affect the task of international marketing management. In-depth emphasis is placed on how the execution of product strategy, promotion strategy, distribution strategy, and pricing strategy is different from one country to another. The coordination of the marketing mix to achieve a total and effective international marketing program is the underlying objective of this course. This course meets General Education requirements: Global Consciousness and new Fall 2017 Global Diversity, Collaboration, and Problem-Solving. Pre-Requisites: MKTG 321 w/C or higher and Senior status. Typically Offered Fall, Spring

**MKTG450 Healthcare Marketing BU Marketing Undergraduate 3 LEC**

Course covers application of basic marketing concepts, principles, and tools for the development and execution of strategic marketing plans to marketing within the healthcare industry &* including providers, suppliers, third-party payers, and governmental entities. Students will design, develop, and deliver a comprehensive healthcare marketing plan targeting national as well as international markets. Course will cover healthcare applications of marketing process, buyer behavior, market segmentation, customer relationships, branding, pricing, distribution, advertising, promotion, public relations and ethics. Prerequisites: MKTG 321 w/C or higher. Typically Offered Spring, even years.

**MKTG466 Purchasing BU Marketing Undergraduate 3 LEC**

Purchasing functions and procedures; organization and operation of the purchasing department, selecting and managing sources of supply, control of quality, inventory, delivery, legal aspects of purchasing, contracts, international procurement, understanding the role of the buyer within the firm. Pre-Requisites: MKTG 321 w/C or higher. Typically Offered Fall, Spring

**MKTG472 Supply Chain Management BU Marketing Undergraduate 3 LEC**

Introduction to logistics management as a process of value added activities that synchronize supply and demand. Extensive review and analysis of transportation and physical distribution issues including channel management. Additional topics include warehousing operations, packaging and regulatory laws. Pre-Requisites: MKTG 321 w/C or higher, and MGMT 370. Typically Offered Fall Only

**MKTG475 Product Marketing BU Marketing Undergraduate 3 LEC**

Focuses on product strategy and the role of the product/brand manager. Subjects covered are opportunity analysis, industry and competitive analysis, pricing, promotion, distribution, strategic plan, and competitive advantage. Expansion, repositioning, new products, or line extension strategies are studied. Pre-requisites: MKTG 321 w/C or higher. Typically Offered Fall Only

**MKTG476 Marketing Strategy BU Marketing Undergraduate 3 LEC**

Developing and executing marketing strategies, programs, audits, and plans. Emphasis on strategic and tactical marketing decisions through highly interactive case studies and presentations that require the application of a variety of analytical frameworks for making strategic marketing decisions. Specific cases leading to comprehensive case analysis, covering areas such as consumer and industrial goods, products and services, and profit and nonprofit organizations, ranging from manufacturers to retailers. Pre-Requisites: MKTG 321 w/C or higher and ECON 221. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Spring Only

**MKTG490 Special Topics in MKTG BU Marketing Undergraduate**

Special Topics In MKTG - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

**MKTG491 MKTG Internship BU Marketing Undergraduate**

Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student's academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 15 weeks with total hours worked approved by the department head. Pre-Requisites: Completion Of 60 Semester Hours and Department Approval. Typically Offered Fall, Spring, Summer

**MKTG497 Special Studies in MKTG BU Marketing Undergraduate**

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand
MKTG716 Marketing Strategic Marketing Decisions BU Marketing Graduate 3 LEC

Strategic Marketing Decisions introduces students to essential marketing terms, concepts and ethics. Concepts included are marketing mix (product, pricing, distribution, integrated marketing communications; advertising, public relations, sales and electronic communication), segmentation, target marketing, and consumer behavior. The combination of real-world experience and theoretical concepts meet together as students conduct external and internal organization analyses and develop and justify a comprehensive marketing and implementation plan that addresses the problem(s) or opportunity(ies) identified in marketing cases. Prerequisites: ECON 726 w/C or better, Marketing Foundation Competencies, and BUS graduate student. Typically offered Fall, Spring, Summer.

MIMBA505 Master of Business Administrat Numerical and Data Analysis BU Management Graduate 3 LEC

MIMBA506 Master of Business Administrat Fin-Acct Sys and Analysis BU Management Graduate 3 LEC

MIMBA590 Master of Business Administrat Special Topics in MMBA BU Management Graduate 1 TO 3 LEC

Special Topics in MMBA - 500 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

MIMBA597 Master of Business Administrat Independent Study 1 BU Management Graduate 1 TO 3 LEC

MIMBA612 Master of Business Administrat Intro Performance Metrics BU Management Graduate 3 LEC

MIMBA615 Master of Business Administrat Qual Improvement Prin-Appl BU Management Graduate 3 LEC

MIMBA690 Master of Business Administrat Special Topics in MMBA BU Management Graduate 1 TO 3 LEC

MIMBA691 Master of Business Administrat MBA Internship or Direct. Elec BU Management Graduate 1 TO 3 LEC

MIMBA697 Master of Business Administrat Independent Study 2 BU Management Graduate 1 TO 3 LEC

The concepts of performance metric-based management systems are developed, including leading and lagging performance metrics, and the interrelationships between the four major perspective in every organization: financial, organizational learning, process and customer systems. The interrelationship between the Balanced Scorecard and Blandridge Performance Excellence Program Criteria as performance metric systems is explored. Pre-requisites: Accounting Foundation Competencies and BUS graduate student. Typically Offered Fall, Spring, Summer

Participants explore the philosophy, principles and practices of continuous quality improvement through the four lenses of Deming’s system of profound knowledge systems thinking, understanding variation and diversity, practical psychology of leadership and management, and generation and leverage of knowledge. Learners typically complete a mix of projects, readings, cases, papers, as well as design, implement and evaluate a practical rapid cycle improvement project. Pre-requisites: Statistics Foundation Competencies and BUS graduate student. Typically Offered Spring Only

MIMBA697 Master of Business Administrat Independent Study 2 BU Management Graduate 1 TO 3 LEC

Special Topics in MMBA - 600 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

Internship with work experience relevant to the student’s academic pursuits, personal development, and professional preparation. Work experience must last a minimum of 10 weeks, with credits based on total hours worked. 1 credit = 80 hours minimum, 2 credits = 160 hours minimum, 3 credits = 240 hours minimum. Detailed reports of work experience required. May be repeated for additional credits not to exceed six total credits. Prerequisites: Successful completion of 15 MBA credits including MMBA 612 & MMBA 710 and Department approval. Typically Offered Fall, Spring and Summer.

The purpose of this course is to provide students an opportunity to conduct an in-depth study in their stated area of interest. An existing graduate course or an internship that is consistent with the stated theme may be substituted for this course. This course will enable students to engage in rich and thorough research within their stated topic of interest. This course is one of the components within the Professional Tracks Certificate, but could also be utilized as an independent study outside of the certificate process as appropriate and as approved by the graduate faculty. Prerequisites: MMBA 597.
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<tr>
<td>MOHA510</td>
<td>Leadership in Healthcare</td>
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<td>MOHA520</td>
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<td>MOHA550</td>
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<td>MOHA570</td>
<td>Quantitative Decision-making</td>
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<td>MOHA580</td>
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<td>MOHA630</td>
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<td>MOHA650</td>
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<td>Graduate</td>
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Special Topics in MMBA - 700 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

The purpose of this course is to provide students an opportunity to conduct an in-depth study in their stated area of interest. An existing graduate course or an internship that is consistent with the stated theme may be substituted for this course. This course will enable students to engage in rich and thorough research within their stated topic of interest. This course is one of the components within the Professional Tracks Certificate, but could also be utilized as an independent study outside of the certificate process as appropriate and as approved by the graduate faculty. Prerequisite: MMBA 697. Typically offered Fall, Spring, Summer.

This course explores leadership theories, models, competencies, and practice. The role of the leader in understanding organizational governance, group dynamics, and team performance measurement, will be studied through the lens of healthcare leaders focused on evidence-based decision-making. Students will develop relationship building and collaboration and communication skills, and study the ways in which leaders impact and influence an organization. This online course will include 12 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course explores theories of organizational behavior, organizational development, and staff motivation as they influence the management of employees, physicians and other healthcare professionals. Students will examine how these theories have on employee engagement, employee satisfaction and retention. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course explores the design of an effective population health management program by defining populations and stakeholders, standardizing information, employing community health technologies, monitoring health behaviors and evaluating management strategies that benefit defined populations. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course provides a foundation of the basic principles of accounting and healthcare. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course focuses on the theories, concepts and methodologies utilized to conduct health care research, analyze health care data and enhance rational administrative decision-making in health care, with emphasis on hypothesis testing, multivariable methods, nonparametric tests and software packages. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course establishes a foundation for leadership passed on the principles of law and ethics in a healthcare setting. Students will examine current trends for mergers, acquisitions, joint ventures and other financial arrangements, in addition to the impact of law and ethics on clinical decision making. This online course will include 8 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course provides a framework for strategic management in healthcare organizations. Students will learn the use of the analytic tools and concepts for strategic planning and the value of continuous strategic decision-making. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course provides a context for designing, evaluating and analyzing the performance of healthcare organizations. Students will explore the impact of various factors related to healthcare quality and safety, economics, legal aspects, and patient demand. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

This course offers a basis for evaluating the needs of a healthcare system in regard to information system strategic planning and use for quality improvement. Students will study current issues involving privacy, security and social media. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.
MOHA660 Master of Healthcare Admin Healthcare Finance Management HP Clinical Lab-Resp Care-Hlth Ad Graduate 3 LEC

This course provides the foundation for quality fiscal management in a healthcare setting. Students will study provider contracts, payer contracts, operational management including accounts receivable management, value-based purchasing, and the use of Lean processes to reduce waste and improve efficiency. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Successful completion of MOHA 550 with a C or better. Typically offered Fall, Spring, Summer.

MOHA670 Master of Healthcare Admin Healthcare Marketing HP Clinical Lab-Resp Care-Hlth Ad Graduate 3 LEC

This course emphasizes the value of using solid, strategic marketing principles in a healthcare setting. Students will gain the skills and knowledge to build a strong healthcare service marketing plan based on evidence-based research and analysis. This online course will include 10 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

MOHA680 Master of Healthcare Admin Health Economics and Policy HP Clinical Lab-Resp Care-Hlth Ad Graduate 3 LEC

This course provides a framework for systematic examination of the use of resources in healthcare organizations, including how policy decisions are made using this information. The tools of economics will be explored and applied to issues related to the organization, delivery, financing, and outcome of health care. Students will develop an understanding of economic principles and policy decisions that underlie how the system of health care is financed and delivered in the United States, which provides a basis for analyzing health management and policy options. This online course will include 8 hours of synchronous web-based instruction. Prerequisite: Graduate student. Typically offered Fall, Spring, Summer.

MOHA695 Master of Healthcare Admin Capstone Experience HP Clinical Lab-Resp Care-Hlth Ad Graduate 4 LEC

This course provides students opportunity to implement skills and knowledge gained throughout the program. The student will develop, lead, and implement a project intended to enhance the quality of healthcare delivery in a real-world setting. This online course will include 4 hours of synchronous web-based instruction. Graduate student. Typically offered Fall, Spring, Summer.

MRIS101 Medical Record Infor Systems Intro to Health Info Systems HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 4 LEC

Definition, content, format and purpose and the regulatory agencies which impact the health record. The interaction of health care professionals who contribute to the record will be studied. Laboratory component deals with analysis of the patient record, numbering systems, filing systems and maintenance of the master patient index. Health information students must earn "C" or better on first or second attempt. Two unsuccessful attempts (less than "C") will result in dismissal from the health information programs. Typically Offered Fall, Spring.

MRIS103 Medical Record Infor Systems Medical Terminology HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 3 LEC

Terminology of disease, condition, operative pathology, radiology, surgery, operative procedure and technique, surgical instruments, diagnostic tests, therapeutic treatments, anesthetic agents, pharmacologic agents, oncology, nuclear medicine, and other specialized areas of medicine. Lab time will be used for Case Studies - students will apply new knowledge to understanding medical terms in their proper contexts, such as medical reports and records. Typically Offered Fall, Spring, Summer.

MRIS121 Medical Record Infor Systems Health Information Statistics HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC

This course will include general principles of healthcare descriptive statistics related to the delivery of healthcare. Skills in calculating common hospital healthcare statistics using formulas/definitions. Prerequisite: MRIS 101 with a grade of C or above. Typically offered: Fall, Spring.

MRIS122 Medical Record Infor Systems Health Information Concepts HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 4 LEC

A principles course of health information statistics, medical informatics, healthcare registries, database design, healthcare research, analysis of health data, design formats of presentation of health data and health information management department operations. Students will use computer applications (e.g. Excel) for data display. Prerequisites: MRIS 101 with grade of 2.0 or better. Meets General Education requirements for Problem Solving. Typically Offered: Fall, Spring.

MRIS123 Medical Record Infor Systems Health Informat Systems 1 Lab HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 2 LEC

A laboratory/practical course for health information statistics, medical informatics, healthcare registries, database design, healthcare research, analysis of health data, design formats for presentation of health data and health information management department operations. Students will use computer applications for data display. Laboratory experience will reinforce student's understanding of lecture topics from MRIS 122. Health Information students must earn "C" (2.0) or better on first or second attempt. Two unsuccessful attempts (less than "C") will result in dismissal from the Health Information programs. Co-Requisite: MRIS 123 Prerequisites: MRIS 101, ISYS 105 or Proficiency. Typically Offered Spring only.

MRIS150 Medical Record Infor Systems Registry Structure & Mgmt HP Clinical Lab-Resp Care-Hlth Ad Undergraduate 3 LEC

This course is an introduction to the basic concepts of the structure & management of hospital based and central cancer registries including the purpose of cancer registries, confidentiality, and the role/data standards in standard setting organizations in cancer data management. Typically offered: Fall
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<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>MRIS160</td>
<td>Medical Record &amp; Information Systems</td>
<td>Cancer Registry Operations, healthcare data.</td>
</tr>
<tr>
<td>MRIS170</td>
<td>Medical Record &amp; Information Systems</td>
<td>Cancer Disease Management, diagnosis, treatment modalities.</td>
</tr>
<tr>
<td>MRIS180</td>
<td>Medical Record &amp; Information Systems</td>
<td>Oncology Coding &amp; Staging, cancer registries and hysterectomy.</td>
</tr>
<tr>
<td>MRIS204</td>
<td>Medical Record &amp; Information Systems</td>
<td>ICD-10-CM Coding, coding classification.</td>
</tr>
<tr>
<td>MRIS205</td>
<td>Medical Record &amp; Information Systems</td>
<td>ICD-10-PCS Coding, coding rules and guidelines.</td>
</tr>
<tr>
<td>MRIS209</td>
<td>Medical Record &amp; Information Systems</td>
<td>Quality Mgmt in Health Care, coding and reimbursement.</td>
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<tr>
<td>MRIS210</td>
<td>Medical Record &amp; Information Systems</td>
<td>Fundamentals Disease Processes, data analysis.</td>
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<tr>
<td>MRIS211</td>
<td>Medical Record &amp; Information Systems</td>
<td>CPT Coding, coding principles.</td>
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<tr>
<td>MRIS220</td>
<td>Medical Record &amp; Information Systems</td>
<td>Legal &amp; Ethical Aspects in HIM, ethical issues in healthcare informatics.</td>
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</table>

This course will focus on management functions including budgeting, annual reports, staffing, and compliance. It will cover cancer standards including cancer conferences/committees. Basic operational tasks will be conducted, including: budgeting, staffing, and compliance. The course will be offered in fall.

This course is an introduction to the pathophysiology of cancer, including symptoms, diagnosis, and treatment modalities. It will cover: Cancer Disease Management, diagnosis, and treatment modalities. The course will be offered in fall.

This course covers the cancer registry and its role in cancer care. It will cover: Cancer Registry Operations, healthcare data. The course will be offered in fall.

This course covers the cancer registry and its role in cancer care. It will cover: Cancer Disease Management, diagnosis, and treatment modalities. The course will be offered in fall.

This course covers the cancer registry and its role in cancer care. It will cover: Oncology Coding & Staging, cancer registries and hysterectomy. The course will be offered in spring.

This course covers the cancer registry and its role in cancer care. It will cover: ICD-10-CM Coding, coding classification. The course will be offered in spring.

This course covers the cancer registry and its role in cancer care. It will cover: ICD-10-PCS Coding, coding rules and guidelines. The course will be offered in spring.

This course covers the cancer registry and its role in cancer care. It will cover: Quality Mgmt in Health Care, coding and reimbursement. The course will be offered in spring.

This course covers the cancer registry and its role in cancer care. It will cover: Fundamentals Disease Processes, data analysis. The course will be offered in spring.

This course covers the cancer registry and its role in cancer care. It will cover: CPT Coding, coding principles. The course will be offered in spring.

This course covers the cancer registry and its role in cancer care. It will cover: Legal & Ethical Aspects in HIM, ethical issues in healthcare informatics. The course will be offered in spring.
<table>
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<td>MRIS221</td>
<td>Medical Record Infor Systems</td>
<td>Foundations of Reimbursement HP</td>
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<td>MRIS250</td>
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<td>Abstracting Methods</td>
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<td>MRIS260</td>
<td>Medical Record Infor Systems</td>
<td>Mult Primaries &amp; Hematopoietic</td>
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<td>MRIS261</td>
<td>Medical Record Infor Systems</td>
<td>Health Inform Technology Review</td>
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<td>Follow Up, Data Quality &amp; Util</td>
<td>Undergraduate</td>
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<td>MRIS290</td>
<td>Medical Record Infor Systems</td>
<td>Special Topics in MRIS</td>
<td>Undergraduate</td>
<td>1 TO 4 LEC</td>
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<td>MRIS291</td>
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<td>Coding-Billing Internship</td>
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<tr>
<td>MRIS402</td>
<td>Medical Record Infor Systems</td>
<td>Health Inform Management Prin</td>
<td>Undergraduate</td>
<td>3 LEC</td>
</tr>
</tbody>
</table>

The course will provide an overview of the evolving health care payment systems encompassing major U.S. public and private third party payers. The U.S. payment systems will be compared with international models of health care coverage and reimbursement. Students will evaluate the impact of current forces on the revenue cycle including regulations and emerging technologies. Students will have hands-on practice completing paper and electronic forms to obtain maximum reimbursement. HCFA/HIM/HIT students must earn a C&cAAC (2.0) or better on first or second attempt. Two unsuccessful attempts (less than C&cAAC) will result in dismissal from the degree program. HCFA Students Pre-Requisites: ISYS 105 and MRIS 103. Typically offered Fall, Spring Summer. Identify and apply the fundamentals of cancer registry abstracting. Assessment of clinical information and determine how the information would be reported using the accepted standards for data collection. Prerequisites: MRIS 170, MRIS 180. Typically offered: Summer.

In this course students will use the general and site-specific coding rules for determining the number of primary diagnoses when there are multiple tumors and/or histologic types. It will also review the standards that apply to abstracting and coding of hematopoietic and lymphoid neoplasms. Prerequisites: MRIS 170, MRIS 180. Typically offered: Summer.

A comprehensive review of health information technology concepts related to medical terminology, pathophysiology, and health information statistics, filing and indexing concepts, content and documentation requirements, medicolegal concepts, quality assurance, utilization review, management issues, computer applications in health information and coding applications. Test taking techniques and preparation for the national registered health information technician exam will be addressed. Prerequisites: All required program courses completed prior to this course. Typically Offered Fall, Spring and Summer.

This course will provide best practices for obtaining life-long follow up for appropriate cases. Explanation will be provided on data quality methods, database management and statistics/epidemiology used in a cancer registry. Prerequisites: ISYS 105, MRIS 260. Typically offered: Fall.

Special Topics in MRIS - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

The student will be assigned to a health care facility or coding/billing department for a six week internship where they will gain real-world experience in applying procedures previously taught in the classroom. Students will gain experience coding medical record reports according to ICD-9-CM and CPT coding principles. They will also submit medical claim forms according to the various payor guidelines. Pre-Requisites: Department permission. Typically Offered Fall, Spring, Summer.

Six weeks of professional practice experience in health care settings. Topics to be covered include quality assurance, release of information, coding, abstracting, utilization management, storage and retrieval, computer applications in health information practice, tumor registry and professional interaction with health care facility and medical staff. Health Information students must earn "C" (2.0) or better on first or second attempt. Two unsuccessful attempts (less than "C") will result in dismissal from the Health Information programs. Pre-Requisites: Department approval. Typically Offered Fall, Spring, Summer.

160 hours of clinical practice experience in a cancer registry under the direct supervision of a CTR. Topics to be covered include all aspects of data collection, coding and abstracting cancer data, exposure to cancer conferences/committee functions, data quality management and follow up activities. Prerequisites: Department Approval. Typically Offered: Fall.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

This course will examine the concepts, methods and management tools used in the analysis of health information systems for the development of objectives, policies and procedures, benchmarking, workflow, productivity measurement and layout analysis. The student will be introduced to IT project management in the healthcare setting as well as formal project management techniques. Student must earn "C" (2.0) or better on first or second attempt. Two unsuccessful attempts (less than "C") will result in dismissal from the health information management program. Prerequisites: ISYS 200, MGMT 301, MRIS 293 and HCST 335. Typically Offered Spring only.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MRIS461</td>
<td>Medical Record Information Systems</td>
<td>Health Inform Management Review</td>
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<tr>
<td>MRIS493</td>
<td>Medical Record Information Systems</td>
<td>Professional Practice 2</td>
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<td>MRIS497</td>
<td>Medical Record Information Systems</td>
<td>Special Studies in MRIS</td>
<td>Undergraduate</td>
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<tr>
<td>MSCI111</td>
<td>Military Science</td>
<td>Leadership - Personal Develop</td>
<td>Criminal Justice</td>
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<tr>
<td>MSCI112</td>
<td>Military Science</td>
<td>Intro to Tactical Leadership</td>
<td>Criminal Justice</td>
</tr>
<tr>
<td>MSCI190</td>
<td>Military Science</td>
<td>Special Topics in MSCI</td>
<td>Criminal Justice</td>
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<td>MSCI197</td>
<td>Military Science</td>
<td>Special Studies in MSCI</td>
<td>Criminal Justice</td>
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<tr>
<td>MSCI211</td>
<td>Military Science</td>
<td>Innovative Team Leadership</td>
<td>Criminal Justice</td>
</tr>
<tr>
<td>MSCI212</td>
<td>Military Science</td>
<td>Foundation Tactical Leadership</td>
<td>Criminal Justice</td>
</tr>
<tr>
<td>MSCI293</td>
<td>Military Science</td>
<td>Military Science Basic Camp</td>
<td>Criminal Justice</td>
</tr>
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</table>

A comprehensive review of health information management concepts related to information technology, data security, quality management, human resources, financial management, strategic planning, and project and operations management. Test taking techniques and preparation for the national registered health information administrator exam will be addressed. Prerequisites: All required program courses completed prior to this course. Typically Offered Fall, Spring and Summer.

Ten weeks of supervised professional practice experience in health care settings with emphasis on management and supervision of health information departments. Students will return to campus for one day at the conclusion of their professional practice to present a project activity from the internship experience. They will also take a mock exam similar to the national certification exam. Health information students must earn "C" (2.0) or better on first or second attempt. Two unsuccessful attempts (less than "C") will result in dismissal from the Health Information programs. Pre-Requisites: Department approval. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Introduces students to the personal challenges and competencies that are critical for effective leadership. Students learn how the personal development of life skills such as critical thinking, goal setting, time and stress management and physical fitness relate to leadership in military and civilian professions. The focus is on developing basic knowledge and comprehension of leadership dimensions. These dimensions are applied in weekly Leadership Labs. Typically Offered Fall only.

Overview leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback, and using effective writing skills. Students explore dimensions of leadership values, attributes, skills and actions in the context of practical, hands-on, and interactive exercises. Student role models are implemented in order to build stronger relationships among the students through common experience and practical interaction. Typically Offered Spring only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership framework (trait and behavior theories). Students practice aspects of personal motivation and team building in the context of planning, executing, and assessing team exercises and participating in Leadership Labs. Focus is on continued development of knowledge of leadership values and attributes through an understanding of Army rank, structure, and duties and basic aspects of map reading, orienteering and squad tactics. Case studies provide tangible context for learning the soldier's Creed, Army values, and ethics as they apply in the contemporary operating environment. Physical fitness participation required once a week. Typically Offered Fall only.

Examines the challenges of leading tactical teams. The course highlights dimensions of terrain analysis, patrolling, and operation orders. Further study of the theoretical basis of the Army leadership framework explores the dynamics of adaptive leadership in the context of military operations. Students develop greater self awareness as they assess their own leadership styles and practice communication and team building skills. Case studies give insight into the importance and practice of teamwork and tactics in real-world scenarios. Physical fitness participation required once a week. Prerequisites: M SCI 211 or permission of department. Typically Offered Spring only.

A six week course taught at a major Army installation under the auspices of Army ROTC. Course parallels subjects in the basic program and substitutes for the basic program as prerequisite for enrollment in the advanced program. Students are furnished transportation, room, board, and pay. Credit/no credit only. Pre-Requisites: Department approval. Typically Offered Summer Only.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Type</th>
<th>Major Field</th>
<th>Degree Level</th>
<th>Credits</th>
<th>Lecture Format</th>
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<tr>
<td>MSCI297</td>
<td>Military Science Special Studies in MSCI</td>
<td>ED</td>
<td>Criminal Justice</td>
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<td>1 TO 4</td>
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<td>MSCI311</td>
<td>Military Science Adaptive Team Leadership</td>
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<td>MSCI312</td>
<td>Military Science Ldrship in Changing Environment</td>
<td>ED</td>
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<tr>
<td>MSCI393</td>
<td>Military Science ROTC Advance Camp</td>
<td>ED</td>
<td>Criminal Justice</td>
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<td>1 TO 6</td>
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<td>MSCI397</td>
<td>Military Science Special Studies in MSCI</td>
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<td>Criminal Justice</td>
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<tr>
<td>MSCI411</td>
<td>Military Science Developing Adaptive Leaders</td>
<td>ED</td>
<td>Criminal Justice</td>
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<tr>
<td>MSCI412</td>
<td>Military Science Leadership in a Complex World</td>
<td>ED</td>
<td>Criminal Justice</td>
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<tr>
<td>MUSI121</td>
<td>Music Fundamentals of Music</td>
<td>AS</td>
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<tr>
<td>MUSI131</td>
<td>Music for the Elem Teacher</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>MUSI160</td>
<td>Music Symphony Band</td>
<td>AS</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
</tr>
</tbody>
</table>

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall Only.

Challenges students to study, practice, and evaluate adaptive leadership skills as they are in challenging scenarios. These scenarios are related to small unit tactical operations and used to develop self-awareness and critical thinking skills. Students receive systematic and specific feedback on their leadership abilities. Students at this level begin to analyze and evaluate their own leadership values, attributes, skills and actions. Primary attention is given to the development of leadership abilities. Physical fitness required 3-5 days a week. Prerequisites: MSCI 212 or Permission of Department. Typically Offered Fall only.

Intense situational leadership challenges used to build student skills in leading tactical operations. Builds on squad-level tactics learned in MSCI 311 for leading at the platoon level. Reviews aspects of combat, stability, and support operations. Conduct military briefings and develop proficiency in garrison operation orders. The focus is on exploring, evaluating, and developing skills in decision making, persuading, and motivating team members. Students are evaluated on what they know and do as leaders. Physical fitness required 3-5 days a week. Prerequisites: MSCI 311 or permission of department. Typically Offered Spring only.

A six-week course taught at a major Army installation. Includes practical application of leadership principles and techniques. Applies all subjects covered in MSCI 301 and MSCI 302. Pre-Requisites: MSCI 301 and 302 or Department approval. Typically Offered Summer Only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Develops proficiency in planning, executing, and assessing complex operations. Stresses active-student centered learning using complex scenarios to enhance development of self-awareness and critical thinking skills as a leader. Opportunities given to practice and evaluate adaptive team leadership skills. Including assessing risk, ethical decision making and mentoring subordinates. Physical fitness required 3-5 days a week. Prerequisites: MSCI 311 and 312 or permission of Department. Typically Offered Fall only.

Course explores the dynamics of leading in the complex situations of current operations in the contemporary operating environment. Students examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. They also explore aspects of interacting with nongovernmental organizations, civilians on the battlefield, and host nation support. Course places significant emphasis on preparing students for their first leadership positions. It uses case studies, scenarios, and exercises to prepare students to face the complex ethical and practical demands of leading as a commissioned officer. Physical fitness required 3-5 days a week. Prerequisites: MSCI 411 or permission of department. Typically Offered Spring only.

Notation of pitch, meter, rhythm, ear training and sight singing, structure of all major and minor scales; key signatures, simple triad construction, and basic part-writing related to western and non-western musical structure. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer.

An introduction to music designed to provide the elementary classroom teacher with music terminology, fundamental music knowledge and the basic hands-on music skills necessary to allow the incorporation of music into general classroom activities. Prerequisites: Elementary Education students only. Typically Offered Fall, Spring.

A vocational ensemble whose objective is to read, study, and perform a variety of band literature. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture Activity. Prerequisite: Wind/percussion player with band experience. Typically Offered Fall, Spring, Summer.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Major</th>
<th>Level</th>
<th>Units</th>
<th>Type</th>
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<tr>
<td>MUSI201</td>
<td>Music Beginning Class Piano</td>
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<td>MUSI211</td>
<td>Music Appreciation</td>
<td>Humanities</td>
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<td>MUSI228</td>
<td>Music American Pop Music Since 1900</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>MUSI232</td>
<td>Music and Culture</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>MUSI236</td>
<td>Music in Film</td>
<td>Humanities</td>
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<td>MUSI251</td>
<td>Music Concert Choir</td>
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<tr>
<td>MUSI254</td>
<td>Music The Ferris Wheels-Mens Ensembel</td>
<td>Humanities</td>
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<tr>
<td>MUSI262</td>
<td>Music Concert Band</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>MUSI271</td>
<td>Music Chamber Orchestra</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>MUSI272</td>
<td>Music Chamber Music</td>
<td>Humanities</td>
<td>Undergraduate</td>
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<tr>
<td>MUSI273</td>
<td>Music Private Lesson Practicum</td>
<td>Humanities</td>
<td>Undergraduate</td>
<td>1</td>
<td>LEC</td>
</tr>
</tbody>
</table>

The Piano Class objective is to provide basic music knowledge and basic hands on piano keyboard skills to the beginning student. The student will be expected to understand (including cultural significance), read, and perform (using both hands together) printed piano music and chords. The student will become a functional sightreader at the piano. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered Fall, Spring.

Elements of music and historical developments of western and non-western music. Designed to expand the music listening experience through awareness in technique of listening. Listening and awareness of selected recordings, readings, and attending concerts. No musical background necessary. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer.

Popular music styles and forms that have developed through world culture stressing 20th century American music with emphasis on ethnic diversity including New Orleans dixieland, Chicago dixieland, the blues, ragtime, swing, small group and eclectic jazz styles, country and western, rhythm and blues, rock and roll, folk, the Broadway musical and the popular song. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered Fall, Spring.

Fundamentals of listening (terminology, melody line, texture, harmony, etc.); and the development of musical sound, historically, and listening to music of western and non-western civilizations that relates to ideas in life’s experiences (nature, love, philosophy, etc.). This course meets General Education requirements: Cultural Enrichment, Global Consciousness, and new Fall 2017 Culture, Global Diversity. Typically Offered Fall, Spring.

The background and historical development of music in Cinema. Designed to help the student understand the relationship between music soundtracks and the enjoyment of film. Emphasis on viewing and discussing films and soundtracks from the silent era chronologically through the beginnings of the sound era, the decline of the Hollywood studio system. New cinema from 1960-76, the classic revival 1977-1988, and 1989 through the most current influential 21st century films. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered Fall and Spring.

Study of mixed choral literature from all periods and styles leading to public performances, such as campus concerts, and special events. Scholarship assistance available. This course meets General Education requirements: Cultural Enrichment Activity, new Fall 2017 Culture Activity. Typically Offered Fall, Spring.

Study and performance of TTBB literature. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture Activity. Typically Offered Fall, Spring.

Study of literature for band, leading to on campus and off campus performances. Scholarship assistance is available. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture Activity. Prequisite: Previous Experience Playing Wind/Percussion Instruments. Typically Offered Fall, Spring.

Open to all string and wind players who have had previous orchestra experience. Specializing in the music of the baroque and classical style periods. This ensemble performs for various university functions. Scholarship assistance is available. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture Activity. Typically Offered Fall, Spring.

Preparation and performance of typical chamber music in various chamber ensemble combinations, including traditional and ethnic. Enrollment subject to ensemble need. (Two hours weekly, to be arranged). This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture Activity. Prequisite: Qualified Instrumentalists and instructor approval. Typically Offered Fall, Spring.

This course is available to all students with an interest in continued development of their individual vocal or instrumental music performance skills. Students will receive weekly private lessons with appropriate music assigned for completion at the next lesson. Students will be expected to practice one hour daily in preparation for a pass/fail jury at the completion of the semester. A limited number of selected instruments will be available. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture Activity. Typically Offered Fall, Spring, Summer.
<table>
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<td>MUSI280</td>
<td>Music</td>
<td>Jazz Ensemble</td>
<td>AS Humanities</td>
<td>Undergraduate 1</td>
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<tr>
<td>MUSI290</td>
<td>Music</td>
<td>Special Topics in MUSI</td>
<td>AS Humanities</td>
<td>Undergraduate 1 TO 3</td>
<td>LEC</td>
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<tr>
<td>MUSI297</td>
<td>Music</td>
<td>Special Studies in MUSI</td>
<td>AS Humanities</td>
<td>Undergraduate 1 TO 3</td>
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<td>MUSI301</td>
<td>Music</td>
<td>Intermediate Piano</td>
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<td>MUSI458</td>
<td>Music</td>
<td>Music Technology</td>
<td>AS Humanities</td>
<td>Undergraduate 3</td>
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<td>MUSI590</td>
<td>Music</td>
<td>Special Topics in MUSI</td>
<td>AS Humanities</td>
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<td>NUCM100</td>
<td>Nuclear Medicine</td>
<td>Intro to Nuclear Medicine</td>
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<td>Nuclear Medicine</td>
<td>Practical Math in Nuclear Med</td>
<td>HP Dental Hygiene-Medical Imaging</td>
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<td>Nuclear Medicine</td>
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<td>Nuclear Medicine</td>
<td>Nuclear Med Instrumentation La</td>
<td>HP Dental Hygiene-Medical Imaging</td>
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</table>

Practical experience in playing in a large jazz ensemble. Reading, rehearsing and intensive study of standard and special arrangements with emphasis on contemporary style and artistic expression. Recording and performance for selected university functions and tours. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture Activity. Typically Offered Fall, Spring

Special Topics in MUSI - 200 Level Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Intermediate and advanced level piano class. Designed for students who have taken beginning piano or who have experience with piano. Provides advanced music knowledge. The student will be expected to understand, read, and perform advanced printed piano music and chords. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: MUSI 201 Beginning Class Piano or permission of instructor. Typically Offered Fall and Spring.

Music 458 is a survey of the development of music technology. The class will introduce and apply technologies that include: sound reinforcement, electric instruments including guitar, bass, keyboards/synthesis, MIDI, recording techniques, and relevant psycho-acoustic phenomena. Market and cultural influences will also be addressed. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Registration restricted by permit to allow priority to MIM students due to enrollment growth. Typically Offered Spring and Fall

Special Topics in MUSI - 500 Level Typically Offered On Demand

This course enables students to study at another college/university in the United States, but remain registered at Ferris and be eligible for financial aid through Ferris. No money is paid to Ferris for this course - it is charged and paid through the institution or program the student is registered through. Prerequisites: Complete National Student Exchange approval forms. Typically Offered Fall, Spring, Summer

This course enables students to study at another college/university in the United States, but remain registered at Ferris and be eligible for financial aid through Ferris. This course will be billed to the student at the appropriate FSU rate. Prerequisites: Complete National Student Exchange approval forms. Typically Offered Fall, Spring, Summer

An introductory course to the profession of Nuclear Medicine Technology. The role of the Nuclear Medicine Technologist as a member of the healthcare team will be discussed as well as professional issues associated with this diagnostic imaging modality. Prerequisites: Entry into professional sequence Major restriction: Must be admitted to the Nuclear Medicine Technology Program. Typically Offered Summer.

This course is designed to examine the mathematics that Nuclear Medicine Technologist encounter in the practice of Nuclear Medicine Technology. Emphasis is placed on the application of mathematics in clinical situations. Prerequisites: NMT Major. Typically Offered Summer.

This foundation course examines radiation as it pertains to Nuclear Medicine. Atomic structure, nuclear physics, biologic response to radiation, and radiation protection are emphasized. Prerequisites: NUCM 100 and NUCM 101. Typically Offered Summer.

A laboratory course that emphasizes the material covered in NUCM 110. Radiation safety procedures, characteristics of radiation experiments, and clinical procedures are performed. Prerequisites: Corequisite with NUCM 110. Prerequisites: NMT Major. Typically Offered Summer.

This special studies course has been designed to allow students to work closely with faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Permission only.

Nuclear medicine instrumentation and quality control / quality assurance are emphasized in this course. Prerequisites: NMT Major. Typically Offered Fall.

A laboratory course emphasizing the concepts covered in NUCM 205. Various types of Nuclear Medicine instruments are calibrated, utilized and the results interpreted by the student. Quality assurance and radiation safety is stressed. Prerequisites: NMT Major. Corequisite with NUCM 205. Typically Offered Fall.
NUCM215 Nuclear Medicine  Clinical Procedures 1   HP  Dental Hygiene-Medical Imaging  Undergraduate  4  LEC

NUCM216 Nuclear Medicine  Clinical Procedures 1 Lab   HP  Dental Hygiene-Medical Imaging  Undergraduate  1  LEC

The first of two courses applying the principles and practices of Nuclear Medicine to procedures performed in the clinical setting. Prerequisite: NMT Major. Typically offered Fall only.

A laboratory course emphasizing the material covered in NUCM 215. Preparation of radiopharmaceuticals, quality control, and radiation therapy techniques are emphasized as well as venipuncture techniques. Prerequisites: NMT Major. Corequisite with NUCM 215. Typically Offered Spring only.

NUCM240 Nuclear Medicine  Cross Sectional Imaging   HP  Dental Hygiene-Medical Imaging  Undergraduate  3  LEC

An introduction to the images obtained in nuclear medicine technology, and how they relate to the human body.PECT and PET imaging will be emphasized. Correlation with other medical modalities such as MR, CT, and sonography will be discussed. Prerequisites: NMT Major. Typically Offered Special Topics in NUCM - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

NUCM290 Nuclear Medicine  Special Topics NUCM   HP  Dental Hygiene-Medical Imaging  Undergraduate  1 TO 6  LEC

An advanced imaging course for Nuclear Medicine Technology students introducing the technologies and techniques unique to Positron Emission Tomography (PET), Computed Tomography (CT), Magnetic Resonance (MR) as well as hybrid imaging. Basic principles, image processing and display, image quality, physics of scanning, and patient care will be emphasized. Students will have a strong didactic background of these imaging modalities upon successful completion of this course. Prerequisite NMT Major, Typically offered Summer only.

NUCM320 Nuclear Medicine  Clinical Procedures 2   HP  Dental Hygiene-Medical Imaging  Undergraduate  4  LEC

The second of two courses applying the principles and practices of Nuclear Medicine to procedures performed in the clinical setting. Prerequisite: NMT Major. Typically offered Spring only.

A laboratory course emphasizing material covered in NUCM 320. Routine Nuclear Medicine procedures will be performed by students in a clinical environment. Prerequisites: NMT Major. Corequisite with NUCM 320. Typically Offered Fall Only.

NUCM321 Nuclear Medicine  Clinical Procedures 2 Lab   HP  Dental Hygiene-Medical Imaging  Undergraduate  1  LEC

A course emphasizing the computer processing and image enhancement techniques used in NMT. Special emphasis will be placed on techniques used in SPECT, SPECT/CT, and PET/CT. Prerequisite: NMT Major, Typically offered Spring only.

NUCM340 Nuclear Medicine  Advanced Imaging Techniques   HP  Dental Hygiene-Medical Imaging  Undergraduate  2  LEC

This course prepares students to perform advanced nuclear cardiology procedures as well as provides information regarding electrocardiogram interpretation. Pharmacology and pathology are also emphasized. Prerequisites: NMT Major. Typically Offered Fall and Spring only.

NUCM350 Nuclear Medicine  Nuclear Cardiology   HP  Dental Hygiene-Medical Imaging  Undergraduate  2  LEC

A laboratory course emphasizing the material covered in NUCM 350. Students will learn to interpret ECGs, perform nuclear cardiology studies and respond to cardiac emergencies. Prerequisite: NMT Major. Corequisite with NUCM 350. Typically Offered Spring and Fall only. Emphasis placed on the role of a supervisory nuclear medicine technologist. Topics include capital equipment purchases, reimbursement issues, regulations and guidelines, and budget. Prerequisites: NMT Major. Meets General Education Requirements for Collaboration. Typically Offered Spring Only

NUCM351 Nuclear Medicine  Nuclear Cardiology Lab   HP  Dental Hygiene-Medical Imaging  Undergraduate  1  LEC

This course is designed to enhance pharmacology concepts and principles from previous clinical procedures courses. Specific emphasis will be placed on pharmacologic agents utilized in Nuclear Medicine Technology exams. Prerequisite NMT Major, Typically offered Spring only.

NUCM360 Nuclear Medicine  Management-Leadership in NMT   HP  Dental Hygiene-Medical Imaging  Undergraduate  3  LEC

Special Topics in NUCM 360 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

NUCM370 Nuclear Medicine  Pharmacology in Nuclear Med   HP  Dental Hygiene-Medical Imaging  Undergraduate  1  LEC

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Permission only.

NUCM390 Nuclear Medicine  Special Topics in NUCM   HP  Dental Hygiene-Medical Imaging  Undergraduate  1 TO 6  LEC

The first of two courses that relate Nuclear Medicine theory to practice during clinical internship. An emphasis will be placed on content tested on the certification exams. Co-Prerequisite: NUCM 493, Typically offered Fall only. The second of two courses that relate Nuclear Medicine theory to practice during clinical internship. An emphasis will be placed on content tested on the certification exams. Co-Prerequisite: NUCM 494, Typically offered Spring only.

NUCM397 Nuclear Medicine  Special Studies in Nuc Med   HP  Dental Hygiene-Medical Imaging  Undergraduate  1 TO 4  LEC

NUCM485 Nuclear Medicine  NMT Theory 1   HP  Dental Hygiene-Medical Imaging  Undergraduate  1  LEC

NUCM486 Nuclear Medicine  NMT Theory 2   HP  Dental Hygiene-Medical Imaging  Undergraduate  1  LEC
NUCM493 Nuclear Medicine Clinical Application in NMT 1 HP Dental Hygiene-Medical Imaging Undergraduate 10 LEC

The first of two clinical application courses providing the student with the opportunity to learn basic skills for the production of diagnostic and therapeutic nuclear medicine procedures through a review of previous didactic materials, demonstrations, and supervised clinical laboratory practice. Prerequisites: Permission of program. Typically Offered Fall only.

The second of two clinical application courses, and a continuation of the first course. Prerequisites: NUCM 493. Typically Offered Spring only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

As the capstone of the baccalaureate program, this course assesses the student's comprehension of nuclear medicine technology and general education through written assignments. Pre-Requisites: COHP 450 and NUCM 493. Corequisite: NUCM 494 Meets General Education Requirements for Problem Solving. Typically Offered Spring and Summer only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Department approval. Typically Offered On Demand

This course examines the role of the professional nurse in contemporary nursing practice. The conceptual, theoretical, and scientific basis of nursing practice will be explored. Students will be introduced to concepts related to collaborative practice including roles and responsibilities, values and ethics, communication, and teamwork. Pre-requisite: Admission to the program. Co-requisites: NURS 261 & 262. Typically offered: Fall, Spring, Summer

This course focuses on promoting quality of life across the health continuum. Quality of life is examined using theoretical and ethical models. Students identify health risk behaviors and interventions that affect quality of life during wellness, chronic illness, aging, and at the end of life. Pre-requisite: Admission to the program. Co-requisites: NURS 260 & 262. Typically offered: Fall, Spring, Summer This laboratory course is an extension of the first semester nursing courses. Students will develop clinical reasoning and skills for nursing practice. Pre-requisite: Admission to the program. Co-requisites: NURS 260 & 261. Typically offered: Fall, Spring, Summer

This course examines the pathophysiological alterations that can present in patients across the lifespan including genetic, acute, and rehabilitative conditions. Students will be introduced to variables that impact the etiology and the human response to various disease states as well as optimal levels of wellness, recognizing that these variables will provide the basis for evidence-based nursing care. Pre-requisite: Admission to program. Typically offered: Fall, Spring, Summer Special Topics in NURS - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Department approval. Typically Offered On Demand

This course examines the pathophysiological alterations that can present in patients across the lifespan including genetic, acute, and rehabilitative conditions. Students will be introduced to variables that impact the etiology and human response to various disease states as well as optimal levels of wellness, recognizing that these variables will provide the basis for evidence-based nursing care. Pre-requisite: Admission to the BSN program. Typically Offered Fall, Spring and Summer.

This course introduces the registered nurse baccalaureate (RN to BSN) completion student to health promotion concepts and behavioral change techniques as a basis for clinical prevention and population health in nursing practice. Students will examine health belief and health promotion models and evidence based practice to promote and protect the health of individuals, families, groups, communities and populations. Prerequisites: NURS 324. Typically Offered Fall and Spring.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>School</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
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<td>This course provides a comprehensive introduction to the human experience of aging to include the psychological, social, biological, and physical aspects of aging. The student will examine the interaction of cultural, social, and individual aspects of life which shape the experience of aging and later life. Emphasis is placed on aging in the United States and other countries to provide a comparative perspective of culturally diverse groups of the elderly. Prerequisites: NURS 324 Typically Offered Summer.</td>
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<td>NURS315</td>
<td>End of Life Nursing Care</td>
<td>HP</td>
<td>Undergraduate</td>
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<td>In this course, the undergraduate nursing student will learn how to reduce the burden and distress of those facing life's end by obtaining the knowledge and skills necessary to address the many physical, psychological, social, and spiritual needs of patients and their families. Prerequisites: NURS 324 Typically Offered Spring and Summer.</td>
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<td>NURS316</td>
<td>Transcultural Nursing</td>
<td>HP</td>
<td>Undergraduate</td>
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<td>Experiential immersion in Transcultural nursing provides the professional nursing student with the opportunity to study the influence of culture and health policy on the health of populations outside of North America. This course meets General Education requirements: Global Consciousness, and new Fall 2017 Global Diversity. Prerequisites: NURS 324. Typically Offered Spring only.</td>
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<tr>
<td>NURS317</td>
<td>Spirituality in Nursing Care</td>
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<td>Undergraduate</td>
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<td>The focus of this course is on the person as a spiritual being. The relationship between spirituality and health is explored from historical, contemporary, theoretical, and philosophical perspectives. The student examines the impact of his/her spiritual self-awareness on client care. The nurse's role in providing spiritual care, nurturing the spirit, and integrating evidence based nursing care is emphasized. Prerequisite: NURS 324. Typically Offered Spring and Summer.</td>
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<td>NURS318</td>
<td>Advanced Health Assess</td>
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<td>This course will build upon health assessment skills developed in the professional nurse's basic educational program. It provides an opportunity to develop the knowledge, skills, and processes required for advanced health assessment (e.g., identifying abnormal heart sounds). Laboratory practice with feedback is provided. Prerequisites: NURS 324. Typically Offered Spring only.</td>
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<td>NURS319</td>
<td>Disaster Nur-Emergency Prepare</td>
<td>HP</td>
<td>Undergraduate</td>
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<td>In this course, the undergraduate nursing student, as an emergency caregiver, will learn how to manage specific disaster preparedness and response issues. This course is an in-depth study of the health consequences of some of the most common types of disasters and how nurses can respond effectively in these emergency situations. Prerequisites: NURS 324. Typically Offered Spring and Summer.</td>
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<td>NURS320</td>
<td>RN to BSN Skills Acquisition</td>
<td>HP</td>
<td>Undergraduate</td>
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<td>This course is designed to support the registered nurse baccalaureate (RN to BSN) completion student’s successful entry into and progression in a learner-centered educational program through the attainment of knowledge and skills in healthcare information literacy and technology which are critical to the delivery of quality nursing care. Students will demonstrate a commitment to the professional development of the baccalaureate prepared nurse through guided activities designed to support their learning. Prerequisites: Admission to the RN to BSN Completion Program. Typically offered Fall and Spring.</td>
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<tr>
<td>NURS324</td>
<td>Transition Profess Nursing</td>
<td>HP</td>
<td>Undergraduate</td>
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<td>This course is designed to provide the registered nurse baccalaureate (RN to BSN) completion student with an introduction to the professional nursing role with a focus on nursing and related theories which impact the nursing discipline and practice setting environment. The role of the professional nurse is examined in terms of contemporary role expectations as a foundation for generalist nursing practice. Prerequisites: NURS 320 and ENGL 321. Typically Offered Fall and Spring.</td>
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<td>NURS340</td>
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<td>This course is designed to prepare the baccalaureate nursing student to apply nursing and public health knowledge to population based health care. Students will integrate concepts from epidemiology, public health science, health policy, ethics and social justice in addressing the health status of populations. Prerequisite: CDPH 450. Typically Offered Fall, Spring and Summer.</td>
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<td>NURS360</td>
<td>Pharmacology in Nursing</td>
<td>HP</td>
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<td>This course is an introduction to drug and herbal therapies used in the treatment and prevention of illness across diverse populations and the lifespan. Students will be introduced to the major drug classifications and specific medicinal agents in relation to pharmacodynamics, pharmacokinetics, therapeutic uses, adverse reactions, precautions, and related nursing considerations. Prerequisite: Admission to program. Typically offered: Fall, Spring, Summer</td>
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<td>NURS361</td>
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<td>NURS362</td>
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<td>NURS371</td>
<td>Maternal Health &amp; Childbearing</td>
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<td>NURS372</td>
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<td>NURS373</td>
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<td>NURS397</td>
<td>Special Studies in NURS</td>
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<td>NURS440</td>
<td>Leadership in Nursing</td>
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<td>NURS460</td>
<td>Adult Health 2</td>
<td>HP</td>
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</table>

This course focuses on care for patients and families experiencing alterations in mental and social well-being. Students examine concepts that contribute to the development of mental illness and nursing interventions that promote optimal functioning. A collaborative approach that incorporates psychosocial assessment, pharmacological considerations, and therapeutic communication techniques is emphasized. Students explore the impact of health care policies on the ethical care of vulnerable populations, and advocate for equitable care and dignity for patients. Pre-requisites: NURS 260, 261 & 262. Typically offered: Fall, Spring, Summer

This laboratory course is an extension of the second semester nursing courses. Students will apply clinical reasoning and skills for nursing practice. Pre-requisite: NURS 260, 261 & 262. Typically offered: Fall, Spring, Summer

This course correlates second semester didactic concepts to address the health care needs of clients. This course provides student the opportunity to comprehensively apply clinical concepts through faculty guided experiences. Pre-requisite: NURS 260, 261 & 262. Typically offered: Fall, Spring, Summer

This course focuses on health alterations requiring medical or surgical intervention for the adult population. Students will examine evidence for practice, collaboration among healthcare professionals, promotion of therapeutic relationships, and ethical decision making for quality patient care. Pre-requisite: NURS 264, 360, 361, & 363. Co-requisites: NURS 372 & 373. Typically offered: Fall, Spring, Summer

This course explores the physical, psychological, social, cultural, behavioral, ethical, and spiritual domains as they relate to providing safe and holistic care to women and childbearing families. Emphasis is placed on the role of the client(s) as an integral member of the health care team, childbearing as a normal physiologic process, and the anticipation of potential complications requiring specialized intervention. Pre-requisite: NURS 264, 360, 361, 362, & 363. Typically offered: Fall, Spring, Summer

This course correlates third semester didactic concepts to address the health care needs of clients. This course provides student the opportunity to comprehensively apply clinical concepts through faculty guided experiences. This laboratory course is an extension of the third semester nursing courses. Students will apply clinical reasoning and skills for nursing practice. Pre-requisite: NURS 264, 360, 361, 362, & 363. Co-requisites: NURS 370 & 373. Typically offered: Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Department approval. Typically Offered On Demand

This course is designed to prepare the future baccalaureate nurse leader to assume a leadership role in the design and delivery of interdisciplinary client care within the complexity of the health care system. Students will compare and contrast effective strategies to manage resources, develop healthcare policy, and adhere to regulatory environments in order to foster a culture of quality and safety. Prerequisite: NURS 340. Meets General Education Requirements for Collaboration. Typically Offered Fall, Spring and Summer.

This course focuses on current healthcare trends and issues related to professional nursing practice, nursing research, service learning, and professional development. Students will have the opportunity to synthesize their learning experiences throughout the nursing program to demonstrate personal professional growth and a commitment to professional development. Prerequisites: NURS 440, Meets General Education Requirements for Problem Solving. Typically Offered Fall and Spring.

This course focuses on health alterations requiring medical or surgical intervention for the adult population. The student explores variations of care and the increased use of healthcare resources inherent in caring for patients with complex healthcare needs. Students will examine evidence for practice, collaboration among healthcare professionals, promotion of therapeutic relationships, and ethical decision making for quality patient care. Pre-requisite: NURS 370, 372 & 373. Co-requisites: NURS 462 & 463. Typically offered: Fall, Spring, Summer
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<th>Course Code</th>
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<th>Location</th>
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<td>Nursing</td>
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<td>School of Nursing</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
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This course investigates the knowledge base necessary to practice with families and children as patients in the healthcare environment. Students will examine evidence for practice, collaboration among healthcare professionals, promotion of therapeutic relationships, and ethical decision making for safe, quality pediatric care. Pre-requisite: NURS 264, 360, 361, 362, & 363. Typically offered: Fall, Spring, Summer

This laboratory course is an extension of the fourth semester nursing courses. Students will apply clinical reasoning and skills for nursing practice. Pre-requisite: NURS 370, 372 & 373. Co-requisites: NURS 460 & 463. Typically offered: Fall, Spring, Summer

This course correlates forth semester didactic concepts to address the health care needs of clients. This course provides student the opportunity to comprehensively apply clinical concepts through faculty guided experiences. Pre-requisite: NURS 370, 372 & 373. Co-requisites: NURS 460 & 462. Typically offered: Fall, Spring, Summer

This course prepares the student to apply nursing and public health knowledge to population and community based health care under the overarching concepts of leadership, systems management, and healthcare environment. Students will integrate concepts from epidemiology, public health science, health policy, ethics, and social justice in addressing the health status of vulnerable populations. Pre-requisite: NURS 371, 460, 461, 462, & 463. Co-requisites: NURS 471, 472 & 473. Typically offered: Fall, Spring, Summer

This course focuses on current healthcare trends and issues related to professional nursing practice, nursing research, and professional development. Students will have the opportunity to synthesize their learning experiences throughout the nursing program to demonstrate personal professional growth and a commitment to professional development. Pre-requisite: NURS 371, 460, 461, 462, & 463. Co-requisites: NURS 470, 472 & 473. Typically offered: Fall, Spring, Summer

This course is a synthesis of the knowledge skills and attitudes acquired in previous nursing coursework. Pre-requisite: NURS 371, 460, 461, 462, & 463. Co-requisites: NURS 470, 471, & 473. Typically offered: Fall, Spring, Summer

This course is a synthesis of the knowledge skills and attitudes acquired in previous coursework. Pre-requisite: NURS 371, 460, 461, 462, & 463. Co-requisites: NURS 470, 471, & 472. Typically offered: Fall, Spring, Summer

This elective course provides nursing students with a concentrated clinical experience to enhance their ability to plan, implement, and evaluate nursing care of a specific patient population. This course provides students the opportunity to comprehensively apply clinical concepts through faculty or preceptor guided experiences. Co-requisites: NURS 470, 471, 472, 473. Typically offered: Fall, Spring, Summer

This blended (online and face-to-face) experiential course is an introduction to complementary and integrative health (CIH) for nursing students. Complementary health modalities such as bodywork, breathe work, meditation, holistic nursing, nutritional supplements, and aromatherapy along with whole systems of health such as energy therapies, Ayurveda, homeopathy, Native American and Western herbal medicine will be introduced. Appropriate practice contexts and applications supported by traditional knowledge and research-based evidence will be explored. Students will investigate both the effects of healing environments and self-care with integrative health and will acquire knowledge in the use and application of basic integrative health measures to optimize wellbeing through the life span with a variety of symptoms. Pre-requisite: Nursing student or permission of the faculty. Typically offered: Fall

Special Topics In NURS- 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This course provides the student with a leadership practicum experience designed in collaboration with a faculty member, clinical representative, and student to be carried out in an appropriate health care or community based care setting. Students will integrate knowledge of evidence based practice, quality and safety initiatives and leadership to design, implement, and lead an interdisciplinary team project that will improve client outcomes. Pre-requisites: NURS 440. Typically Offered Fall and Spring. This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Department approval. Typically Offered On Demand
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Type</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>NURS501</td>
<td>Nursing Intro to Adv Nursing Roles</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>NURS511</td>
<td>Nursing Organize and Systems Leadership</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>NURS521</td>
<td>Nursing Health Care Sys, Policy &amp; Advoc</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>NURS531</td>
<td>Nursing Critique of Evidence for Pract</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>NURS541</td>
<td>Nursing Quality Improvement &amp; Safety</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>NURS551</td>
<td>Nursing Clinical Prev &amp; Pop Health</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
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<td>LEC</td>
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<tr>
<td>NURS590</td>
<td>Nursing Special Topics in NURS</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>1 TO 3</td>
<td>LEC</td>
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<tr>
<td>NURS597</td>
<td>Nursing Special Studies Graduate NURS</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>1 TO 4</td>
<td>LEC</td>
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<tr>
<td>NURS601</td>
<td>Nursing Curriculum Design in Nurs Educ</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>NURS611</td>
<td>Nursing Teach Methods in Nursing Educ</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>NURS616</td>
<td>Nursing Cultural Competence Nur Leader</td>
<td>HP School of Nursing</td>
<td>Graduate</td>
<td>3</td>
<td>LEC</td>
</tr>
</tbody>
</table>

This first semester course is designed for the entry level MSN graduate with a focus on the introduction to the advanced nursing roles of nurse educator, nurse administrator, and informatics nursing specialist. Students will explore their selected focus through readings, research, and reflective and scholarly writing. Nursing theory and nursing knowledge development will be introduced and applied to advanced nursing roles. Portfolio development will be initiated for completion during the remainder of the program. Prerequisites: Grad Status. Typically offered Fall, Spring.

This course prepares the graduate nursing student to transform care environments utilizing effective collaboration and communication skills in inter-professional team settings. Students will analyze key issues and challenges affecting outcomes and learn how to be an effective organizational and systems leader. Prerequisites: NURS 501. Typically offered Fall.

This course is designed to explore the political structures and social forces that shape health care delivery. In this course, students will examine the role of the masters-prepared nurse as political activist and policy advocate within the U.S. health care delivery systems of care. Policies that influence health care economics, access, safety, quality, or efficacy will be investigated. Prerequisites: NURS 501. Typically offered Spring.

This course will prepare specialty nurses in scholarly critique of current evidence to indentify the foundational steps of evidence-based practice (EBP). The focus will be on the translation of EBP from research literature to implementation in professional practice. Prerequisites: NURS 501. Typically offered Summer.

This course prepares the graduate nurse to take a leadership role in identifying systems and process failures that lead to errors, monitoring and analyzing information, and initiating quality improvements within organizations. Prerequisites: NURS 501. Typically offered Spring.

A focus on the health care needs at the aggregate and community level based within the context of eliminating health disparities while promoting equity and social justice. A public health scientific approach will be utilized to explore relevant population based topics. Students will participate in designing, implementing, and evaluating a health education program to improve population outcomes. Prerequisites: NURS 501. Typically offered Summer.

Special Topics in NURS - 500 Level. This course covers various topics taught bydverse faculty and may not be offered every semester. Typically Offered On Demand.

This special studies course in NURS Graduate Level has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Department approval. Typically Offered On Demand.

This course will provide the graduate nursing student an overview of the nurse educator role. Students will examine a variety of teaching and learning theories, with an emphasis on the learner-centered philosophy. A wide selection of instructional methodologies appropriate for the higher education setting and staff development will be examined. These methods will be analyzed within the context of nursing education and emerging health care mandates. Students will also examine methods of learning assessment and program evaluation based on current educational and nursing research. Prerequisites: NURS 501. Typically offered Fall.

This course is designed to assist graduate nursing students as emerging nurse leaders with an opportunity to participate in a study abroad experience. This experience will provide them with a forum to engage in a critical and reflective examination of their cultural competence and to encourage them to closely examine and interrogate the ways in which they can support culturally-sensitive nursing care. Prerequisites: NURS 500. Typically offered Spring and Summer.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Delivery Method</th>
<th>School of Nursing</th>
<th>Concentration</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NURS621</td>
<td>Nursing Advanced PPP</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>NURS630</td>
<td>Nursing Clinical Instruction Nursing</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>NURS631</td>
<td>Nursing Leadership Role for Nurs Admin</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>NURS641</td>
<td>Nursing Leadership Role for INS</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>NURS711</td>
<td>Nursing Clinical Practicum I</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>2</td>
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<tr>
<td>NURS712</td>
<td>Nursing Clinical Practicum Prep II</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>2</td>
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<tr>
<td>NURS750</td>
<td>Nursing Intensive I</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>1</td>
</tr>
<tr>
<td>NURS760</td>
<td>Nursing Evidence-Based Practice I</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>NURS765</td>
<td>Nursing Evidence-Based Practice II</td>
<td>HP</td>
<td>School of Nursing</td>
<td>Graduate</td>
<td>3</td>
</tr>
</tbody>
</table>

This course is designed for master’s level nursing students to expand their knowledge and skills in health and physical assessment, pathophysiology, and pharmacotherapeutics, which will provide an advanced foundation for clinical assessment, decision-making, and patient management. The intent is to develop a thorough understanding of the patient’s condition in order to guide novice nursing students in their learning and advance nursing practice. Prerequisites: NURS 501. Typically offered Summer.

This course provides an introduction to the theoretical and logistical components of the clinical educator role within the discipline of nursing education. Student Clinical Educators (SCEs) will learn strategies that promote effective nursing student learning in the clinical setting. A clinical teaching assignment may occur concurrently with this course so the student has application for his or her learning and can be mentored in the role of clinical instructor. Prerequisites: Graduate status or permission from School of Nursing. Typically offered Fall, Spring and Summer.

This course is specifically designed for nursing graduate students who are pursuing the nurse executive or nurse administrator role. In this course, students will explore, examine, and analyze the role of the nurse leader in administrative or executive roles with a strong focus on organizational and systems leadership with the goal of improving patient and health care outcomes. Knowledge gained in this course will aid current and future nurse leaders in meeting the demands of changing patient care services within the entire spectrum of complex, adaptive, health care systems. Prerequisites: NURS 501. Typically offered Fall.

This course is specifically designed for nursing graduate students who are pursuing the informatics specialist (INS) role. In this course, students will learn how to lead the implementation and optimization of health care information systems that directly impact nursing and positive patient outcomes. Prerequisites: NURS 501. Typically offered Fall.

This course builds upon MSN core courses and the Institute of Medicine Core Competencies for health care professionals. Student will design a quality improvement project to be implemented and evaluated in NURS 791. Required project elements include a focus on patient-centered care, inter-professional teamwork, evidence-based practice, quality improvement strategies and information technology. Prerequisites: All Core MSN courses to include NURS 501, 510, 521, 531, 541, 551 and All Specialty Courses in one of the following MSN concentrations: Nursing Education, Nursing Administration or Nursing Informatics. Typically offered Fall, Spring, Summer.

This clinical practicum preparation course is designed to assist graduate students in the design and preparation of their practicum experience that will occur in NURS 792. In this course, the student will design an individualized practicum to prepare for advanced specialty role practice. The student will develop a proposal to synthesize, apply, and demonstrate advanced specialty role knowledge from practice theory and research, within a practice setting chosen by the student related to the specialty field of study. Prerequisites: All 500 and 600 level courses must be complete. Typically offered Fall, Spring, Summer.

This course provides an introductory experience to FSU, emphasizing available FSU and SON resources. It is an introduction to the DNP program structure and expectations for completion. In this seminar the students will explore transitioning to the DNP role, interprofessional implications and issues associated with the DNP role, scholarly writing and portfolio development. This course provides an initial opportunity to network on a face-to-face basis with the student cohort. Prerequisites: Admission to the DNP program or faculty permission. Typically offered Fall.

This course is designed to provide the foundation for applying and implementing research by exploring the nature of inquiry and evaluating designs, methods, and measurements of evidence. Topics of validity, reliability, generalizability, rigor and trustworthiness will be addressed in this course. Likewise, it will focus on the applicability and contribution of research to evidence. Prerequisites: Admission to DNP program or faculty permission. Typically offered Fall.

This course explores translational research for the DNP. Translational research refers to the application of research findings to clinical practice and the process of generating and evaluating outcomes. Translating research joins discovery or research findings to practice. This course focuses on identification of practice problems, the systematic review and synthesis of evidence, and utilization of that evidence in decision making for changing practice. The course places emphasis on the process of translational research. Prerequisites: NURS 760 or faculty permission. Typically offered Fall.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Offered</th>
<th>Pre-Requisites</th>
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<tr>
<td>NURS770</td>
<td>Nursing Theoretical Foundations</td>
<td>3</td>
<td>LEC</td>
<td>Admission to DNP program or faculty permission. Typically offered Spring.</td>
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<tr>
<td>NURS775</td>
<td>Emergent Theories of Health</td>
<td>3</td>
<td>LEC</td>
<td>Admission to DNP program or faculty permission. Typically offered Fall.</td>
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<tr>
<td>NURS791</td>
<td>Clinical Practicum I</td>
<td>3</td>
<td>LEC</td>
<td>Admission to DNP program or faculty permission. Typically offered Fall.</td>
</tr>
<tr>
<td>NURS792</td>
<td>Clinical Practicum II</td>
<td>3</td>
<td>LEC</td>
<td>Admission to DNP program or faculty permission. Typically offered Fall.</td>
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<tr>
<td>NURS797</td>
<td>Special Studies in NURS</td>
<td>1 TO 4</td>
<td>LEC</td>
<td>Admission to DNP program or faculty permission. Typically offered Fall.</td>
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<td>NURS800</td>
<td>Intensive II</td>
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<td>Admission to DNP program or faculty permission. Typically offered Summer.</td>
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<tr>
<td>NURS820</td>
<td>Informatics for Leadership</td>
<td>3</td>
<td>LEC</td>
<td>Admission to DNP program or faculty permission. Typically offered Summer.</td>
</tr>
<tr>
<td>NURS823</td>
<td>Healthcare and Social Policy</td>
<td>3</td>
<td>LEC</td>
<td>Admission to DNP program or faculty permission. Typically offered Summer.</td>
</tr>
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</table>

Theoretical Foundations of Advanced/Specialty Nursing Practice will explore the philosophical and scientific base of theories, different levels of theory, and the evolution of nursing science. Grand nursing theories, midlevel theories, and practice theory including theories and models of evidence-based practice will be critiqued in relationship to scholarly literature and research. Ethical foundations of practice along with multiple patterns of knowing will be addressed in this course. Prerequisites: Admission to DNP program or faculty permission. Typically offered Spring.

This course will focus on midlevel and practice theories, originating in nursing and other scientific disciplines. Theories of health, health promotion, behavioral change, and chronic disease in populations that shape healthcare will be explored. In the context of emergent health and disease theories, this course will look at new directions and innovative problem solving for health promotion with chronic disease and formulate potential research and practice agendas. Prerequisites: Admission to DNP program or faculty permission. Typically offered Fall.

This course builds upon MSN core courses and the Institute of Medicine Core Competencies for healthcare professionals. Students will implement the quality improvement project plan developed in NURS 710. This practicum will have 120 hours with an expert nurse clinician preceptor. Prerequisites: NURS 711. Typically offered Fall, Spring, Summer.

This capstone practicum will integrate previous knowledge from the MSN specialty courses and allow the student to develop proficiency in the advanced specialty role. This course is designed for application, demonstration, and synthesis of theory and competencies related to the role of nurse administrator, educator, or informatics nurse specialist. Learning experiences are planned and negotiated to meet individual learning goals in the context of preceptor supervised experiences. This practicum will have 120 hours with an approved preceptor in the specialty role. Prerequisites: NURS 712. Typically offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Department approval. Typically Offered On Demand.

This seminar provides an overview of the changing culture of Western healthcare as context for the clinical doctorate in nursing. Professional issues such as communication, intellectual capital, diversity, and personalizing healthcare (relationship-based care) protocol-based or standardized healthcare will be discussed. Research with specific populations (including transcultural and vulnerable populations) will be focused on. Scholarly projects will be reviewed to date with plans for problem solving and completion. Prerequisites: NURS 750 or faculty permission. Typically offered Summer.

This course will explore the ongoing digital transformation of healthcare and impacts of the electronic environments on healthcare at multiple levels. The EMR and data mining with utilization and interpretation will be a focus of this course. Special issues that integrate with digital healthcare measures will be addressed, including, correlation and causation, credibility, privacy, consent and confidentiality, social networking, medicine by web, personalization of healthcare. Likewise, this course will evaluate the use of digital technology for health promotion of populations and the improvement of healthcare delivery. Prerequisites: Admission to the DNP program or faculty permission. Typically offered Spring.

This course is focused on the constructs of social justice and social determinants in population healthcare. It will explore the legislative and economic policies and policy pathways impacting healthcare. Policy change processes, issues, implications, and policies currently intersecting with and impacting healthcare will be appraised. Social issues such as vulnerable populations, health disparities at the individual, community, state, national levels, health literacy, provider shortages, and economics of healthcare will be the focus of this course. US healthcare structures and systems will be examined along with worldwide healthcare structures and models in the framework of current healthcare issues. Prerequisites: Admission to DNP program or faculty permission. Typically offered Summer.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>School</th>
<th>Program Level</th>
<th>Credits</th>
</tr>
</thead>
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<tr>
<td>NURS825</td>
<td>Nursing Healthcare Program Development</td>
<td>HP</td>
<td>Graduate</td>
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</tr>
<tr>
<td>NURS870</td>
<td>Evidence-Based Practice III</td>
<td>HP</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>NURS880</td>
<td>Healthcare Systems Leadership</td>
<td>HP</td>
<td>Graduate</td>
<td>3</td>
</tr>
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<td>NURS891</td>
<td>Residency I</td>
<td>HP</td>
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<td>3</td>
</tr>
<tr>
<td>NURS892</td>
<td>Residency II</td>
<td>HP</td>
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<td>3</td>
</tr>
<tr>
<td>NURS893</td>
<td>Residency III</td>
<td>HP</td>
<td>Graduate</td>
<td>3</td>
</tr>
</tbody>
</table>

Principles of communication, collaboration, resource allocation, quality and safety, excellence, and evidence-based decision making for best practices will be integrated for strategic program development, implementation, and evaluation for optimal micro systems of healthcare. Implementation models will be explored with evaluation of care systems. Tools for evaluation of program outcomes will be designed for quality and prospective system changes. Macro-system variables on healthcare will be explored in relationship to risk and productivity. Prerequisites: Admission to DNP program or faculty permission. Typically offered Fall.

Evidence-based Practice III focuses on population based research methods (including epidemiology, cohort and case controlled research), analysis and utilization. Research in select population health and program or intervention effectiveness will be addressed in relation to healthcare practices, outcomes, and data usage. Prerequisites: NURS 760 and NURS 765 or faculty permission. Typically offered Fall.

This course centers on creative inquiry with the application and integration of implementation models, and systems theories of leadership embedded in healthcare structures and organizations. Problem-solving in complex organizations with collaboration and communication skills will be framed with leadership theories. Leadership theories for population health and relationship-based care are addressed in the contexts of change in complex healthcare systems, best practice, dimensions of excellence, and emerging research. Prerequisites: Admission to DNP program or faculty permission. Typically offered Spring.

Residency is clinical immersion with leadership experience in which research is translated and integrated within a healthcare system. Residency provides clinical hours in one, two, or three semesters in a leadership capacity in the student’s advanced practice/specialty area with a preceptor. Each residency includes clinical hours that contribute towards the scholarly DNP project. Prior to initiation of immersion courses, scholarly project proposals will be completed and approved by faculty advisors. Part of the initial immersion is to refine the proposal and negotiate the scholarly project with mentor and place of residency. The second and third immersion courses include implementation, evaluation, and dissemination of the project. Clinical hours will be adjusted on an individual basis. Prerequisites: Advisor permission. Typically offered Fall, Spring, Summer.

Residency is clinical immersion with leadership experience in which research is translated and integrated within a healthcare system. Residency provides clinical hours in one, two, or three semesters in a leadership capacity in the student’s advanced practice/specialty area with a preceptor. Each residency includes clinical hours that contribute towards the scholarly DNP project. Prior to initiation of immersion courses, scholarly project proposals will be completed and approved by faculty advisors. Part of the initial immersion is to refine the proposal and negotiate the scholarly project with mentor and place of residency. The second and third immersion courses include implementation, evaluation, and dissemination of the project. Clinical hours will be adjusted on an individual basis. Prerequisites: NURS 891 or advisor permission. Typically offered Fall, Spring, Summer.

Residency is clinical immersion with leadership experience in which research is translated and integrated within a healthcare system. Residency provides clinical hours in one, two, or three semesters in a leadership capacity in the student’s advanced practice/specialty area with a preceptor. Each residency includes clinical hours that contribute towards the scholarly DNP project. Prior to initiation of immersion courses, scholarly project proposals will be completed and approved by faculty advisors. Part of the initial immersion is to refine the proposal and negotiate the scholarly project with mentor and place of residency. The second and third immersion courses include implementation, evaluation, and dissemination of the project. Clinical hours will be adjusted on an individual basis. Prerequisites: NURS 892 or advisor permission. Typically offered Fall, Spring, Summer.
### NURS899 Nursing DNP Integration

**HP** School of Nursing
**Graduate** 4 **LEC**

DNP Integration is a synthesis of DNP course and residency/project work. Integration includes a comprehensive oral defense and presentation of the DNP project. The comprehensive defense represents mastery and integration of clinical doctoral knowledge and skills preparatory for, and deemed as essential for scholarly activity and clinical practice in, advanced/specialty nursing. Plans for project dissemination and sustainability will be included in the defense. The final project represents the synthesis and application of appropriate literature, scientific research, and advance practice knowledge for practice modification with research translation. Finally, the student will submit a professional portfolio of student-selected scholarly work from across the DNP experience/curriculum. **Pre-requisites:** NURS 891 and advisor permission. Typically offered: Fall, Spring, Summer.

### OPTM511 Optometry Introduction to Optometry

**OP** MI College of Optometry
**1st Professional** 1 **LEC**

An overview of the profession of optometry and optometric education. The concept of professionalism as it relates to being a professional level student and to the practice of optometry. **Typically Offered Fall Only**

### OPTM514 Optometry Ethics Dr-Patient Relationship

**OP** MI College of Optometry
**1st Professional** 1 **LEC**

Basic ethical theory, fundamental principles and decision making. Codes of ethics and ethics applied to patient care. Effective doctor/patient communication and rapport. **Typically Offered Fall Only**

### OPTM524 Optometry Geom-Phys-Visual Optics 1

**OP** MI College of Optometry
**1st Professional** 5 **LEC**


### OPTM525 Optometry Geom-Phys-Visual Optics 2

**OP** MI College of Optometry
**1st Professional** 4 **LEC**


### OPTM526 Optometry Vision Science 1

**OP** MI College of Optometry
**1st Professional** 5 **LEC**

An examination of the basic techniques, terminology, concepts, and fundamental data involved in the study of human vision, including specification of the visual stimulus, visual optics, duplicity, photochemistry, color vision, ocular motility and spatio-temporal monocular afferent processing. Psychophysical and electrophysiological data will be considered and compared. **Pre-Requisites:** OPTM 524 and OPTM 534. **Typically Offered Spring Only**

### OPTM534 Optometry Ocular Anatomy and Physiology

**OP** MI College of Optometry
**1st Professional** 4 **LEC**

A detailed discussion of the anatomy of the orbit. Particular emphasis is given to cellular, histological, and gross anatomical organization of the eye. The anatomical relationships of the orbital contents including the extraocular muscles, the orbital nerves, the orbital blood vessels, and the ocular adnexa are described. Physiology and biochemistry of the principal constituents of the eye, including: the cornea, crystalline lens, aqueous humor, vitreous humor, retina, ciliary apparatus and tear film. **Typically Offered Fall Only**

### OPTM543 Optometry Optometric Procedures 1

**OP** MI College of Optometry
**1st Professional** 5 **LEC**

Basic understanding of objective and subjective refractive error determination of the human eye, accommodative and ocular motor function testing, and the interrelation and analysis of relevant data. **Pre-Requisites:** OPTM 524 and OPTM 534. **Typically Offered Spring Only**

### OPTM559 Optometry Intro - Medical Record Keeping

**OP** MI College of Optometry
**1st Professional** 1 **LEC**

Theoretical and practical experience in using electronic health records to improve patient care outcomes. Topics include HIPAA security, medical terminology, adding/editing patient records, professional communications. **Typically offered: Spring**

### OPTM615 Optometry Practice Management 1

**OP** MI College of Optometry
**1st Professional** 2 **LEC**

This course will involve strategies for debt management and personal finance, as they affect optometric practice. In addition, adjunct topics include financial management, managed care, HIPAA, and other legal issues which may affect optometric practice. **Prerequisites:** OPTM 511. **Typically Offered Fall Only**

### OPTM627 Optometry Vision Science 2

**OP** MI College of Optometry
**1st Professional** 4 **LEC**

This course is a continuation of Vision Science 1. Content will include advanced analysis of spatial vision, binocular vision, extra striate processing of visual information, an integrated approach to ocular motility, and developmental issues in vision science. **Prerequisites:** OPTM 526. **Typically Offered Fall Only**

Prerequisites: OPTM 525. Typically Offered Fall Only

Course provides students with a basic knowledge base to address environmental concerns related to visual safety, protection, and potential hazards. The course also includes a laboratory portion preparing the student to competently address issues commonly found in modern ophthalmic dispensary.

Prerequisites: OPTM 628. Typically Offered Spring Only

The course will introduce students to the principles, diagnostic strategies, and therapies associated with various pathological disorders of the human body. Systemic anomalies, as well as specific local phenomena will be described, with emphasis on possible ocular implications. Prerequisites: BIOL 538. Typically Offered Fall Only.

Principles and techniques of general physical examination of patients and associated diagnostic tests and procedures. Enables the optometrist to more effectively communicate with other health care professionals about the general health of their patients. Prerequisite: OPTM 630. Typically offered in the spring.

History, theory and clinical application of ocular laser procedures will be discussed. Laser surgery for the treatment of anterior and posterior segment ocular diseases and refractive surgery for correction of myopia, hyperopia, astigmatism and presbyopia will be emphasized. Typically offered in the spring.

Study of the cells of the nervous system and synaptic transmission. Development of the nervous system and comprehensive review of functional anatomy of the central and peripheral nervous systems. Special emphasis on brainstem, cranial nerve, and cortical anatomy. Prerequisites: BIOL 538. Typically Offered Fall Only

Diagnosis and management of anterior segment trauma and disease including specific signs and symptoms common with the eyelid, conjunctiva, cornea, lacrimal apparatus, orbit, sclera, and episclera. Prerequisites: OPTM 534 and OPTM 644. Typically Offered Spring Only

Theory and practical experience in basic tests, instrumentation and procedures necessary to evaluate the ocular health status of a patient. Topics include: case history, sphynxomonometer, gross external examination of the eye and adnexa, pupil and muscle functions, anterior and posterior segment examination, tonometry, visual acuity, and visual fields assessment. Prerequisites: OPTM 543. Typically Offered Fall Only

This course teaches the theory and clinical evaluation of anomalies of the binocular system. Description and case presentation of non-strabismic anomalies (heterophoria, accommodation, and eye movement disorders) develops the clinical understanding of diagnostic and management sequences and clinical procedures. These skills are further developed in the diagnosis and management of strabismus and its complications (ambyopia and anomalous correspondence). Prerequisites: OPTM 627 and OPTM 644. Typically Offered Spring Only

Course includes the theory and practice of the physiology, optics, design, fitting, and inspection related to hydrogels and rigid gas permeable contact lenses. Also, the pharmacology and use of related solutions and contact lens care systems will be covered. Prerequisites: OPTM 534, OPTM 628 and OPTM 644. Typically Offered Spring Only

Introductory patient care experience. Includes professionalism, clinical skills, patient management, and case analysis. Prerequisites: OPTM 644. Typically Offered Spring Only

Simulated patient experiences will be completed by the participants in order to enhance their abilities to 1) elicit an organized case history; 2) complete an appropriate, problem-oriented examination; 3) arrive at accurate differential diagnoses; 4) develop effective and appropriate treatment plans; 5) write accurate prescriptions for legend drugs; and 6) properly code the simulated visit for reimbursement. A variety of refractive, accommodative, convergence and ocular disease conditions that are representative of primary optometric care will be presented. Typically Offered Spring Only

Direct patient care experience in the clinical practice of optometry at the on-campus clinic. Contact hours depend on number of credits assigned. Pre-Requisites: OPTM 533 & 551 & 581 and Department approval. Typically Offered Summer Only
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course will introduce the student to relevant principles of public health and their application to clinical optometry. Topics include U. S. health care system, health care economics, third party payment programs, managed care, and governmental organizations. Delivery of eye care services in a hospital environment will also be discussed. Typically Offered: Summer Only

Advanced optometric practice management covering personal financial planning, practice acquisition, business financial planning, marketing, optometric risk management and optometric office management. Prerequisites: OPTM 615. Typically Offered Spring Only

The pharmacological aspects of topical, oral, injectible, and other drugs used to manage ocular conditions are presented. In addition, simulated case studies are used to illustrate the basic and subtle clinical aspects of treating patients using pharmaceutical agents. Prerequisites: OPTM 636 and OPTM 733. Typically Offered Fall Only

The general principles of pharmacology including the actions, mechanisms of actions, absorption, rate, excretions, toxicity, and the diagnostic and therapeutic uses of both systemic and ocular drugs will be discussed. Also included are the pharmaceutical treatments for HIV and AIDS. The systemic effects of ocularily administered drugs and the ocular effects of systemically administered drugs are included. Prerequisite: OPTM 630. Typically offered in the summer.

Anatomy and physiology of the eye related to the mechanism of glaucoma will be reviewed. Diagnosing primary and secondary open angle glaucoma and acute closed angle glaucoma utilizing computerized visual fields, photography, nerve fiber layer analysis, gonioscopy and optic nerve head examination along with advancements in medical and surgical treatment strategies for open angle, closed angle and secondary glaucoma will be discussed. Prerequisites: OPTM 636. Typically Offered Fall Only

The diagnosis and management of posterior segment disorders including uveal disease, infectious disease, connective tissue disease, cardiovascular disease, blood disorders, diabetes, maculopathies, and peripheral retinal disorders. Prerequisites: OPTM 636. Typically Offered Fall Only

Course emphasizes the specific surgical, laser and/or medical management of patients with ocular disease. A portion of the course is taught by visiting optometrists and ophthalmologists from various specialties (retina, glaucoma, cornea, etc.). The differential diagnosis of eye disease is also emphasized. Prerequisites: OPTM 732, OPTM 734 and OPTM 736. Typically Offered Spring Only

This course covers the cognitive and psychomotor skills necessary for injectable pharmaceuticals used in optometric practice including the proper techniques for starting intravenous infusions and administering sub-conjunctival, intralesional, subcutaneous, intradermal and intramuscular injections. Typically offered: Summer Only

A clinical approach to neuro-optometric issues. The course covers eye movement diagnostics and disorders, pupil disorders, headaches, nystagmus, visual field defects and the effects of traumatic brain injury. Prerequisites: OPTM 635. Typically Offered Spring Only

This course combines infant and pediatric primary eye and vision care and care of patients with vision-related learning problems. Topics include infant vision assessment, pediatric visual acuity testing, pediatric binocular vision assessment, ocular disease in children, concepts of child development, disturbances in normal development, learning disabilities, attention, memory, visual-motor integration and reading and dyslexia. Prerequisites: OPTM 746. Typically Offered Fall Only

The course objective is for students to develop an increased understanding of the elderly. The course content is adapted from A Recommended Continuing Curriculum: Geriatric Optometry for the Primary Care Practice prepared by the AOA Geriatrics and Nursing Facility Committee in June 2001. Content experts will give presentations on a variety of topics impacting the elderly and students will collaboratively evaluate the information for optometric significance. Typically offered: Spring Only

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Degree</th>
<th>Unit</th>
<th>Type</th>
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<tbody>
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<td>OPTM697</td>
<td>Optometry Special Studies</td>
<td>MI College of Optometry</td>
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<td>OPTM717</td>
<td>Optometry Public Health and Optometry</td>
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<td>OPTM736</td>
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<td>OPTM737</td>
<td>Optometry Adv Ocular Disease-Surg Mgmt</td>
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<td>OPTM738</td>
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<td>OPTM739</td>
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<td>OPTM741</td>
<td>Optometry Dev-Behavioral Pediatric Opt</td>
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<tr>
<td>OPTM744</td>
<td>Optometry Optometric Gerontology</td>
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<td>1st Professional</td>
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The course identifies testing methods to determine the visual acuity, contrast sensitivity, color vision, and visual field of individuals who are either visually impaired or legally blind. Management of these functional losses may include use of optical and nonoptical devices, rehabilitation services and orientation/mobility services. Optometric issues related to the geriatric patient are also covered.

Prerequisites: OPTM 629. Typically Offered Spring Only

This course will discuss identifying a patient’s visual demands in comparison to his/her visual abilities, including various occupations with special visual demands. The student will learn how to use vision therapy techniques to improve a patient’s visual abilities. Therapies for suppression, accommodative dysfunction, ocular motor disorders, noncompliance, and abnormal correspondence will be discussed, along with sports vision therapies for children. Prequisite: OPTM 645 Typically Offered: Summer Only

Course pertains primarily to advanced contact lens topics including extended wear, bifocal/multifocals, high toric, irregular cornea, keratoconus and orthokeratology. The fitting of cosmetic contact lenses and the management of complications resulting from contact lens wear will also be covered. Ongoing assessment will be performed utilizing the Computer Performance System. Prequisite: OPTM 648 Typically Offered: Summer Only

Additional patient care experiences to refine clinical skills and analysis of visual problems. Prequisite: OPTM 650 Typically Offered: Summer Only

Patient care experience in the clinical practice of optometry. Includes seminar and record review to sharpen decision making in diagnosis, management, and treatment. Prequisites: OPTM 633, OPTM 746, OPTM 749 and OPTM 751. Typically Offered Fall Only

Patient care experience in the clinical practice of optometry. Includes seminar and case study review to sharpen decision making in diagnosis, management, and treatment. Prequisites: OPTM 752. Typically Offered Spring Only

Simulated patient experiences will be completed by the participants in order to enhance their abilities to 1) elicit an organized case history; 2) complete an appropriate, problem-oriented examination; 3) arrive at accurate differential diagnoses; 4) develop effective and appropriate treatment plans; 5) write accurate prescriptions for legend drugs; and 6) properly code the simulated visit for reimbursement. A variety of refractive, accommodative, convergence and ocular disease conditions that are representative of primary optometric care will be presented. Prequisite: OPTM 657 Typically Offered: Summer Only

Simulated patient experiences will be completed by the participants in order to enhance their abilities to 1) elicit an organized case history; 2) complete an appropriate, problem-oriented examination; 3) arrive at accurate differential diagnoses; 4) develop effective and appropriate treatment plans; 5) write accurate prescriptions for eyeglasses, contact lenses, and legend drugs; and 6) properly code the simulated visit for reimbursement. A variety of refractive, accommodative, convergence, and ocular disease conditions that are representative of primary optometric care will be presented. Prequisites: OPTM 758. Typically Offered Spring Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

An asynchronous interactive Web based course covering such topics as the 4th year clinical experience, clinical self-assessment, optometric patient cases, practice management and ethics. Typically Offered Summer Only

An asynchronous interactive Web based course covering such topics as the 4th year clinical experience, clinical self-assessment, optometric patient cases, practice management and ethics. Typically Offered Fall Only

An asynchronous interactive Web based course covering such topics as the 4th year clinical experience, clinical self-assessment, optometric patient cases, practice management and ethics. Typically Offered Spring Only

Individual or group research project resulting in a paper. Typically Offered Spring Only
Advanced patient care experience in the clinical practice of optometry at on and/or off campus clinics. Pre-Requisites: OPTM 753. Typically Offered Summer Only

Advanced patient care experience in the clinical practice of optometry at on and/or off campus clinics. Pre-Requisites: OPTM 753. Typically Offered Fall Only

Advanced patient care experience in the clinical practice of optometry at on and/or off campus clinics. Pre-Requisites: OPTM 753. Typically Offered Spring Only

This course enables students to study at another college/university outside of the United States, but remain registered at Ferris and be eligible for financial aid through Ferris. The site and student must be approved through the appropriate department office as well as the University Center for Extended Learning Office. No money is paid to Ferris for this course - it is charged and paid through the institution or program the student is registered through. Pre-Requisites: Completed Study Abroad Approval Form. Typically Offered Fall, Spring, Summer

This course enables students to study at another college/university outside of the United States, but remain registered at Ferris and be eligible for financial aid through Ferris. The site and student must be approved through the appropriate department office as well as the University Center for Extended Learning Office. This course will be billed to the student at the appropriate FSU rate. Pre-Requisites: Completed Study Abroad Approval Form. Typically Offered Fall, Spring, Summer

This course enables students to study at another college/university outside of the United States, but remain registered at Ferris and be eligible for financial aid through Ferris. The site and student must be approved through the appropriate department office as well as the University Center for Extended Learning Office. No money is paid to Ferris for this course - it is charged and paid through the institution or program the student is registered through. Pre-Requisites: Completed Study Abroad Approval Form. Typically offered Fall, Spring, Summer

PDDE Orientation and Degree Planning is a seminar intended to assist first-year Product Design Engineering Technology (PDDE) students in developing an individual program plan which will complete the requirements for the BS in PDDE in four academic years while allowing each student to include courses within an area of personal interest. The seminar will provide an overview of the mechanical product design profession and familiarize PDDE students with the requirements of relevant existing certificates and minors that could be included in their four-year degree plan. Each student will complete an individualized plan of study including areas of personal interest that include all existing PDDE degree requirements. Typically offered Spring.

This is an introductory course in which the student will focus on techniques for developing 3-dimensions computer generated models. Students will develop skills using parametric based Computer Aided Design software. The student will receive exposure to basic 3-D modeling principles used to generate robust models in 3-D space. Typically Offered Fall and Spring.

Special Topics in PDDE - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring and Summer.

The seminar in Design Career Preparation is intended to familiarize students with the employment processes typically used by companies to hire mechanical design professionals. The course will familiarize students with campus employment resources as well as commercial employment agencies, and prepare students to successfully obtain an internship experience. As part of the course, students will be required to prepare an acceptable individual resume for mechanical design employment and to properly submit their credentials to potential employers. Typically offered Spring.

Seminar course involving the study and analysis of product design as an academic discipline, a career, and as an industrial department. The design process and design considerations will also be covered. Pre-Requisites: Product Design Engineering Technology students only. Typically Offered Fall Only

Advanced study of product dimensioning and tolerancing which involves the X-Y coordinate systems, geometric dimensioning and tolerancing, tolerancing charts and studies. Pre-Requisites: Junior Status or by permit. Typically Offered Fall Only
<table>
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<tr>
<th>Course Code</th>
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<th>Department</th>
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<td>PDET415</td>
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<td>PDET490</td>
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<td>TE</td>
<td>Mechanical Design Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
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<tr>
<td>PDET497</td>
<td>Special Studies in PDET</td>
<td>Engin Tech</td>
<td>TE</td>
<td>Mechanical Design Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
</tr>
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</table>

**PDET321 Product Design**

Review of two- and three-dimensional force systems using graphical and analytical methods with vector concepts. The study of kinetics, work, energy, and power. Study of displacement, velocity, and acceleration of mechanisms. This includes linear and angular motions. Emphasis is placed on motions of four-bar linkage, gears, cams and automation devices.  

**Prerequisites:** MATH 126 or a minimum score of 26 on ACT or 590 on pre 2016 SAT or 610 post 2016 SAT; & MECH 340. Typically Offered Spring Only

**PDET322 Product Design**

Model - Prototype Development

Computer aided techniques for model and prototype development is the focus. Traditional and modern rapid prototyping methods are covered.  

**Prerequisites:** Junior status or by permit. Typically Offered Spring Only

**PDET393 Product Design**

PDET Professional Internship

Places the student in an industrial setting to face the realities of the working world after completing their junior year. The unique experience that the student will receive is a combined effort of the training site, university and student. Students will be involved in the industrial projects and daily activities of a product designer for their employer.  

**Prerequisites:** Senior status & Product Design Engineering Technology students only. Typically Offered Summer Only

**PDET397 Product Design**

Special Studies in PDET

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  

**Prerequisites:** Junior status & Product Design Engineering Technology students only. Typically Offered Fall, Spring, Summer

**PDET411 Product Design**

Machine Design

Principles of design as they relate to sizing and shaping of machine elements are covered. Calculations made in creating elements, as well as justifying the use of commercially available elements is emphasized. Selection of material and optimization under given loads considered in designing.  

**Prerequisites:** MECH 340 and MATH 126 or MATH 130. Typically Offered Fall Only

**PDET412 Product Design**

Statistics - Ergonomics

Study of basic procedures used in analyzing data that is gathered in industrial settings. Focuses on the design of descriptive and inferential studies which analyze relationships among two or more variables through probabilistic models. Prerequisites: Junior status or by permit. Meets General Education Requirements for Collaboration. Typically Offered Fall Only

**PDET413 Product Design**

Applied Fluids - Thermodynamics

Provides the product designer with an understanding of applied fluid mechanics and thermodynamics adequate to analyze, design and/or modify a wide range of products. Begins with the development of critical fluid flow terms and concepts common to both fluid and thermodynamic problems. The thermodynamic portion addresses the concept of energy conversion and extends into the development and applications of the first law. The second and third laws are presented and developed into an understanding of thermal efficiency. Heat transfer thermodynamics is a significant area of concentration. The fluid dynamics portion covers basic fluid science concepts and develops the background necessary to design / understand basic hydraulic systems.  

**Prerequisites:** MATH 126 or MATH 130. Typically Offered Fall Only

**PDET415 Product Design**

Advanced Solid Modeling CAD

Course covers advanced concepts in three dimensional CAD solid modelling. Students will use advanced software features to create CAD models suitable for rapid prototyping.  

**Prerequisites:** MATH 322. Meets General Education Requirements for Collaboration. Typically Offered Fall Only

**PDET422 Product Design**

Advanced Machine Design

This course is a continuation of POET 411. The course initially reviews the basics of mechanical power transmission. Detailed coverage is then provided for three major drive components (belts, chain and gear drives). In a parallel portion of the course, the student is provided with the knowledge to complete basic static Finite Element Analysis (FEA) of mechanical components using a representative commercially available software package. Completing the course is a representative Product Design problem using FEA.  

**Prerequisites:** MATH 322 and MATH 411. Meets General Education Requirements for Problem Solving. Typically Offered Spring Only

**PDET490 Product Design**

Special Topics in PDET

Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  

**PDET497 Product Design**

Special Studies in PDET

Typically Offered On Demand
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<th>Description</th>
<th>Prerequisites</th>
</tr>
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<tr>
<td>PDET499</td>
<td>Product Design Engin Tech</td>
<td>Study the synthesis of all academic material related to the development and computerized design documentation of a fully defined product design problem. Capstone assessment tool for all product design engineering technology program students. Meets General Education Requirements for Problem Solving. Typically Offered Spring Only</td>
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<tr>
<td>PGMG101</td>
<td>Professional Golf Management</td>
<td>Career opportunities, the relationship between marketing and professional golf management and the role of the golf professional in the industry. Also, membership requirements of the Professional Golfers Association of America and the place in the profession of the PGA and other golf organizations. Credit/no credit grading. Pre-Requisites: Professional Golf Management students only. Typically Offered Fall Only</td>
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<tr>
<td>PGMG192</td>
<td>Professional Golf Management</td>
<td>A full-time (600 hours) supervised work experience at an approved golf facility working for a member of the Professional Golfers Association of America. Also at a PGA Section or National office. Includes a pre and post co-op meeting. Written assignments include completing portions of the PGA Apprentice Workbook. Pre-Requisites: Professional Golf Management students only. Typically Offered Fall, Spring, Summer</td>
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<td>PGMG201</td>
<td>Professional Golf Management</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer</td>
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<tr>
<td>PGMG202</td>
<td>Professional Golf Management</td>
<td>A PGM program specific course to cover introduction to PGA/PGM program Level One courses. Courses covered include, PGA Constitution, Rules of Golf, Golf Car Fleet Management, and Career Enhancement. Prerequisites: PGMG 101 Typically Offered Spring only.</td>
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<tr>
<td>PGMG292</td>
<td>Professional Golf Management</td>
<td>A PGM specific course to cover introduction to PGA/PGM program Level One courses. Topics covered include: Golfer Development Programs, Golf Club Design and Repair, Tournament Operations, and Level Two Seminar Preparation. Prerequisites: PGMG 102. Typically Offered Spring only.</td>
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<tr>
<td>PGMG340</td>
<td>Professional Golf Management</td>
<td>Continuation of PGMG 192. Pre-Requisites: Professional Golf Management students only. Typically Offered Fall, Spring, Summer. A PGM specific course that covers, in detail, all aspects of the PGA teaching curriculum. This class includes both theory and hands-on teaching skills in a structured environment. Pre-Requisites: BIOL 109 and MKTG 321. Typically Offered Summer Only</td>
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<tr>
<td>PGMG341</td>
<td>Professional Golf Management</td>
<td>A PGM specific course to cover advanced golf instruction to include, fitting, player development and the business of instruction. The content links directly to PGA of America accreditation requirements of the Ferris PGM program. Prerequisites: PGMG 340. Typically offered Summer.</td>
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<td>PGMG390</td>
<td>Professional Golf Management</td>
<td>Special Topics in PGMG - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<td>PGMG392</td>
<td>Professional Golf Management</td>
<td>Continuation of PGMG 292. Pre-Requisites: Professional Golf Management students only. Typically Offered Fall, Spring, Summer</td>
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<td>PGMG490</td>
<td>Professional Golf Management</td>
<td>Special topics in PGMG - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<td>PGMG492</td>
<td>Professional Golf Management</td>
<td>Continuation of PGMG 392. Pre-Requisites: Professional Golf Management students only. Typically Offered Fall, Spring, Summer</td>
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<td>PGMG493</td>
<td>Professional Golf Management</td>
<td>Continuation of PGMG 492. Pre-Requisites: Professional Golf Management students only. Typically Offered Fall, Spring, Summer. Introduces pre-pharmacy students to pharmacy including the different settings that a pharmacist might practice in; contemporary practice issues; College of Pharmacy program and curricula, the applications process, and making a successful transition into a health professional program. Typically offered in Fall and Spring.</td>
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<td>PHAR422</td>
<td>Pharmacy Applied Micro Infect Dis 2</td>
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<td>PHAR425</td>
<td>Pharmacy Practice Mgmt 1</td>
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<td>Pharmacy Pharmacokinetics</td>
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<td>PHAR446</td>
<td>Pharmacy Novel Drug Delivery</td>
<td>PH</td>
<td>1st Professional</td>
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<tr>
<td>PHAR452</td>
<td>Pharmacy Manufacturing Pharmacy</td>
<td>PH</td>
<td>1st Professional</td>
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<tr>
<td>PHAR456</td>
<td>Pharmacy Product Development</td>
<td>PH</td>
<td>1st Professional</td>
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Covers the principles of medicinal chemistry and pharmacology with an emphasis on factors that affect biological activity, mechanism of action, absorption, distribution metabolism, elimination and toxicity. The primary focus is on therapeutic agents that affect the autonomic nervous system. Prerequisites: PHAR 311, PHAR 312, PHAR 315 and PHAR 316. Typically offered Fall only.

Medicinal chemistry and pharmacology of the agents that have the CNS as their primary site of action. Emphasis is on the biological activity, mechanism of action, metabolism, and structural and physical properties that govern absorption, elimination and toxicity. Prerequisites: PHAR 311, PHAR 312, PHAR 315 and PHAR 316. Typically offered Fall only.

Medicinal chemistry and pharmacology of the NSAIDs, antiallergic and antulcer agents, and agents that affect the cardiovascular system or treat diabetes. Emphasis is on the biological activity, mechanism of action, metabolism, and structural and physical properties that govern absorption, distribution, elimination and toxicity. Prerequisites: Successful completion of PHAR 411 & PHAR 412 or permission of instructor. Typically offered Spring only.

Many essential elements of clinical microbiology will be integrated into a thorough discussion of the principles of infectious disease (including the structures, pathogenesis, detection, and the pharmacology and pharmacokinetics of antibacterial and antifungal agents). Clinical applications will be analyzed based on the commonly encountered infectious diseases using patient-specific situations when applicable. Prerequisites: PHAR 315 and PHAR 316. Typically offered Fall only.

Many essential elements of clinical microbiology will be integrated into a thorough discussion of the principles of infectious disease (including the structures, pathogenesis, detection, and the pharmacology and pharmacokinetics of antibacterial and antifungal agents). Clinical applications will be analyzed based on the commonly encountered infectious diseases using patient-specific situations when applicable. Prerequisites: Successful completion of PHAR 421. Typically offered Spring only.

Covers the fundamental managerial functions necessary to support the supervision of medication delivery systems in the institutional and community settings. This includes the principles of organizational behavior and human resource management that are relevant to professional and technical staff. The course also covers the safe design, quality assurance and management of drug delivery systems in different practice settings; as well as the function and management of different medication therapy management programs. Prerequisites: Successful completion of PHAR 334. Typically offered Spring only.

Basic pharmacokinetic models that describe the time course behavior of drugs in the body are presented and applied to pharmacokinetic calculations. Prerequisites: PHAR 311, PHAR 312, PHAR 315 and PHAR 316. Typically offered Fall only.

Principles of novel drug delivery by the oral, parenteral and topical routes of administration will be discussed. Both commercially available and research-based delivery systems will be incorporated into class discussions and formal presentations given by the students. Pre-Requisites: PHAR 326. Typically offered on demand.

Principles of manufacturing, formulation and quality control relative to pharmaceutical industry. Lecture and laboratory instruction includes solid, semisolid and liquid dose systems. Required for industrial pharmacy track. Pre-Requisites: PHAR 325. Typically offered Spring only.

The interaction between delivery from a drug product and its design is the focus of this course. Emphasis on role of formulation variables and physiological factors in controlling drug release from various dosage forms. Appraisal of drug product quality and performance. Case histories are presented. Pre-Requisites: PHAR 326. Typically offered on demand.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>PHAR511</td>
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<td>PHAR513</td>
<td>Pharmacotherapeutics 3</td>
<td>Pharmacy</td>
<td>1st Professional</td>
<td>4</td>
<td>LEC</td>
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</table>

This course will introduce the concepts of natural products and specialized metabolism. This course will survey the biosynthetic strategies that elaborate several clinically relevant natural products. Examples of relevant natural product classes are polyketides, terpenes, alkaloids, and glycopeptides. The role of these natural products as drugs for treatment of human disease will be emphasized throughout the course. Chemical approaches towards understanding natural products biosynthesis will also be considered. Students will conduct a capstone research project into the biosynthesis of a natural product. This course will meet the 2 credit elective requirement for the P2 year. Pre-requisites: PHAR 311 and PHAR 312. Typically offered: Fall.

This course series will provide an opportunity for students to develop and refine patient-centered care skills. The student will perform all the basic functions of a health system pharmacist through simulation; including order entry, product preparation, sterile compounding, dispensing, calculations in the health system setting and interpersonal communication. This course is designed to engage the student in introductory clinical problem-solving and application skills. Co-requisite: PHAR 411, PHAR 412 and PHAR 428. Typically offered Fall only.

This course series will provide an opportunity for students to develop and refine patient-centered care skills. During this semester, students will participate in simulation activities to practice and assess skills learned to date (dispensing, clinical, communication) with the delivery of pharmacy and patient oriented services in the community and health system setting. This course is designed to engage the student in intermediate clinical problem-solving and application skills. Prerequisites: Successful completion of PHAR 485 or permission of instructor. Typically offered Spring only.

Provides students with an opportunity to interact with individuals/health mentors in the community who suffer from chronic disease(s). Skills emphasized in the community and classroom will include active listening and relationship-building. Through this experience, students will gain a better understanding of concepts of health, illness, adherence, burden of disease and the impact of the health care systems on patient care. Prerequisites: Successful completion of PHAR 392. Typically offered Fall and Spring. The Institutional Introductory Pharmacy Practice Experience (IPPE) is designed to integrate skills learned in the classroom with all basic functions of a hospital pharmacist, including dispensing, interpersonal communication and calculations. The institutional IPPE will be drug-centered with an emphasis on the mechanics of hospital pharmacy. Prerequisites: Successful completion of PHAR 491. Typically offered Fall only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered On Demand.

This course will consist of extensive discussion of pharmacotherapeutic principles in the treatment of disease. Emphasis will be placed on development of a clinical understanding of the disease process, the role of pharmacological intervention in the patient-specific and/or population-based disease management plan and the development of an appropriate therapeutic regimen. Prerequisites: Successful completion of PHAR 493. Typically offered Fall only.

This course will consist of extensive discussion of pharmacotherapeutic principles in the treatment of disease. Emphasis will be placed on development of clinical understanding of the disease process, the role of pharmacological intervention in the patient-specific and/or population-based disease management plan and the development of an appropriate therapeutic regimen. Prerequisites: Successful completion of PHAR 493. Typically offered Fall.

This course will consist of extensive discussion of pharmacotherapeutic principles in the treatment of disease. Emphasis will be placed on development of clinical understanding of the disease process, the role of pharmacological intervention in the patient-specific and/or population-based disease management plan and the development of an appropriate therapeutic regimen. Prerequisites: Successful completion of PHAR 511 and PHAR 512 or permission of instructor. Typically offered Spring only.
This course will consist of extensive discussion of pharmacotherapeutic principles in the treatment of disease. Emphasis will be placed on development of a clinical understanding of the disease process, the role of pharmacological intervention in the patient-specific and/or population-based disease management plan and the development of an appropriate therapeutic regimen. Prerequisites: Successful completion of PHAR 511 and PHAR 512 or permission of instructor. Typically offered: Spring only.

Covers the health care delivery systems of the United States with comparisons to relevant systems in other parts of the world. Reviews the professional roles of the pharmacist in historical and contemporary practice. The fundamentals of reimbursement models from the governmental and private perspective will be covered; as well as the legal and professional basis for pharmacy practice. Typically offered: Fall.

Covers humanistic health outcomes and examines how social, linguistic and cultural factors play a role in pharmacy care. Involves the application of behavioral science principles to provide public education and/or promote public awareness of disease prevention with an eye toward cultural influences and global burden of disease. The course introduces students to the concepts and methods of pharmacoepidemiology. In addition, the principles of bioethics are covered and applied to relevant issues in pharmacy practice to broaden the students understanding of professional behavior. Throughout the course, an emphasis is placed on assessing and interpreting socio-economic and cultural factors and identifying ways to integrate them into the delivery of patient-centered services. Typically offered: Fall.

Considers the physicochemical properties of biological molecules, describes bioenergetics, and details enzyme structure, function, kinetics, and regulation. Metabolic pathways involving the various categories of biomolecules (carbohydrates, lipids, and proteins) are covered in depth with emphasis placed upon the interrelationships particularly as they pertain to the human system. Typically offered: Fall.

Considers extracellular and intracellular signaling (autocrine, paracrine, and endocrine systems). Considers cholinergic, dopaminergic, hallucinogenic, sympathomimetic, sedative-hypnotic. Considers replication, transcription and translation of genetic material. The scientific fundamentals of recombinant drugs (e.g. monoclonal antibodies, RNAI drugs), pharmacogenetics, and pharmacogenomics in clinical practice and outcomes on patient care are also covered. Typically offered: Spring.

This course will cover the physicochemical properties of drugs, excipients and dosage forms. Physicochemical properties including drug dissolution, drug partitioning, ionic equilibria, and rheology will be reviewed. The manufacturing/compounding and quality attributes of each type of dosage form will also be covered. Biopharmaceutics and pharmacokinetic principles will be introduced as they become relevant. Typically offered: Fall.

This course will cover the application of physicochemical properties to pharmaceutical dosage forms and drug delivery. Formulation, biopharmaceutical and pharmacokinetic principles of dosage forms used to deliver drugs oral, rectal, vaginal, intrauterine, ophthalmic, topical and pulmonary will be discussed. The manufacturing/compounding and quality attributes of each type of dosage form will be covered. Pharmacokinetic principles and models introduced in this course will be built on to include more advanced principles and models. Typically offered: Fall.

Covers the managerial functions involved in the support of pharmaceutical supply chains including basic reimbursement; third party and managed care systems; and fundamental accounting principles. In addition, the course covers the principles of pharmacoconomics and their role in the formulary and managerial decisions; as well as the fundamental of informatics and project management. Prerequisites: Successful completion of PHAR 425 or permission of instructor. Typically offered: Spring only.

This course covers the legal basis of pharmacy practice, including the administrative, civil and criminal laws that impact practice. Federal and state jurisprudence, along with the regulatory codes that impact on the practice of Pharmacy in the institutional as well as community settings are covered. Prerequisites: Successful completion of PHAR 425 or permission of instructor. Typically offered: Spring only.
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<th>Year</th>
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<td>PHAR531</td>
<td>Pharmacy Over-the-Counter Pharmacotherapeutics</td>
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<td>PHAR535</td>
<td>Pharmacy Sociopharm and Profess Ethics</td>
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<td>PHAR540</td>
<td>Pharmacy Drug Info/Clin Lit Eval</td>
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<td>1st Professional</td>
<td>3</td>
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<td>PHAR551</td>
<td>Pharmacy Managed Care Pharmacy Pract</td>
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<td>PHAR552</td>
<td>Pharmacy Adv Topics in Infect Diseases</td>
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<tr>
<td>PHAR553</td>
<td>Pharmacy Palliative Care</td>
<td>Pharmacy</td>
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<tr>
<td>PHAR554</td>
<td>Pharmacy Comp &amp; Alt Med for Clin Pharm</td>
<td>Pharmacy</td>
<td>1st Professional</td>
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<td>PHAR556</td>
<td>Pharmacy Spec Topics in Comm Pharm Prac</td>
<td>Pharmacy</td>
<td>1st Professional</td>
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This course will serve as an introduction to non-prescription medications, dietary supplements, home testing and monitoring devices, and their use in self-care and/or remedies to common illnesses. Students will begin to recognize differences in patient’s clinical needs as well as how to determine whether a patient is appropriate for self-care approaches. By the end of the course, students will be able to assist patients in determining a reasonable therapeutic plan related to self-care. Typically offered: Spring

Involves the application of behavioral science principles to help understand the influence of humans on the appropriate delivery of pharmacy care services and drug use in society. The course focuses on the psychosocial aspects of drug therapy and clinical care, communication, clinical decision-making and the drug use process. In addition, the principles of bioethics will be covered and applied to relevant issues in pharmacy practice to broaden the students understanding of professional behavior. Prerequisites: Successful completion of PHAR 425. Typically Offered Fall only.

This course is designed to provide an introduction to managed care pharmacy and a basic understanding of the impact it has on the U.S. health care system. The course will present material in both the consumer and health care professional perspective. The course includes lectures, guest speakers, group discussions and presentations. Prerequisites: PHAR 414. Typically Offered Fall, Spring and Summer.

This course presents topics and controversies in Infectious Diseases. Topics covered go beyond those covered in Pharmacotherapeutics. In addition to reviewing specific disease entities, students will be exposed to contemporary strategies for the management of the infected patient in various practice settings. Prerequisites: PHAR 422. Typically Offered Fall, Spring and Summer.

Students will be introduced to the non-pharmacologic and pharmacologic decisions required for patients (or care givers) approaching the end of life. Emphasis will be placed on the role of the pharmacist in providing appropriate pharmaceutical care for pain and symptom management. Students will be required to complete a series of advanced pain cases (unique to palliative care / hospice patients), create a hospice formulary as a group orientated project, and visit a local hospice center. Prerequisites: PHAR 414. Typically Offered Fall, Spring and Summer.

This elective course covers complementary and alternative medicine and how it impacts clinical pharmacy. Students who have taken PHAR 463 Herbal Remedies and Alternative Therapies may not take this elective for credit. This course will be primarily instructor led with guest lecturers from the community. Patient cases will be presented by the students. Prerequisites: PHAR 414. Typically Offered Fall, Spring and Summer.

This course is designed to promote the development of essential practice skills needed to provide patient-centered care in community pharmacy settings. In addition to clinical practice skills, students will gain practice management skills and become acclimated to current issues in the profession and their impact on community practice. Invited guest speakers will discuss issues like medication adherence and risk management and will highlight specialty practices including medication therapy management (MTM), point-of-care testing and specialty pharmacy. Students will participate in a structured debate on a controversial issue in pharmacy practice. Prerequisites: PHAR 486. Typically Offered Fall, Spring and Summer.
This course will teach the principles of research ethics, regulation, study design, and execution. The course will engage the student in designing and conducting traditional health related (clinical trials) and business research (surveys, etc.). Students will be involved in survey and research protocol discussions, development, and conduct. They will collect, manage, analyze, and disseminate data from studies executed during class. The students will be expected to present their findings either in writing as a publication in a professional journal or verbally at a professional conference. Students can, and should, plan to repeat the course. The first course takes the study design from concept to IRB submission. The second class completes the project through study execution, data collection and analysis, and presentation of the results. Prerequisites: PHAR 414. Typically Offered Fall, Spring and Summer.

This course augments health professionals’ education through participation in an interdisciplinary community-based health initiative and engages the community in the promotion of overall health and well being. The student will improve cultural competency skills, provide health services to a local community, enhance his/her interdisciplinary team skills and gain a greater appreciation for current healthcare issues from the perspective of the assigned community. Must be taken twice to fulfill course requirements. Prerequisite: Third professional year status. Typically Offered Fall and Spring.

Typically Offered Fall, Spring and Summer.

Students from multiple professions are paired to display the importance of interprofessional collaboration in patient care. This is accomplished through didactic instruction, group discussions and multiple home visits to a community-dwelling elderly adult over two semesters. Course must be taken both fall and spring semesters. During the course the students will collaborate to identify teaching initiatives, implement plans and assess patient understanding of instruction. Prerequisites: Completion of P2 years. Typically Offered Fall and Spring.

Typically Offered Fall and Spring.

This course provides students with advanced topics related to pharmacotherapy in the pediatric and geriatric populations through the use of active and passive learning techniques. Prerequisites: PHAR 414. Typically Offered Fall, Spring and Summer.

Typically Offered Fall, Spring and Summer.

Typically Offered Fall, Spring, Summer.

This course series will provide an opportunity for students to develop and refine patient-centered care skills. The foundation for the course comes from principles that are taught in the concurrent semester within the pharmacotherapeutics course. Emphasis will be placed on patient care, patient assessment, problem solving and communication skills. Co-requisite PHAR 511 and PHAR 512. Typically Offered Fall only.

Typically Offered Fall only.

This course will provide students an opportunity to develop foundational skills necessary for modern practice as a pharmacist. Students will be introduced to non-sterile compounding, clinical calculations, and basic physical assessment. An overview of the JCPP Patient Care Process, with emphasis on the communication-focused aspects of the process, will take place. The course will focus on community pharmacy practice and will involve discussion of the top 200 prescription medications. Typically offered: Fall.

This course will provide students an opportunity to develop foundational skills necessary for modern practice as a pharmacist. Students will be introduced to sterile compounding, clinical calculations, and basic physical assessment. An overview of the JCPP Patient Care Process, with emphasis on the documentation focused aspects of the process, will take place. The course will focus on health system pharmacy practice and will involve discussion of the top 200 prescription medications. Typically offered: Spring.
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<td>Pharmacy Integrated Case Studies</td>
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<td>Pharmacy Prof Organization Manage APPE</td>
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This course will integrate advanced pharmacotherapeutic problem solving skills with communication and drug information skills routinely employed in primary patient care. Students will become proficient in utilization of a systematic approach to pharmacotherapeutic regimen development and monitoring. Students will be expected to show competency in all forms of communication (visual, written and verbal) as well as learn and display appropriate professional behaviors that are necessary for direct contact with patients and other health care professionals. Prerequisite: PHAR 540 (D or better). Co-requisite: PHAR 513 and PHAR 514. Typically Offered Spring only.

Special topics in PHAR 590 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Provides students with an opportunity to build upon the skills and knowledge learned in Longitudinal Patient Centered APPE I and other pharmacy coursework. This includes interacting with individuals/health mentors in the community who suffer from chronic disease(s). Skills emphasized will include active listening, relationship building and drug therapy assessment. Students will gain a better understanding of concepts of health, illness, adherence, burden of disease and the impact of the health care system on patient care. Prerequisites: Successful completion of the second professional year of the PharmD program. Typically Offered Summer only.

The Medication Distribution Community Introductory Pharmacy Practice Experience course is designed to integrate skills learned in the classroom with foundational medication use process functions of a community pharmacist. This includes dispensing, interpersonal communication, calculations and application of non-prescription medicines and self-care. Students will begin to apply standards, guidelines, best practices, and established processes for safe and effective medication use in the community setting. It is expected that this introductory course will begin to prepare the student with the foundational elements necessary to practice patient centered pharmacy care in the community setting. Typically offered: Fall, Spring, Summer.

This course will provide the student with an opportunity to provide patient centered care in an acute/inpatient setting. Skills emphasized will be communication, drug information provision, monitoring of patient outcomes, drug therapy assessment, and patient/health care provider education. Prerequisites: Successful completion of PHAR 514. Typically Offered Fall, Spring and Summer.

This course will provide the student with an opportunity to provide patient centered care in an ambulatory care setting. Skills emphasized will be communication, drug information provision, monitoring of patient outcomes, drug therapy assessment, and patient/health care provider education. This elective APPE offered at various faculty sites is designed to provide the student with an opportunity to understand the role of the pharmacy educator. The student will develop knowledge and skills in teaching and precepting pharmacy students in the classroom and practice setting. The student will also develop writing and communication skills.

The student will be responsible for answering question from health care professional in the setting of a formal Drug Information Center. Additional responsibilities may include preparing newsletter articles and writing drug evaluations for a pharmacy and therapeutics committee. Skills from previous didactic courses in searching, analyzing, and summarizing literature will be further developed. Emphasis will be placed on enhancing oral and written communications skills in answering drug information inquiries.

This experiential course will focus in the areas of pharmacy or health-related professional organizations’ structures, responsibilities of professional organizations and federal state and local legislative issues related to the health-care professions. Additionally, governance of professions, through legislative initiatives and self-regulatory methods will be covered. Students will participate in ongoing activities of the organization to which they are assigned including research projects, professional meeting planning, pharmacy advocacy and advancement of the profession.
The Institutional APPE is an inpatient hospital experience that allows for a broader understanding of hospital pharmacy management with an emphasis on regulatory, human resources, technology, and medication management. The student will experience advanced pharmacy operations and services relating to systems for medication distribution, reconciliation, safety, and control. Management of the department, scope of clinical services provided by the department, the impact of various regulatory and accrediting agencies on the department, and departmental relationships within the institution and health system. Prerequisites: Successful completion of PHAR 514. Typically offered Fall, Spring, and Summer.

The Community APPE will provide the student an opportunity to refine basic and develop advanced skills needed for the delivery of patient-centered pharmacy services in the community setting. The student will develop competency in the following critical elements: communication with practitioners and patients, assessment and monitoring of drug therapy, health promotion, disease state management, patient education, and effective pharmacy management. Prerequisites: Successful completion of PHAR 514. Typically offered Fall, Spring, and Summer.

This elective APPE will cover basic and advanced principles in managing or owning a community pharmacy. The rotation will also expose the student to all facets of community pharmacy practice and focus on interpersonal skills, leadership skills, process and quality improvement, personnel management, business management, and staff education. This elective rotation will provide students with experience in the administrative aspects of health system pharmacy operations as well as administrative considerations in clinical pharmacy practice. Typically offered Fall, Spring, and Summer.

This elective rotation is designed to introduce the student to the world of managed care under the directive of pharmacy services. The student will be exposed to a broad range of experiences such as formulary management, academic detailing, provider and member education, patient profile reviews, and new drug reviews. Typically offered Fall, Spring, and Summer.

The Specialized Areas of Community Pharmacy APPE will provide the student an opportunity to refine basic and develop advanced skills needed for the delivery of patient-centered pharmacy services in the community setting. This rotation provides additional experience in unique community pharmacy practice settings such as specialty, compounding, health center, independent, or hospital based pharmacies. Typically offered Fall, Spring, and Summer.

This elective rotation is designed to provide students with exposure to veterinary pharmacy and the physiology and pathophysiology in animal patients. Students will be exposed to patient-care experiences in the areas of surgery, and internal medicine in both large and small animals. Students will gain an understanding of the pharmacy services a pharmacist can provide to a veterinary facility, and familiarity with the unique pharmaceutical needs and specific dosage forms needed in the management of animals. Typically offered Fall, Spring, and Summer.

This elective rotation is designed to give the student an understanding of the application of radiopharmaceuticals in diagnostic imaging and treatment of various diseases. The student will gain knowledge of basic radiation safety, quality control, and product preparation of radiopharmaceuticals. The student will become familiar with the pharmacology, mechanism of action, contraindications, and drug interactions of radiopharmaceuticals. The student will experience procedural protocols of nuclear imaging in humans and possibly animals. Typically offered Fall, Spring, and Summer.

This course will provide the student with an opportunity to provide patient-centered care in an acute/inpatient setting. Skills emphasized will be communication, drug information provision, monitoring of patient outcomes, drug therapy assessment, and patient/healthcare provider education. Typically offered Fall, Spring, and Summer.

In this introductory course, students will be exposed to the basic principles of public health and the public health delivery system. The students will learn about the pharmacist’s role as a public health professional and how pharmacists, as the most accessible, approachable, and accepted health professional, can improve the public’s health. As part of the course, students will be expected to design and implement a community public health educational campaign project. Typically offered: Fall, Spring.
<table>
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<th>Course Title</th>
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<th>Credits</th>
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<td>Pharmacy</td>
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<td>Professional</td>
<td>This course presents information and issues that are unique to the practice of pharmacy in the institutional setting. This will include logistics and distribution, purchasing and inventory control, automation, and clinical services in the contemporary hospital practice setting along with relevant evolutions to long-term care and hospice. Typically offered: Fall, Spring</td>
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<tr>
<td>PHAR653</td>
<td>Pharmacy</td>
<td>Topics in Nutrition Biochem</td>
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<td>1st</td>
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<td>Professional</td>
<td>This is an upper level biochemistry course concentrating on issues related to nutrition. Of special importance will be energy metabolism, roles of vitamins and minerals in metabolic systems, issues of dietary deficiency, dietary supplements, diet and disease states and diet and exercise. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>PHAR654</td>
<td>Pharmacy</td>
<td>Curr Controversies Health Care</td>
<td>PH</td>
<td>1st</td>
<td>2 LEC</td>
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<td></td>
<td>Professional</td>
<td>This course will present contemporary issues in medicine. Current controversies in healthcare that affect public policy decisions will be discussed in the framework of contemporary literature. Students will be encouraged to frame decisions about these issues in the context of the health professional - patient relationship, health policy, social justice, allocation of scarce resources, professional standards and definitions of the beginning and end of human life. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>PHAR655</td>
<td>Pharmacy</td>
<td>Special Top Amb Care APPE</td>
<td>PH</td>
<td>1st</td>
<td>6 LEC</td>
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<td>Professional</td>
<td>This course will provide the student with an opportunity to provide patient centered care in ambulatory care setting. Skills emphasized will be communication, drug information provision, monitoring of patient outcomes, drug therapy assessment, and patient health care provider education. Typically offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>PHAR656</td>
<td>Pharmacy</td>
<td>Intro to Pharmacy Law &amp; Ethics</td>
<td>PH</td>
<td>1st</td>
<td>2 LEC</td>
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<td>Professional</td>
<td>This course presents information on general concepts of legal regulation of pharmacy professional acts and services as well as an overview of the legal process in the United States. It also introduces students to ethical concepts and gives them an opportunity to apply ethical principles and develop skills in problem-solving and critical thinking. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>PHAR657</td>
<td>Pharmacy</td>
<td>Data Instrument and Analysis</td>
<td>PH</td>
<td>1st</td>
<td>2 LEC</td>
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<td></td>
<td>Professional</td>
<td>This course will examine the development and validation of instruments for measuring social, behavioral and patient reported outcomes as well as the analysis of data using simple univariate and multivariate inferential statistics. Emphasis will be placed on students gaining expertise in utilizing the available university statistical analysis software package. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>PHAR658</td>
<td>Pharmacy</td>
<td>Pharmaceutical Science Seminar</td>
<td>PH</td>
<td>1st</td>
<td>2 LEC</td>
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<td>Professional</td>
<td>Students actively participate in discussing topics of current importance and relevance in the pharmaceutical sciences. A wide selection of professional publications of primary literature is utilized. Strategy and tactics of oral presentations are incorporated during the course. Students make presentations on pharmaceutical topics of interest to them. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>PHAR659</td>
<td>Pharmacy</td>
<td>Botanical Supple - Alt Therapy</td>
<td>PH</td>
<td>1st</td>
<td>2 LEC</td>
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<td>Professional</td>
<td>This course will acquaint the student to the therapeutic utility of a variety of herbal supplements and alternative regimens. Safety and evidence-based efficacy issues will be discussed as well as counseling herbal/alternative therapy users. Student who take this course cannot receive elective credit for PHAR 554. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>PHAR660</td>
<td>Pharmacy</td>
<td>Natural Product Toxins</td>
<td>PH</td>
<td>1st</td>
<td>2 LEC</td>
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<td>Professional</td>
<td>This course will acquaint the student with the scope; general and specific principles of treatment; and prevention measures for common plant, mushroom, food and Marine toxins. Additionally the student will be introduced to information sources; brief taxonomic considerations; how to handle a poisoning and how to handle a poisoning call to the pharmacy. Field trips to view local plants and the Medicinal Garden will be included. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>PHAR661</td>
<td>Pharmacy</td>
<td>Corporate Pharmacy MBA APPE</td>
<td>PH</td>
<td>1st</td>
<td>6 LEC</td>
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<td></td>
<td>Professional</td>
<td>This rotation is designed to provide students with experiences in the culture, systems, structures, and practices of organization that practices performance metrics based management as applied in the setting of corporate pharmacy practice. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>PHAR662</td>
<td>Pharmacy</td>
<td>Pharmaceutical Indust MBA APPE</td>
<td>PH</td>
<td>1st</td>
<td>6 LEC</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>Professional</td>
<td>This rotation is designed to provide students with experiences in the culture, systems, structures, and practices of an organization that practices performance metrics based management as applied in the setting of pharmaceutical industry. Typically Offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>PHAR663</td>
<td>Pharmacy</td>
<td>Health Systems Pharm MBA APPE</td>
<td>PH</td>
<td>1st</td>
<td>6 LEC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Professional</td>
<td>This rotation is designed to provide students with experiences in the culture, systems, structures, and practices of an organization that practices performance metrics based management as applied in the setting of health systems pharmacy practice. Typically Offered Fall, Spring and Summer.</td>
</tr>
</tbody>
</table>
The student will learn the process for bringing a new drug to market including drug discovery, what is involved in discovering potential drug candidate(s); investigating structure activity relationships; evaluating results for receptor selectivity; and improving upon existing drugs. The student will learn about proving a hypothesis scientifically, synthetically, biologically and clinically. Students will gain an appreciation of drug discovery techniques used in pharmaceutical research and insight into drug candidates in cancer and type II diabetes. Typically offered: Fall, Spring

This course will present a number of current topics with a focus on the discipline of medicinal chemistry. There will be an emphasis placed on those that relate to pharmacy practice. Topics may shift from semester-to-semester depending on changes in this discipline. Guest speakers presenting on advances in medicinal chemistry may be used. Typically offered: Fall, Spring

The goal of the International Advanced Practice Experience is to provide selected students with exposure to and involvement in foreign pharmacy practice. This will be facilitated through placement in a variety of clinical settings including hospital (institutional) practice, community practice and clinical practice and will be directed by affiliated Colleges of pharmacy in the selected country. Typically Offered Fall, Spring and Summer.

The course will acquaint the student with the identification of carcinogens and mechanisms for carcinogenesis of selected agents such as chemicals, radiation and infections. The role of environmental factors (lifestyle, diet, social and behavioral practices) in influencing susceptibility to cancer and the genetic differences (germline and somatic mutations, epigenetics, DNA repair) that have been causally implicated in cancer will be discussed. Typically offered: Fall, Spring

This course focuses on the adverse effects in patients caused by excessive exposure from environmental or medicinal substances. Accidental and intentional poisonings, medication over dosing, and excessive environmental exposures will be discussed. An introduction into the legal aspects and analytical techniques involved in criminal investigations and lawsuits will be included. Typically offered: Fall, Spring

This elective APPE provides the interested student an in-depth, hands-on experience in research. Potential rotation opportunities include clinical, pharmaceutical industry and basic science practice sites.

This course examines the epidemiologic principles used in non-experimental studies to assess drug safety and efficacy in the absence of specific evidence from experimental studies; provides an introduction to pharmacoepidemiologic methods; databases and examples of use in current research; and examines the use of pharmacoepidemiology in drug development and approval. This course will also examine the role of pharmacoepidemiology in public policy; and the pitfalls and limitations of these types of study designs. Typically offered: Fall, Spring

The art and science of compounding pharmaceutical preparations at an advanced level will be discussed. Students will build on their compounding experience in PHAR 385 and 386 to develop an advanced understanding of formulation, stability and quality of compounded pharmaceuticals and the role a pharmacist plays in the specialized practice of compounding pharmacy. Advanced compounding methods will be used to make pharmaceutical dosage forms and develop formulations as they would in the practice of compounding pharmacy. Typically offered: Fall, Spring

Doctoral Project is a longitudinal course during the 4th year of the Pharm.D. program, showcasing a student’s ability to take a relevant professional question, perform research to answer the question, summarize the data, and defend their findings and conclusions logically and systematically. Prerequisites: Successful completion of PHAR 540 (D- or better) and PHAR 513 (D- or better) and PHAR 514 (D- or better) or permission of instructor. Typically offered: Fall, Spring and Summer.
PHIL115  Philosophy  Introduction to Philosophy  AS  Humanities  Undergraduate  3  LEC
A global survey of major philosophers and ideas. Examines ideas such as artificial intelligence, justice, the good life, reality, etc. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer.

PHIL120  Philosophy  The Good Life  AS  Humanities  Undergraduate  3  LEC
This course in philosophy will explore how traditional philosophical schools have prescribed recipes on how to live "good lives" that are happy, tranquil, meaningful, and stress-free. Typical schools may include Socratic, Stoic, Epicurean, Skeptical, Cynical, Existential, and Cognitive Behavioral. Students will be asked to identify and contrast central features of these different schools, to engage in personal self-exploration, and to apply some of the concepts and techniques to their own lives. This course meets General Education requirement: Culture. Typically offered: Fall, Spring, Summer.

PHIL203  Philosophy  Ancient Through Medieval  AS  Humanities  Undergraduate  3  LEC
The course provides the historical issues and figures of the western philosophic tradition from Ancient Greece through Medieval philosophy. Included will be such figures as Socrates, Plato, and Aristotle. The medieval period will concentrate on Christian theology through the study of such philosophers as Augustine and Aquinas. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered Fall Only, Odd Years.

PHIL204  Philosophy  Modern Philosophy  AS  Humanities  Undergraduate  3  LEC
The course provides historical issues and figures of the western philosophic tradition from the early modern philosophy of Descartes through Empiricism, Kant and the 19th century, ending with Nietzsche. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered Winter Only, Even Years.

PHIL216  Philosophy  Introduction to Ethics  AS  Humanities  Undergraduate  3  LEC
Moral conduct and ethical knowledge and application of ethical principles to present-day human problems. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: Second Semester Freshman Standing. Typically Offered Fall, Spring, Summer.

PHIL217  Philosophy  Introduction to Logic  AS  Humanities  Undergraduate  3  LEC
This course follows the historical development of logical reasoning from Aristotle to today. This course introduces skills that are essential to good critical reasoning including how to detect forms of arguments, how to test for validity, and how to construct valid arguments. Methods covered include formal logic and informal logic, syllogism, inductive and deductive arguments, and fallacies most commonly encountered in speech and writing. This course meet the requirements for Cultural Enrichment, and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer.

PHIL218  Philosophy  Philosophy of Sex and Love  AS  Humanities  Undergraduate  3  LEC
This course is designed to develop a knowledge and understanding of the issues surrounding the discussion of sex and love, as well as issues related to the conception of gender. This course also considers the various social/political and ethical issues arising from sex and love, including the status of marriage and the family, adultery, pornography, prostitution, sexual perversion, homosexual relations, and premarital sex. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender, and new Fall 2017 Culture and US Diversity. Prerequisites: ENGL 150. Typically Offered Fall only.

PHIL220  Philosophy  Ethics in Health Care  AS  Humanities  Undergraduate  3  LEC
Moral principles and theories applied to health related issues, e.g. euthanasia, organ donation, AIDS, paternalism and reproductive issues. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Typically Offered Fall, Spring, Summer.

PHIL290  Philosophy  Special Topics in PHIL  AS  Humanities  Undergraduate  1 TO 6  LEC
Special Topics in PHIL - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered on Demand.

PHIL297  Philosophy  Special Studies in PHIL  AS  Humanities  Undergraduate  1 TO 3  LEC
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

PHIL305  Philosophy  Feminist and Gender Theory  AS  Humanities  Undergraduate  3  LEC
The course surveys theories of feminism and gender and their cultural contexts by reading and studying many of the most important feminist and gender philosophers and political and cultural writers. Study will include issues of race, sexuality, power, class and social construction. This course meets General Education requirements Race/Ethnicity/Gender Issues and Cultural Enrichment, and new Fall 2017 Culture and US Diversity. Prerequisites: ENGL 250. Typically Offered Winter Only, Odd Years.
PHIL310 Philosophy  Contemporary Philosophy  AS  Humanities  Undergraduate  3 LEC  A course covering the major figures and movements of 20th century philosophy, which may include Dewey, James, Wittgenstein, Rawls, Heidegger, Foucault and Derrida. Emphasis varies with instructor. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 250. Typically Offered Fall, Spring and Summer.

PHIL315 Philosophy  Political & Social Philosophy  AS  Humanities  Undergraduate  3 LEC  This course offers a philosophical examination of man in society, the foundation of social and political institutions, and the nature of political obligation. Philosophical readings range from the classical (Plato and Aristotle) to the contemporary (Cornel West and Martha Nussbaum), and their theories will be applied to current news items to gain a deeper understanding of world events. This course meets General Education requirements: Cultural Enrichment and Global Consciousness, and new Fall 2017 Culture and Global Diversity. Prerequisites: ENGL 150. Typically Offered Fall odd year only.

PHIL316 Philosophy  Applied Ethics  AS  Humanities  Undergraduate  3 LEC  Students will summarize key arguments in the tradition of ethics; students will test those arguments against real world dilemmas in personal and professional contexts; students will formulate solutions and recommendations to ethical issues facing people in leadership/management positions; and, integrate knowledge from multiple disciplines while working in teams to craft an ethical response that forestalls crises. This course meets General Education Requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically offered on demand.

PHIL320 Philosophy  Biomedical Ethics  AS  Humanities  Undergraduate  3 LEC  This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered Fall, Spring, Summer.

PHIL390 Philosophy  Special Topics in PHIL  AS  Humanities  Undergraduate  1 TO 6 LEC  A study of variable topics in Philosophy. The course may focus on broad topics like Environmental Ethics& or on a narrow topic like The Philosophy of Sport and Leisure &. The topic will change with each offering and will be announced when the course is listed. This course meets General Education requirements for Cultural Enrichment and new Fall 2017 Culture. Prerequisite: ENGL 250. Typically Offered in Fall, Spring, Summer.

PHIL397 Philosophy  Special Studies in PHIL  AS  Humanities  Undergraduate  1 TO 3 LEC  Special Topics in PHIL - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered on Demand.

PHIL497 Philosophy  Special Studies in PHIL  AS  Humanities  Undergraduate  1 TO 3 LEC  This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

PHOT101 Photography  Photography  BU  Marketing  Undergraduate  3 LEC  Will explore the educational and cultural significance that photography has had on our society. Will emphasize the history, technology, and art of original photography. Lectures and assignments are designed to build a working knowledge of a camera with manual controls and learn to take more creative pictures using various photographic composition techniques. Course is also intended to create awareness of the impact photography has on our past, present, and future. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisites: Need digital camera with manual exposure control (AP, SP, M) by third week of class. Typically Offered Fall, Spring, Summer

PHSC110 Physical Sciences  Inquiry into the Earth System  AS  Physical Sciences  Undergraduate  4 LEC  This introductory course explores important concepts of geology, oceanography, meteorology and astronomy in order to understand Earth as a system in which land, water, air and space continually interact through the exchange of matter and energy to form our physical environment. The impact of humans on the earth system is an important theme throughout the course. This course meets general education requirements for scientific understanding. Typically Offered On Demand

PHSC115 Physical Sciences  Inquiry into Physical Science  AS  Physical Sciences  Undergraduate  4 LEC  This course will focus on fundamental concepts of physics and chemistry, including the scientific method matter and its properties and transformations, motion and energy, the underlying particulate nature of matter, and electricity. Laboratory exercises will be used as the basis for laying the foundation for understanding these concepts. This course is suitable for students in elementary education and meets the general education requirements for Scientific Understanding and new Fall 2017 Natural Sciences. Typically Offered On Demand
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Distribution</th>
<th>Level</th>
<th>Credits</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHSC290</td>
<td>Physical Sciences</td>
<td>Special Topics in PHSC</td>
<td>AS</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
</tr>
<tr>
<td>HSV297</td>
<td>Pharmacy - Non-Major</td>
<td>Independent Study - Non Major</td>
<td>PH</td>
<td>1st Professional</td>
<td>1 TO 4</td>
<td>LEC</td>
</tr>
<tr>
<td>HSV497</td>
<td>Pharmacy - Non-Major</td>
<td>Independent Study - Non Major</td>
<td>PH</td>
<td>1st Professional</td>
<td>1 TO 4</td>
<td>LEC</td>
</tr>
<tr>
<td>PHYS130</td>
<td>Physics</td>
<td>Concepts in Physics</td>
<td>AS</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC</td>
</tr>
<tr>
<td>PHYS211</td>
<td>Physics</td>
<td>Introductory Physics 1</td>
<td>AS</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC</td>
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<tr>
<td>PHYS212</td>
<td>Physics</td>
<td>Introductory Physics 2</td>
<td>AS</td>
<td>Undergraduate</td>
<td>4</td>
<td>LEC</td>
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<tr>
<td>PHYS241</td>
<td>Physics</td>
<td>General Physics 1</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>PHYS242</td>
<td>Physics</td>
<td>General Physics 2</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>PHYS260</td>
<td>Physics</td>
<td>Statics</td>
<td>AS</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>PHYS261</td>
<td>Physics</td>
<td>Dynamics</td>
<td>AS</td>
<td>Undergraduate</td>
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<td>LEC</td>
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<tr>
<td>PHYS311</td>
<td>Physics</td>
<td>Introduction to Modern Physics</td>
<td>AS</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>PHYS397</td>
<td>Physics</td>
<td>Special Studies in PHYS</td>
<td>AS</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
</tr>
</tbody>
</table>

**PHSC290**

This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Spring Only

**HSV297**

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

**HSV497**

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

**PHYS130**

A survey of physical concepts including mechanics, wave motion, heat, electricity and magnetism, light, and selected topics in modern physics. A minimum of mathematics is utilized to develop problem solving skills. Emphasis is placed on concept development so that science in a modern society may be recognized and appreciated. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences Lab. Pre-Requisites: MATH 110 with a grade of C- or better or 19 on ACT or 460 on pre 2016 SAT or 500 post 2016 SAT. Typically Offered Fall, Spring

**PHYS211**

Basic concepts and applications of motion, force, energy, fluids, heat and sound. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences Lab. Pre-Requisites: MATH 116 or 120 with a grade of C- or better or 26 on ACT or 590 on pre 2016 SAT or 610 post 2016 SAT. Typically Offered Fall, Spring

**PHYS212**

Continuation of PHYS 211. Basic concepts and applications of electricity, magnetism, light and modern physics. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: PHYS 211 with a grade of C- or better. Typically Offered Fall, Spring, Summer

**PHYS241**

Principles and practical applications of motion, force, energy, fluids, heat and sound. Intended for science and engineering majors. Calculus is utilized. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: MATH 220 with a grade of C- or better. Typically Offered Fall Only

**PHYS242**

Continuation of PHYS 241. Principles and practical applications of electricity, magnetism, light and modern physics. This course meets General Education requirements: Scientific Understanding, Lab, and new Fall 2017 Natural Sciences and Natural Sciences Lab. Pre-Requisites: PHYS 241 and MATH 230 with a grade of C- or better. Typically Offered Spring Only

**PHYS260**

Concepts of mechanical equilibrium involving forces and moments. Vector methods are utilized in both two and three dimensional situations. Force analysis of structures and beams, free-body diagrams of rigid objects, simple and complex friction situations, and centroids and moments of inertia of objects will be examined in detail. Co-Requisites: PHYS 241 and Math 230. Typically Offered On Demand

**PHYS261**

Concepts of mechanical dynamics involving objects in motion. Vector calculus methods are utilized extensively. Newton’s laws of force and motion are applied to particle systems and rigid body situations in various frames of reference. Linear and angular momentum and energy concepts are applied to a variety of dynamic situations. Co-Requisites: PHYS 242 and Math 330. Typically Offered On Demand

**PHYS311**

Presents the fundamental topics in modern physics to students who have already completed a full year of introductory physics. The concepts and practical applications of special relativity, quantum physics, atomic and subatomic structure, and solid state physics will be presented. Pre-Requisites: PHYS 212 or PHYS 242 & MATH 216 or Math 220. Typically Offered Spring Only

**PHYS397**

Special Studies in PHYS - 300 Level  Typically Offered On Demand
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>School</th>
<th>Year Level</th>
<th>Credits</th>
<th>Offering</th>
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<tbody>
<tr>
<td>PHYS 450</td>
<td>Physics Laboratory</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
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<tr>
<td>PHYS 460</td>
<td>Physics Seminar</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>LEC</td>
</tr>
<tr>
<td>PHYS 497</td>
<td>Special Studies in PHYS</td>
<td>Physical Sciences</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>LEC</td>
</tr>
<tr>
<td>PLSC 121</td>
<td>Political Science: Amer Gov 1-People and Politics</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>PLSC 122</td>
<td>Political Science: Amer Gov 2-Policy Making</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>PLSC 221</td>
<td>Political Science: American Political Parties</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>PLSC 225</td>
<td>Political Science: Govt Processes-Procedures</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>PLSC 245</td>
<td>Political Science: Grt Decisions in U.S. Fgn Pol</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
</tr>
<tr>
<td>PLSC 251</td>
<td>Political Science: Public Administration</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>LEC</td>
</tr>
</tbody>
</table>

PHYS 450 offers future educators the opportunity to integrate their science content knowledge, pedagogical knowledge as it applies to teaching elementary or secondary school students, and pedagogical content knowledge as it applies to science learning. Students will experience science instruction in the laboratory context, assess the effectiveness of laboratory experiments, and learn about the resources available to support laboratory instruction. This course meets General Education requirements: Scientific Understanding, Lab and new Fall 2017 Natural Sciences, Lab. Pre-Requisites: PHYS 212 or PHYS 242 or INPS 320. Typically Offered Summer Only

A required course for the minor in physics teaching. Students design, develop, implement and present an original laboratory exercise and lecture presentation on a current physics topic. Co-Requisites: PHYS 450. Typically Offered Summer Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Explores basic political concepts and what distinguishes democracy from other forms of government. Traces formative ideas and forces that shaped U.S. Constitution. Expansion of civil liberties and rights is examined. Attention to relations of national, state and local governments. Shows how public opinion through the media, interest groups, political parties, and elections makes demands on—and places restraints on—government. What new challenges for government arise from scientific, demographic, economic, and social change? This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues; Social Foundations and new Fall 2017 Self and Society, U.S. Diversity and Self and Society Foundations. Typically Offered Fall, Spring, Summer

Careful examination of the institutions of American national government and its policies. How the legislative, executive, and judicial branches work with—and against—each other to shape public policy. Explores the labyrinth of the bureaucracy. The complex interactions of these political structures are illustrated with current events. Considerable time is given to the resulting policies on the budget, the economy, technology, health care, welfare, military, foreign relations, and issues of gender and equality. This course meets General Education requirements: Social Awareness Foundations and Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society Foundations and U.S. Diversity. Typically Offered Fall, Spring, Summer

Origin, structure, types, functions, and development of political parties, and the corresponding role of interest groups and public opinion in the United States. Critical evaluation of the ways political parties provide opportunities and leadership for a variety of groups and individuals to participate in the election governing, and policy processes. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues, and new Fall 2017 Self and Society, US Diversity. Typically Offered Spring Only

Study of public policy formation in the political system, and the decision making and problem solving processes and procedures involved. Emphasis on how and why political, social, and economic change takes place in society. Examines informal and formal demands upon the system, pluralistic and elite response, representative democratic behavior, and international, national and community power as they relate to political decision making and policy formation. This course meets General Education requirements: Social Awareness, Race/Ethnicity/ Gender Issues, and new Fall 2017 Self and Society, US Diversity. Pre-Requisites: Sophomore Status. Typically Offered On Demand

This course focuses upon a variety of dilemmas in U.S. Foreign policy-making determined by recent history and current events. Specific topics are chosen annually by the World Affairs Council and have a regional/thematic focus. The course is also designed to coincide with the World Affairs CouncilE™s lecture series which are web case to the class. This course meets General Education requirements for Social Awareness and Global Consciousness, and new Fall 2017 Self and Society and Global Diversity. Typically Offered Spring.

Principles and problems of state, local, national, and international administrative organizations. The how and why of organizational and bureaucratic decision making. Focuses upon the coordination, management, and responsibilities of public servants. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues, new Fall 2017 U.S. Diversity, and Self and Society. Pre-Requisites: Sophomore Status. Typically Offered Fall Only
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Topic Area</th>
<th>Level</th>
<th>Credits</th>
<th>Mode</th>
<th>Prerequisites</th>
</tr>
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<tbody>
<tr>
<td>PLSC290</td>
<td>Political Science Special Topics in PLSC</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>Special Topics in PLSC - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>PLSC297</td>
<td>Political Science Special Studies in PLSC</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>PLSC301</td>
<td>Political Science Perspective - Developing World</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
<td></td>
<td></td>
<td>This course involves a comparative approach in order to achieve an understanding and appreciation of the potentials and resources of developing nations in Asia, Africa, and Latin America. Models of development, the population issue and the status of women will be explored. Their relations with each other, to the United Nations, to non-governmental organizations and to the United States will also be examined. Pre-Requisites:Junior Status. Typically Offered Spring Only</td>
</tr>
<tr>
<td>PLSC311</td>
<td>Political Science American State-Loc Govt</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
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<td></td>
<td>State and local governments across the United States are studied with emphasis on legislative, executive, and judicial process, administrative functions, personnel and fiscal problems, and intergovernmental relations. Special attention is given to the vitality and ranking of Michigan government and politics with reference to socio-economic, quality of life issues. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues. Meets General Education requirements for Collaboration and Problem Solving, new Fall 2017 Collaboration, U.S. Diversity, Problem Solving, Self and Society. Typically Offered Spring Only</td>
</tr>
<tr>
<td>PLSC323</td>
<td>Political Science International Organizations</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
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<td>Explores the web of arrangements for handling movements of people, trade, and ideas across national boundaries. The United Nations and its forerunners are examined, as well as agencies to handle trade, finance, telecommunications, law enforcement, and other specialized concerns. Multinational corporations and independent organizations like Amnesty International, Red Cross, Greenpeace, and labor unions are looked at. What are the special concerns of non-Western nations? Does European unification provide a model for other regions? This course meets General Education requirements: Social Awareness, Global Consciousness, Race/Ethnicity/Gender Issues, Collaboration and Problem Solving. Typically Offered Spring, Summer</td>
</tr>
<tr>
<td>PLSC331</td>
<td>Political Science Comparative World Governments</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
<td></td>
<td></td>
<td>Government and politics of major Western and non-Western world powers. Designed to give students a better understanding of American politics through comparisons with the politics of major world powers. The characteristics of other kinds of governments and nondemocratic governments will be provided, and a comparative evaluation of political developments in other parts of the world will be made. This course meets General Education requirements: Social Awareness, Global Consciousness, Race/Ethnicity/Gender Issues and new Fall 2017 Global Diversity, US Diversity and Self and Society. Typically Offered Fall, Summer</td>
</tr>
<tr>
<td>PLSC341</td>
<td>Political Science International Politics</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
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<td>Traces shifting patterns of power in 20th Century international politics. Is a new pattern emerging? What is America's place in the world? Explores the roots of American foreign policy. Current events are used to illustrate basic principles of state behavior. Examines nationalism, terrorism, trade, economic development, military trends, arms control, diplomacy, and Third World issues. Why do nations go to war? What are the conditions of peace? Class discussion is encouraged. This course meets general education requirements: Social Awareness, Global Consciousness, Race/Ethnicity/Gender Issues and new Fall 2017 Global Diversity, US Diversity and Self and Society. Typically Offered Spring, Summer</td>
</tr>
<tr>
<td>PLSC375</td>
<td>Political Science Constitutional Law</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
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<td>The two major issue areas of constitutional law, the exercise of governmental power and the extension of civil liberties/civil rights, will be covered by way of landmark Supreme Court decisions. How the Supreme Court functions and makes decisions will be a major topic. The jurisprudence issue of judicial activism versus judicial restraint also will guide this course. This course meets General Education requirements: Social Awareness and new Fall 2017 Self and Society. Pre-Requisites:Junior Status. Typically Offered Fall Only</td>
</tr>
<tr>
<td>PLSC390</td>
<td>Political Science Special Topics in PLSC</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>Special topics in PLSC - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>PLSC397</td>
<td>Political Science Special Studies in PLSC</td>
<td>Undergraduate</td>
<td>Social and Behavioral Sciences</td>
<td>3 LEC</td>
<td>1 TO 3</td>
<td>LEC</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Credits</td>
<td>Level</td>
<td>Prerequisites</td>
<td>Notes</td>
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<tr>
<td>PLSC410</td>
<td>Political Science</td>
<td>3</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>Provides a survey of the interrelationships between the media and the political system. Focuses upon (1) the culture of the media, (2) media, public, and private actors, (3) the media and the government, (4) news making and reporting, (5) political socialization, (6) the media and democracy, (7) the media and decision-making institutions, (8) the media and public policy, and (9) future trends and new technologies. This course meets General Education requirements: Social Awareness and Race/Ethnicity/Gender and new Fall 2017 Self and Society, and U.S. Diversity. Pre-Requisites: Instructor approval. Typically Offered Spring Only</td>
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<tr>
<td>PLSC411</td>
<td>Political Science</td>
<td>3</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>This course examines planning concepts and the role of planning in the formulation of public policy and the meeting of critical social problems regarding &quot;livability&quot; that shape our urban and regional environments. Also the uses of planning will be covered to show how people’s concerns about their quality of life can be accommodated while providing employment, services and facilities. This course will delineate the impacts of people upon their environment, society, and governments. This course meets General Education requirements: Social Awareness and new Fall 2017 Self and Society. Pre-Requisites:PLSC 121 or PLSC 122; &amp; PLSC 251. Typically Offered Fall Only, Odd Years</td>
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<tr>
<td>PLSC421</td>
<td>Political Science</td>
<td>3</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>This course examines the means through which public administrators allocate human abilities to fulfill program goals and choose among competing political, social, and economic priorities. In addition, job analysis and classification methods as well as employment compensation and benefits programs are reviewed. Human resource planning and forecasting is also examined. Pre-Requisites:PLSC 121 or PLSC 122; &amp; PLSC 251. Typically Offered Spring Only, Even Year</td>
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<tr>
<td>PLSC465</td>
<td>Political Science</td>
<td>3</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>The making of budgets including revenue forecasting, tax policy, capital budgeting, debt management, economic development, purchasing and inventory, unions and pensions, and policy issues will be covered. A practical, case study approach at the local government level will be used. Pre-Requisites:PLSC 121 or PLSC 122; &amp; PLSC 251. Typically Offered Spring Only, Even Ye</td>
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<tr>
<td>PLSC481</td>
<td>Political Science</td>
<td>2</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>A seminar devoted to capping the student’s entire academic training in the Political Science Program. Summarizes and integrates political science values, knowledge, and skills developed as a result of the student’s classroom experience. This course meets General Education requirements: Social Awareness and new Fall 2017 Self and Society. Pre-Requisites: Political Science students’ only and senior status and PLSC 491. Typically Offered Summer Only</td>
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<tr>
<td>PLSC490</td>
<td>Special Topics in PLSC</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>Special Topics In PLSC - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>PLSC491</td>
<td>Political Science Internship</td>
<td>4</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>Consists of actual field work and experience in a political or public organization. The student will spend 160 clock hours during the semester in the placement organization, with time devoted to assisting practicing professionals in conducting their daily organizational activities. This course meets General Education requirements: Social Awareness/ Self and Society. Pre-Requisites: Political Science students’ only &amp; senior status. Typically Offered Fall, Spring, Summer</td>
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<tr>
<td>PLSC497</td>
<td>Special Studies in PLSC</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>AS Social and Behavioral Sciences</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>PLTS190</td>
<td>Plastics</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>TE Plastics-Rubber</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites:Department approval. Typically Offered On Demand</td>
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<tr>
<td>PLTS197</td>
<td>Plastics</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>TE Plastics-Rubber</td>
<td>Special Topics in PLTS - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>PLTS290</td>
<td>Plastics</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>TE Plastics-Rubber</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites:Departmental approval. Typically Offered On Demand</td>
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<tr>
<td>PLTS297</td>
<td>Plastics</td>
<td>1 TO 4</td>
<td>Undergraduate</td>
<td>TE Plastics-Rubber</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites:Departmental approval. Typically Offered On Demand</td>
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</tbody>
</table>
PLTS300 Plastics PLTS Engineering Mgmt Systems TE Plastics-Rubber Undergraduate 3

Provides the student with the current business related skills needed to accomplish the job duties typical to those in plastics engineering. It assumes the student has had little exposure to these skills on a direct, participatory level. It explores and enhances tools which assure success in a manufacturing environment. It provides the skills which make the implementation of the engineering technologist's knowledge of (and with) products, processes, tooling, and materials both evolve and continuously improve. It provides management tools which assist in completing programs and projects, helping to optimize processes, systems to assure customer satisfaction, and by which success can be measured. Pre-Requisites: Plastics or Rubber Engineering Technology students only. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered On Demand

PLTS312 Plastics PLTS Product-Tool Design 2 TE Plastics-Rubber Undergraduate 4

The student will study the concepts of part design starting with defining the "Customer/End-Use Requirements", through the "Design Cycle" guideline and product application. Special emphasis will be given to understanding the role of these critical elements: Material selection, prototyping and modeling, product drawing, review of basic design rules, form, fit and function in product application, part quality, relationship of tool design to part design, advanced tooling concepts, process factors including use of CAD and flow software, part costing and design to cost, end-use factors, and mechanical design with plastic. Pre-Requisites: Plastics or Rubber Engineering Technology students only. Typically Offered Spring

PLTS320 Plastics Plastics and Elastic Materials TE Plastics-Rubber Undergraduate 3

This survey course will review all the major polymeric materials currently commercially available. Major attributes, manufacturers and applications will be discussed. The student will learn correct materials handling methods, including safety with respect to drying, storage, regrinding (reuse), and compounding or blending and additives. Students will be shown the advantages and disadvantages of recycling. The learner will be presented with a historical perspective on each material and its chemical structure. Pre-Requisites: Plastics or Rubber Engineering Technology students only. Typically Offered Fall Only

PLTS321 Plastics Advanced Injection Molding TE Plastics-Rubber Undergraduate 4

A theoretical approach to injection molding. Plastics processing is examined from a molecular perspective. Various engineering plastics are described in rheological terms of flow response to forces applied. Advanced troubleshooting and process optimization is dealt with in terms of process monitoring and cavity pressure sensing. Varying process parameters, cycle times, and moisture are evaluated for their effects on the final parts. Various types of injection molding techniques are introduced. Pre-Requisites: Plastics or Rubber Engineering Technology students only. Typically Offered Fall

PLTS325 Plastics Plastics Technology for MET TE Plastics-Rubber Undergraduate 2

Provides the student in the manufacturing engineering technology program with the basic terminology of plastics and elastomers, the nature of the plastics and rubber industry, the end-use applications of plastics and rubber, the basic operational processing techniques for plastics and rubber, and the safety procedures applicable to the plastics and rubber industry. Pre-Requisites: Manufacturing Engineering Tech students only. Typically Offered Spring Only

PLTS342 Plastics Plastic Material Select-PDET TE Plastics-Rubber Undergraduate 3

Demonstrates the procedures one should follow to select plastics for an application. Major plastics fabrication techniques and the main plastics design "rules of thumb" are reviewed. Classwork covers plastics failure mechanisms and weakness which plastics materials exhibit. Emphasis is on plastics materials, specifications, economics, and historical application areas. Pre-Requisites: Junior status & Product Design Eng Tech students only. Typically Offered Spring Only

PLTS361 Plastics Plastics Composites TE Plastics-Rubber Undergraduate 2

The student will be introduced to all aspects of composite materials including: (1) History of Composites/Future of Composites, (2) Composite Materials, (3) Composite Processing, (4) Use and Applications of Composites, (5) Composite Issues (Design, Cost, Environmental). This course provides the student with an understanding of the effects of combining other materials with plastics to produce composite materials. The practical applications of plastics composite materials are stressed to emphasize the value of plastics composite products. Pre-Requisites: BS Plastics Students only or Instructor approval. Typically Offered Fall Only, Odd Years

PLTS390 Plastics Special Topics in PLTS TE Plastics-Rubber Undergraduate 1 TO 4

Special topics in plastics - 300 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Winter and Spring.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Credits</th>
<th>Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLTS393</td>
<td>Plastics Industrial Internship 2</td>
<td>TE</td>
<td>4</td>
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<tr>
<td>PLTS397</td>
<td>Plastics Special Studies in PLTS</td>
<td>TE</td>
<td>1 TO 3</td>
<td></td>
</tr>
<tr>
<td>PLTS410</td>
<td>Plastics PLTS Cost-Package-Econ Issues</td>
<td>TE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PLTS411</td>
<td>Plastics Plastics Decorating-Assembly</td>
<td>TE</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>PLTS490</td>
<td>Plastics Special Topics in PLTS</td>
<td>TE</td>
<td>1 TO 3</td>
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</tr>
<tr>
<td>PLTS497</td>
<td>Plastics Special Studies in PLTS</td>
<td>TE</td>
<td>1 TO 4</td>
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<tr>
<td>PLTS499</td>
<td>Plastics Capstone Project-PLTS Seminar</td>
<td>TE</td>
<td>1</td>
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<tr>
<td>PMGT390</td>
<td>Print Management Special Topics in PMGT</td>
<td>TE</td>
<td>1 TO 3</td>
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</tr>
<tr>
<td>PMGT497</td>
<td>Print Management Special Studies in PMGT</td>
<td>TE</td>
<td>1 TO 4</td>
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<tr>
<td>PPET100</td>
<td>Plastics/Polymer Eng Tech. Survey Plastics-Elastomer Tech</td>
<td>TE</td>
<td>2</td>
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<tr>
<td>PPET115</td>
<td>Plastics/Polymer Eng Tech. Plastics Product Manufacturing</td>
<td>TE</td>
<td>2</td>
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<tr>
<td>PPET127</td>
<td>Plastics/Polymer Eng Tech. Intro to Processing</td>
<td>TE</td>
<td>4</td>
<td></td>
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<tr>
<td>PPET131</td>
<td>Plastics/Polymer Eng Tech. Introduction to Robotics</td>
<td>TE</td>
<td>2</td>
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</tbody>
</table>

The student works on-the-job with one cooperating firm under the guidance of both the University and the firm personnel to broaden and reinforce knowledge of plastics materials, processing, production tooling, quality control, engineering, sales, design, and production supervision. Pre-Requisites: Plastics or Rubber Eng Tech. students only. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Departmental approval. Typically Offered On Demand

This class covers the current topics relative to the business and operational aspects of a plastics company. It focuses on the economic aspects relative to profitability and to making sound financial decisions. It also includes topics relative to modern part packaging technology. Discussions include concepts related to company ownership, financial risks, fiscal responsibility, capital purchases, quoting, cost structures, and the principle cost and practical implementation issues of packaging. Pre-Requisites: Plastics or Rubber Engineering Technology students only. Typically Offered Spring Only

Provides the student with a basic knowledge of secondary processes associated with plastics product manufacturing. The course develops and expands the students' understanding of the complete plastics manufacturing process which includes assembly, decorating, and packaging of plastics parts. Pre-Requisites: Plastics or Rubber Engineering Technology students only. Typically Offered Fall Only

Special Topics In PLTS - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Departmental approval. Typically Offered On Demand

A series of special presentations designed to prepare the prospective plastics engineering technology graduate for entry into the plastics industry work force. Verbal and written communications, interviewing and job search techniques, social interaction, industry structure, professional organizations, peer and supervisor relationships are presented by discussion, role playing, and case studies. Pre-Requisites: Plastics or Rubber Engineering Technology students only. Typically offered Fall

Special Topics In PMGT - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This is a survey course designed to acquaint potential Plastics Majors and NON Plastics Majors with basic concepts of Plastics and Elastomer Technology. Students will become familiar with history, basic materials, application/design, processing, markets, and future of Plastics and Elastomer Technology. Students require no previous background in the subject. Instructor permission required. Typically offered in Fall

This course assumes the student has little or no prior knowledge of the manufacturing activities of making plastics or rubber products. The course provides the student with an introductory level of the basics of making polymer based products as a manufacturing industry. Instructor permission required. Typically offered in Fall

This is a polymer processing course that assumes the student has no prior knowledge of typical methods used to create polymer products. The course is directed toward providing the student with a basic functional awareness level of operations of the FSU processing lab and of the core polymer industry. Instructor permission required. Typically offered in Spring

This course will provide the student with knowledge and experience in programming a linear robot for use in a plastics manufacturing environment. The course seeks to relate the robot control parameters to their effects on the automation components and ultimately to the efficiency of the process. The student will program the robot for injection molding production runs. Added emphasis will be placed on primary troubleshooting and process optimization. Typically offered Fall.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPET190</td>
<td>Special Topics in PPET</td>
<td>1 TO 6</td>
<td>This course places students into an industrial setting for 10 weeks of supervised, on-the-job training with a plastics/rubber manufacturer, processor, or related firm. The professional experience that the student will receive is a combined effort of the training site, university, and student. Students will be involved in the production of polymeric products and the daily activities of engineers in the plastics/rubber industry. Prerequisites: Acceptance into the AAS PPET program. Typically offered Fall, Spring and Summer.</td>
</tr>
<tr>
<td>PPET193</td>
<td>Industrial Internship</td>
<td>4</td>
<td>This course will provide the student with knowledge and experience in solving common problems encountered running injection molding production equipment. The course seeks to relate the machine control parameters to their effects on the process and ultimately to the final part quality. The student will set-up processes for production runs. Added emphasis will be placed on primary troubleshooting and process optimization. Prerequisites: PPET 100 and PPET 115 or PLTS 325. Typically offered in Spring.</td>
</tr>
<tr>
<td>PPET211</td>
<td>Intro to Injection Molding</td>
<td>5</td>
<td>This course will provide the student with the knowledge of plastics product and tool design as it pertains to successful production tooling. Special emphasis will be given to understanding the role of the following critical elements in Plastic Product and Tool Design: Plastic Material selection, Mold Filling analysis, Mold Components and their functions, Compression/Transfer Mold Design, Injection Mold Design, Plastic Part Design Criteria, Blow Mold Design, Extrusion/ Die Design, Rotational Mold Design, Thermoform Mold Design, Heating and Cooling of Molds, Runner and Gate Design, Tool Steels/Heat Treating selection, Geometric Dimensioning and Tolerancing. Prerequisites: PPET 100 and ETEC 140. Typically offered in Fall.</td>
</tr>
<tr>
<td>PPET212</td>
<td>Plastics Prod Development 1</td>
<td>4</td>
<td>This course is designed to provide an introductory overview of the medical device industry, and its unique design and manufacturing challenges. The course first examines the industry itself, reviewing basic industry statistics, current trends, and the many types of products that make up the medical device industry. The course is focused on defining and understanding of medical devices in the growing medical market. The other accompanying theme is the gain an understanding of device design and how to innovate to create and then sustain a medical product. Prerequisites: Entrance into the Plastics/Polymer technology program or permission from instructor. Typically offered in Fall, Spring, Summer.</td>
</tr>
<tr>
<td>PPET220</td>
<td>Intro to Medical Devices</td>
<td>2</td>
<td>The course focuses on the taxonomy of plastics and polymer materials, an overview of their key characteristics, an overview of the companies that produce these materials, and the relationship between materials costs and feedback materials. Additionally, there is an overview of additive materials and their basic influences on plastic compounds. There will be an overview of the sustainability issues associated with plastics materials and plastic product manufacturers. Prerequisites: PPET 100. Typically offered Fall.</td>
</tr>
<tr>
<td>PPET222</td>
<td>Plts &amp; Plym Material Slctn 1</td>
<td>3</td>
<td>This course acquaints students with the concepts of: The procedures used in evaluating plastics materials, test samples, and molded parts; Standard testing methods used for evaluation of plastics materials in particular ASTM and ISO; Interpretation of testing results with respect to raw materials selection, processing parameters, and part design considerations; Basic quality control/quality assurance techniques related to plastic testing. Prerequisites: PPET 100, MATH 115, CHEM 121. Typically offered in Spring.</td>
</tr>
<tr>
<td>PPET223</td>
<td>Plastics Testing</td>
<td>4</td>
<td>This is an introductory polymer technology course in the AAS Plastics and Polymer Engineering Technology curriculum. The course assumes the student has prior knowledge of polymer materials, processing methods, and the plastics industry. The course provides the student with a working knowledge of the basics of the plastics packaging industry. The student will be exposed to the requirements parameters of, issues facing, and career opportunities within this growing segment of the plastics industry. Prerequisites: Acceptance into AAS PPET program or instructor permission. Typically offered Fall.</td>
</tr>
<tr>
<td>PPET225</td>
<td>Intro to Plastics Packaging</td>
<td>2</td>
<td>This is an introductory rubber technology course in the AAS Plastics and Polymer Engineering Technology curriculum. The course assumes the student has no, or limited, prior knowledge of the rubber industry. The course is directed toward providing the student with a foundation of rubber technology, such as the nature of the industry, applications and basic processing techniques, and the safety of operating equipments commonly used in the industry, before entering the BS program of Rubber Engineering Technology. Prerequisites: PPET 100 or instructor permission. Typically offered Fall.</td>
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<td>Course Code</td>
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<tr>
<td>PPET280</td>
<td>Intro to Rubber Technology</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
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<tr>
<td>PPET284</td>
<td>Intro Thermoplastic Elastomers</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>PPET290</td>
<td>Special Topics in PPET</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>PPET297</td>
<td>Special Topics in PPET</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>PPET390</td>
<td>Special Topics in PPET</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>PREL190</td>
<td>Special Topics in PREL</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>PREL197</td>
<td>Special Studies in PREL</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>PREL201</td>
<td>Public Relations Seminar</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>PREL240</td>
<td>Public Relations Principle</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
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<tr>
<td>PREL341</td>
<td>Public Relations Tactics</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
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<tr>
<td>PREL350</td>
<td>Public Relations Ethics, Law</td>
<td>BU Marketing</td>
<td>Undergraduate</td>
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This course acquaints students with various categories of TPE, such as thermoplastic olefins (TPO), thermoplastic urethanes (TPU), ionomers, and thermoplastic vulcanizates (TPV). Students will learn the unique properties of TPEs because of their morphology and processability so that they behave like elastomers while being able to be processed like thermoplastics. In addition to the characteristics and fabrication of different TPEs, students will also learn the dynamic vulcanization to prepare different TPVs. Prerequisites: PPET 100 or instructor approval. Typically offered in Fall. Special Topics in PPET - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated between the faculty member and the student. Typically Offered On Demand

This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

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This course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated between the faculty member and the student. Typically Offered On Demand

This course serves two primary purposes: 1) as a practical orientation to jobs and basic skills in the public relations industry from the framework of PR as a leadership function, and 2) initiating students in career preparation in order to gain internships and, ultimately, a job in the field. Students begin the process of leadership training and career development that continues throughout the entire curriculum. Membership in Public Relations Student Society of America (PRSSA) is also discussed. Prerequisites: PR Major, Sophomore standing. Typically offered Fall, Spring, Summer.

PREL 240 is a thorough overview of the core concepts of public relations, which includes: a historical summary of the industry; key PR & communication theories; foundational codes of law & ethics; basic job functions (tactics, strategy, skills & abilities); and an overview of key PR industries (i.e. employee relations, media relations, community relations, consumer relations, etc.). Two overarching principles are emphasized throughout the course (and program): 1) PR as a critical business leadership component, and 2) the importance of PR in organizational reputation management. Pre-Requisites: ENGL 150. Typically Offered Fall, Spring, Summer

PREL 341 is heavily focused on PR writing (the number one skill in PR). This course requires students to create a wide variety of relevant public relations tactics (new releases, feature stories, pitch emails, blog posts, etc.). Students are held to high standards of quality and excellence, particularly in writing skills and general industry professionalism. Additionally, real world traits of critical thinking, initiative, and resourcefulness will be key to student success. Pre-requisites: ENGL 150 and ENGL 250 and PREL 240, all with a grade of B or higher. Typically offered Fall, Spring, Summer.

Application of ethical and legal standards and requirements to the professional practice of public relations. Study of ethical concepts and their application through the PRSA, IABC, SPI and related professional codes of conduct and ethical standards. The laws and government regulations as applied to public relations practices and programs including privacy, libel, copyright, financial disclosure, etc. will be studied, analyzed and applied. Prerequisites: PREL 240. Typically offered Spring only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated between the faculty member and the student. Typically Offered On Demand
PREL397  Public Relations  Special Studies in PREL  BU  Marketing  Undergraduate  1 TO 3

PREL440  Public Relations  Public Relations Strategy  BU  Marketing  Undergraduate  3

PREL455  Public Relations  Public Relations Campaigns  BU  Marketing  Undergraduate  3

PREL491  Public Relations  Public Relations Internship  BU  Marketing  Undergraduate  1 TO 9

PREL497  Public Relations  Special Studies in PREL  BU  Marketing  Undergraduate  1 TO 3

PROJ320  Project Management  Proj Management Fundamentals  BU  Account, Finance, Info Systems  Undergraduate  3

PROJ350  Project Management  Project Scheduling  BU  Account, Finance, Info Systems  Undergraduate  3

PROJ351  Project Management  Project Communication  BU  Account, Finance, Info Systems  Undergraduate  3

PROJ420  Project Management  Managing Procurement  BU  Account, Finance, Info Systems  Undergraduate  3

PREL 440 is the in-depth study of public relations strategies. This training is done primarily through the combination of two channels: 1) research, analysis, and presentation of several classic and current PR cases from a variety of industries, and 2) detailed, thorough, and applied practice of several four-step PR plans. Students will also be required to produce (or participate in) a variety of real-world PR tactics, while also building their professional network. PREL 440 also continues the practice of high expectations in regard to professionalism, ethics, quality, and excellence. Pre-requisite: PREL 341 w/C or higher. Typically offered: Fall, Spring, Summer.

PREL 455 is the capstone course for students completing the public relations major and pursuing a career in the profession. The class is structured as a PR consulting agency with students taking the role of account executives applying previously learned critical strategic thinking to research, plan, prepare, evaluate, and present a public relations campaigns for a real-world client. PREL 455 also continues the practice of high expectations in regard to professionalism, ethics, quality, and excellence. Pre-requisite: PREL 440 w/C or higher. Typically Offered Spring Only

A semester-long internship that integrates the student's academic study with on-site work experience in a cooperating business, government, education or non-profit organization. Supervised by a public relations professional and designed to enhance the student's course work, personal development and professional preparation. Three credit hours requires a minimum of 200 hours of internship work. Pre-Requisites: Public Relations adviser approval. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course examines the foundations of project management as defined by experts including Elyahu Goldratt and the Project Management Institute. A review of the project management lifecycle and knowledge areas is conducted using resources such as the Project Management Body of Knowledge, course textbooks, and case studies. The course focuses on applying the techniques and tools of project management to specific deliverables including the Work Breakdown Structure (WBS), schedule, budget, risk management plan, RACI chart and others. Prerequisites: Sophomore standing or instructor approval. Typically offered Fall, Spring, Summer.

This course will build on project management fundamentals and evaluate various project management techniques used to build project schedules including time estimation, PERT, critical path, critical chain, and the use of float and buffers. This course will also examine cost estimating techniques and project budget preparation. Lastly, this course will review risk management tools and techniques including risk identification, quantitative and qualitative risk assessment, and risk mitigation strategies. Prerequisites: PROJ 320. Typically offered Fall.

Communication activities are estimated to take up to 90% of a project manager’s time. This course will take an in depth look at project communication management, team building and conflict management. Ethical issues, professional responsibility and diversity issues related to project management will be discussed. The course will examine various communication and conflict resolution techniques; the challenges of managing project teams particularly in the virtual environment; and assess various team building tools and techniques. Prerequisites: PROJ 320. Typically offered Spring.

This course will examine the various challenges present in the procurement process including and bid process, vendor selection and contract management. This course will provide best practices, tools and techniques to manage procurement through its entire process from Bid Document Preparation to Contract Closure. This course will also review the Project Management Body of Knowledge in terms of preparing for the PMP and CAPM Certification tests. Prerequisites: PROJ 320, PROJ 350 and PROJ 351. Typically offered Fall and Spring.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Offered on demand.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Length</th>
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<tbody>
<tr>
<td>PROJ497</td>
<td>Project Management</td>
<td>BU Special Studies Project Mgmt</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
</tr>
<tr>
<td>PROJ640</td>
<td>Project Management</td>
<td>BU Account, Finance, Info Systems</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>PROJ642</td>
<td>Project Leadership</td>
<td>BU Account, Finance, Info Systems</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>PROJ644</td>
<td>Project Risk and Quality Mgt</td>
<td>BU Account, Finance, Info Systems</td>
<td>Graduate</td>
<td>3</td>
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<tr>
<td>PSYC150</td>
<td>Psychology Introduction</td>
<td>AS Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>PSYC190</td>
<td>Special Topics in PSYC</td>
<td>AS Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
</tr>
<tr>
<td>PSYC197</td>
<td>Special Studies in PSYC</td>
<td>AS Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
</tr>
<tr>
<td>PSYC210</td>
<td>Statistics for PSYC Sciences</td>
<td>AS Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>PSYC226</td>
<td>Lifespan of Human Development</td>
<td>AS Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>PSYC241</td>
<td>Psych-Exceptional Children</td>
<td>AS Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>PSYC280</td>
<td>Psych Research Methods-Design</td>
<td>AS Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
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</table>

Students examine the project management framework, including project management context and processes. Topics include project management processes, knowledge areas, life cycles and standards. Particular emphasis is placed on project integration, scope and time management. Prerequisites: Graduate Status. Typically Offered Fall, Spring, Summer.

This course will assess best practices on leadership, communication and management of virtual teams in project management. Students will gain insights into their own leadership skills through assessments and case studies. The course will also examine various communication and conflict resolution techniques and the challenges of managing virtual teams and assess various team building tools and techniques. Related topics such as ethics and diversity will be included in our discussions and learning activities. Prerequisites: PROJ 640 and Graduate Status. Typically Offered Fall, Spring Even Years, Summer Odd Years.

Students will identify and demonstrate project risk management processes including risk identification, risk assessment (qualitative and quantitative), developing a risk contingency budget, and determining risk mitigation strategies. Students will also examine project quality management including the history of quality management, identification of quality standards and goals for projects, and tools and techniques for monitoring quality in the context of ethical and cultural constraints. Prerequisites: PROJ 640 and Graduate Status. Typically Offered Fall, Spring Even Years, Summer Odd Years.

Psychology, its tools and techniques, psychological factors influencing behavior, and some applications of psychological principles to understanding behavior patterns and societal problems. Topics typically include psychological methods, development, learning and memory, motivation and social factors. Other topics will be drawn from biological factors, mental processes, individual differences and mental health. This course meets General Education requirements: Social Awareness, Social Foundations and Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society, Self and Society Foundations and U.S. Diversity. Typically Offered Fall, Spring, Summer

PSYC150: Special Topics in PSYC - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Introduces the use of descriptive and inferential statistics in psychological science. Covers measures of central tendency, variability, probability, confidence intervals, statistical significance and statistical power, as well as Chi-square, correlation coefficients, T-Tests, and Analysis of Variance. Includes the calculation of these statistics using computer software, and their proper interpretation. A sequence of STQM 260 and STQM 322 can be substituted for this course to fulfill the Psychology Major statistics requirement. Pre-Requisites: MATH 115 or 117 with grade of C or 24 on ACT or 560 on pre 2016 SAT or 580 post 2016 SAT; & PSYC 150. Typically Offered Fall Only

Human development from conception to old age and death. Includes a discussion of prenatal development, infancy and childhood, adolescence, adulthood, and the elderly. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues, and new Fall 2017 Self and Society, US Diversity. Pre-Requisites:PSYC 150. Typically Offered Fall Only

Characteristics, needs, and types of services required for children who are mentally retarded, gifted, emotionally disturbed, or who have visual, hearing, speech, language, motor, or learning handicaps. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues, and new Fall 2017 Self and Society, US Diversity. Pre-Requisites: PSYC 150. Typically Offered Fall Only

Introduces psychological research design and the collection of meaningful evidence. Covers experimental, quasi experimental, correlational, and descriptive designs, as well as various methods of data collection. Explores the advantages, disadvantages and ethical implications of each method. Each student will prepare an APA-style research proposal as a final project. Pre-Requisites:PSYC 150 & PSYC 241; or STQM 260. Typically Offered Spring Only

Special Topics In PSYC - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand
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<tr>
<th>Course Code</th>
<th>Department</th>
<th>Course Title and Description</th>
<th>Level</th>
<th>Prerequisites</th>
<th>Typically Offered</th>
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<tbody>
<tr>
<td>PSYC290</td>
<td>Psychology</td>
<td>Special Topics in PSYC 290</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
<tr>
<td>PSYC297</td>
<td>Psychology</td>
<td>Special Studies in PSYC 297</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>Psychological principles and methods relevant to human learning and their application in a variety of instructional settings. Study of learner characteristics and environmental factors involved in teaching, and the instructor’s role in facilitating the learning process. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues, and new Fall 2017 U.S. Diversity and Self and Society. Pre-Requisites: PSYC 150. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>PSYC310</td>
<td>Psychology</td>
<td>Educational Psychology 310</td>
<td>Undergraduate</td>
<td>3</td>
<td>Interpersonal relationships play a pivotal role in mental health, well-being and happiness but problems with interpersonal relationships are the primary reason why individuals seek psychological therapy. This course will examine fundamentals of interpersonal relationships and what relationships tell us about broader psychological processes. The course examines parent-child relationships, friendships, and intimate sexual adult relationships, in addition to looking at research methods used to study relationships. Additional topics include attraction and mating, love, stress and conflict, divorce, loneliness, jealousy, and therapeutic interventions. Prerequisites: PSYC 150 with D or better. Typically offered Fall, Spring, Summer.</td>
</tr>
<tr>
<td>PSYC320</td>
<td>Psychology</td>
<td>Psych of Intersl Relationships</td>
<td>Undergraduate</td>
<td>3</td>
<td>Study of influences of social situations upon the individual's behaviors, feelings, and thoughts; social-psychological investigation of the processes of causal attribution, attitude formation and change, interpersonal attraction, conformity and obedience, helping and hurting behaviors, leadership and social facilitation, and environmental effects on social behavior. This course meets General Education requirements: Social Awareness, Race Ethnicity/Gender Issues, Collaboration and Problem Solving. Pre-Requisites: PSYC 150. Typically Offered Fall, Spring</td>
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<tr>
<td>PSYC325</td>
<td>Psychology</td>
<td>Social Psychology 325</td>
<td>Undergraduate</td>
<td>3</td>
<td>Application of psychological principles to business and industry. Topics include selection, placement, and evaluation of employees; motivation, leadership, and worker satisfaction. The role of psychology in productive organizations and service agencies, as well as society in general. This course meets General Education requirements: Social awareness, Race/Ethnicity/Gender Issues and new Fall 2017 U.S Diversity and Self and Society. Pre-Requisites: PSYC 150. Typically Offered Fall, Spring, Summer</td>
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<tr>
<td>PSYC326</td>
<td>Psychology</td>
<td>Indus/Organizational Psych</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course will cover issues focusing on psychological issues inherent to all aspects of police/investigative work and administration. Students will be prepared to apply psychology within law enforcement and the legal system at large to diffuse potential conflicts and will gain a comprehensive understanding about police administration and policies on topics such as police personnel selection, instruction, and training. This course will prepare the student to apply psychological theory in a wide variety of settings like forensic assessment, clinical treatment and risk assessment procedures. Theories of criminal behavior will be covered. Specific attention is given to particular areas of concern surrounding violence and aggression, sex offenses and the role of substance abuse in criminal behavior and the psychological aspects of working within a police agency. This course meets General Education requirement: Self and Society. Pre-requisite: PSYC 150. Typically offered: Fall, Spring, Summer.</td>
</tr>
<tr>
<td>PSYC331</td>
<td>Psychology</td>
<td>Psychology of Personality</td>
<td>Undergraduate</td>
<td>3</td>
<td>Development of the individual from conception to adolescence; includes biological, family, peer, and school influences; emphasizes learning, emotional, perceptual, cognitive, moral, physical, and social development. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues and new Fall 2017 U.S Diversity and Self and Society. Pre-Requisites: PSYC 150. Typically Offered On Demand</td>
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<tr>
<td>PSYC335</td>
<td>Psychology</td>
<td>Police Psychology 335</td>
<td>Undergraduate</td>
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PSYC341 Psychology Child Psychology AS Social and Behavioral Sciences Undergraduate 3

Adolescence discussed as a stage of development. An examination of the complexities of adolescence including physical, social, cognitive, and moral development. Discussions include historical perspectives, cross cultural comparisons, and deviance. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues and Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer. Pre-Requisites: PSYC 150.

PSYC342 Psychology Psychology of Adolescence AS Social and Behavioral Sciences Undergraduate 3

This course focuses on issues related to death and dying. Some of the topics covered are: coping with loss and grief, different cultural approaches to death and funeral practices, hospice movement, suicide, developmental perspectives on death (children, adolescents and elderly). The course explores psychological issues and concepts related to death in our culture and therapeutic approaches that are used throughout history. This course meets General Education requirements: Social Awareness and new Fall 2017 Self and Society. Prerequisites: PSYC 150 or instructor permission. Typically offered Fall, odd years.

PSYC345 Psychology Psychology Death and Dying AS Social and Behavioral Sciences Undergraduate 3

This course is an introduction to the roles and functions of psychology in forensic settings. Research and practice, with an emphasis on practices, are addressed. The major areas of application covered include police and investigative psychology, criminal psychology, psychology and the courts, victimology and victim services, and forensic psychology. This course meets General Education requirements: Social Awareness and new Fall 2017 Self and Society. Prerequisites: PSYC 150 with minimum grade of C. Typically Offered Fall even years.

PSYC350 Psychology Intro to Forensic Psychology AS Social and Behavioral Sciences Undergraduate 3

Explores the biological basis of behavior. Emphasizes the structure and function of the nervous system at both the cellular and anatomical levels for all aspects of behavior, including survival, emotions, sleep, reasoning, and language. Methodological, evolutionary, behavior-genetic, developmental, abnormal-clinical and hormonal/biochemical issues are also discussed. Pre-Requisites: PSYC 150. Typically Offered Fall.

PSYC360 Psychology Physiological Psychology AS Social and Behavioral Sciences Undergraduate 3

A survey of theories and research findings on how neurological and mental representations of the outside world are formed and used. Topics include psychophysical methodology, the function of sense organs and sensory systems of the brain, stimulus cues, perceptual interpretive processes, sensory and perceptual errors, space perception, speech perception, reading, and perceptual learning and development. Although all of the sense modalities are covered, vision and hearing are the emphasis. Pre-Requisites: PSYC150. Typically Offered Fall.

PSYC365 Psychology Sensation and Perception AS Social and Behavioral Sciences Undergraduate 3

An examination of traditional learning theory as it has been developed through the use of operant and classical conditioning techniques. The course will draw heavily on research findings from animal studies but also discuss the application of those findings to human behavior modification, psychopathology, addiction, and education. Exercises will involve the application of conditioning techniques learned in the course. This course meets the General Education Requirements for Social Awareness and new Fall 2017 Self and Society. Prerequisites: PSYC 150. Typically offered Fall, Spring, Summer.

PSYC370 Psychology Principles of Learning AS Social and Behavioral Sciences Undergraduate 3

This course will introduce research, practice and legal aspects of forensic child psychology. Issues related to children and adolescents as victims, witnesses and offenders will be covered. The roles of the psychologist in assessment, consultation, and testimony will be addressed. Criminal and civil matters related to forensic child psychology are addressed. Ethical principles and legal considerations of forensic practice are covered. Pre-requisite: PSYC 150. Typically offered: Fall. Special Topics in PSYC - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

PSYC375 Psychology Forensic Child Psychology AS Social Sciences Dept Undergraduate 3

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

PSYC390 Psychology Special Topics in PSYC AS Social and Behavioral Sciences Undergraduate 1 TO 3

Explores basic issues in human thought and language, presenting current theory and research on attention, perception, memory, knowledge structures, comprehension, language, reasoning, and problem solving. Includes a cognition laboratory for students to make observations of human cognition using accepted scientific methods. Pre-Requisites: PSYC 150. Typically Offered Spring Only

PSYC397 Psychology Special Studies in PSYC AS Social and Behavioral Sciences Undergraduate 1 TO 3
Theory and application of operant conditioning principles to modify behavior in infra-human animals and humans with emphasis on human behavior modification. Practical experience with techniques is gained by dealing with oneself or small groups in nonclassroom settings. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society, and U.S. Diversity Pre-Requisites: PSYC 150. Typically Offered Fall, Spring, Summer
Examines the testing, measurement, and assessment of psychological characteristics, especially including intelligence and personality. The development, administration, scoring, and evaluation of tests and assessment instruments, as well as their interpretation, limitations, correlations, application, and pitfalls are discussed. Pre-Requisites: PSYC 326 or 331 or 422; & PSYC 210. Typically Offered Spring Only, Odd Yea
Study of abnormal behavior, a search for why people behave in unexpected and maladaptive ways. An examination of the DSM IV-R categories and descriptions, historical and theoretical perspectives, critiques of concepts, diagnostics and therapies, scientific inquiry into the causes of psychopathology, and the search for ways to prevent and alleviate mental disorders. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society, and U.S. Diversity. Prerequisites: PSYC 150. Typically Offered Spring Only
Study of factors influencing perception of other people. Focus on the development, maintenance, and change of attitudes and stereotypes within and between cultures with analysis and discussion of current ethnic, national, and Gender issues. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society, and U.S. Diversity. Pre-Requisites: PSYC 150. Typically Offered On Demand
The purpose of this course is to provide a broad overview of the scientific research and the issues relevant to the psychology of gender. Topics to be covered include social and cognitive development, gender stereotypes, gender in the workplace (e.g., prejudice), evolutionary theory concerning human gender differences, relationship development, and mental health issues. This course meets General Education requirements: Social Awareness, and Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society, and U.S. Diversity. Prerequisites: PSYC 150 Typically Offered Fall Only, Odd Years
There are a wide variety of counseling theories currently employed by psychologists in today’s world. This course will explore the four basic approaches to therapy (Background-Focused, Emotion-Focused, Thought-Focused, and Action-Focused) as well as the basic skills that are necessary to engage in helping relationships. Students will be asked to engage in self-exploration, compare and contrast major counseling theories, apply the theories to a hypothetical client, practice and apply their helping skills. The course will note the common components between theoretical orientation and note current state of psychological evidence for different approaches. Prerequisites: PSYC 150, Junior/Senior Status, Enrollment in Major. Typically offered Fall, Spring, Summer.
This course will cover the history of psychology and the development of various systems of thought within psychology. More specifically, this course will investigate the major theories that significantly influenced the development of psychology, the lives of those who developed these theories, and the influence of the social and intellectual environment (i.e., die Zeitgeist) throughout psychology’s history (including today). Pre-Requisites: PSYC 150 & Junior Status or higher; or Instructor Approval. Typically Offered Spring Only
Students will have the opportunity to learn research skills in a “hands on” environment. Each student will be assigned responsibility for particular animal subjects. She/he will run the subjects daily in formal research experiments, record and graph the data. Weekly meetings will be conducted to monitor progress, do data analysis, and decide when to change experimental conditions. Students will review relevant literature and contribute to the publication of the research findings. Pre-Requisites: PSYC 280 & Junior Status; or Instructor approval. Typically Offered Fall, Spring, Summer
This course serves to afford students the opportunity to experience research in psychology hands on. Specifically, students are supervised while working all aspects of a research project, including its initial development (e.g., generation of hypotheses), data collection (e.g., running an experiment), data analysis and the reporting of the research. Prerequisites: PSYC 280, Junior Status and Instructor approval. Typically Offered: Spring, Summer, Fall.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Type</th>
<th>Credit Hours</th>
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<tr>
<td>PSYC480</td>
<td>Psychology Directed Research Experience</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>PSYC481</td>
<td>Senior Seminar in Psychology</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>PSYC482</td>
<td>Senior Seminar in Psychology</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>PSYC490</td>
<td>Special Topics in PSYC</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
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<tr>
<td>PSYC491</td>
<td>Human Services Internship-Prac</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>PSYC497</td>
<td>Special Studies in PSYC</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
</tr>
<tr>
<td>PTEC297</td>
<td>Printing Technology</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
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<tr>
<td>PTMG101</td>
<td>Orientation to Prof Tennis Mgt</td>
<td>BU</td>
<td>1</td>
</tr>
<tr>
<td>PTMG132</td>
<td>On-Court Development</td>
<td>BU</td>
<td>4</td>
</tr>
<tr>
<td>PTMG182</td>
<td>Beginning Teaching Techniques</td>
<td>BU</td>
<td>2</td>
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<tr>
<td>PTMG193</td>
<td>PTM Internship 1</td>
<td>BU</td>
<td>2</td>
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</table>

Students are engaged in a hands-on exploration of psychology as it relates to the human services. Students are offered an overview of the roles of humanservices professions in various settings through rotations at Family Independence Agency, clinical school settings, courts (with an emphasis on the roles of psychologists), and the like. Other field trips may also be required. Prerequisites: Junior Status in Psychology and Instructor Approval. Typically Offered: Fall, Spring, Summer.

The special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered: On Demand

A PTM specific introduction class to the PTM program and an introduction to career opportunities in the tennis industry, including necessary job qualifications and responsibilities. It's designed to give students personal connections, knowledge, and resources that will enhance their potential for success in the tennis industry. Course content is delivered through class lectures, independent study, and student research assignments. Pre-Requisites: Professional Tennis Management students only. Typically Offered: Fall

This course is designed to prepare students for tennis teaching positions on-course development. The objective will be on improving students playing and coaching ability through testing, video stroke analysis, and establishing a developmental plan. Focus will be placed on singles and doubles strategy, psychological and physical components of play. Required of all PTM majors. Students register once, but work under daily supervision until completion of the program, 4 hours per week per semester in residence. In progress grading. Pre-Requisites: Professional Tennis Management students only. Typically offered: Spring

An introductory course designed to prepare students for their teaching internships. This course will provide fundamental knowledge and develop skills in teaching tennis lessons to junior tennis players. It will also include developing a coaching philosophy, understanding professionalism, lesson organization and administration. An emphasis will be given to practicing on-court simulations. Pre-Requisites: PTMG 132 On-Court Development. Typically offered: Fall

Off-campus cooperative in the field working with tennis teaching professionals. Meets first USPTA cooperative requirement. Pre-Requisites: PTMG 132 - On-Court Development, Clay Court Workshop, Racquet Customization and Repair Workshop, and PTM students only. Typically Offered: Summer

An advanced course preparing students for teaching adults. This course will cover coaching singles and doubles, understanding high performance principles, designing curriculum, and learning private and group lesson instruction. This will be done through class lectures, independent student research, student presentations, on-­court practice demonstrations and textbook study. Pre-Requisites: PTMG 182 Beginning Teaching Techniques. Typically offered: Spring
<table>
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<tr>
<th>Code</th>
<th>Course Name</th>
<th>Institution</th>
<th>Grade</th>
<th>Prerequisites</th>
<th>Notes</th>
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<tbody>
<tr>
<td>PTMG272</td>
<td>Professional Teaching Techniques</td>
<td>BU</td>
<td>Undergraduate</td>
<td>2</td>
<td>Off-campus cooperative in the field working with tennis teaching professionals. Meets second USPTA cooperative requirement. Pre-Requisites: PTMG 272 Advanced Teaching Techniques. Typically Offered: Spring, Summer. This course is designed to prepare students for management and administration of a tennis facility, which includes programming, tournaments, lessons, events, and activities. Classroom instruction in marketing, budgeting, and planning through lectures, workshops, assigned student research, and USPTA Specialty Course Videos. USPTA required course. Pre-Requisites: PTMG 272 Advanced Teaching Techniques. Typically Offered: Fall. Off-campus cooperative in the field working with tennis teaching professionals. Meets third USPTA cooperative requirement. Pre-Requisites: PTMG 292 and Professional Tennis Management students only. Typically Offered Spring, Summer.</td>
</tr>
<tr>
<td>PTMG292</td>
<td>Prof Tennis Mgmt Internship 2</td>
<td>BU</td>
<td>Undergraduate</td>
<td>2</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
<tr>
<td>PTMG372</td>
<td>Professional Tennis Management</td>
<td>BU</td>
<td>Undergraduate</td>
<td>3</td>
<td>Classroom instruction using tests, manuals, and videotape for USPTA required teaching certification. Assigned research, independent study, and presentations. USPTA required course. Pre-Requisites: Completion of all required Prof Tennis Mgmt. courses. Typically Offered Fall Only.</td>
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<tr>
<td>PTMG392</td>
<td>PTM Internship 3</td>
<td>BU</td>
<td>Undergraduate</td>
<td>2</td>
<td>The course introduces the student to the concepts of health and well being as the foundation of public health practice. Students will explore the history of public health as a vital component of the health care delivery system, as well as the structure, principles, values and services as governed by public health laws and the public health code of ethics. Typically offered in Fall and Spring. This course provides a comprehensive overview of the relationship between global and public health services. The student will explore cross-cultural issues, concerns, problems and needs of different groups of people in a diverse, rapidly changing world. Health problems in developing and developed countries of the world and the roles of healthcare professionals will be examined as a foundation for an understanding of how other cultures can contribute to the solution of societal problems. Typically offered in Fall and Spring.</td>
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<tr>
<td>PTMG397</td>
<td>Professional Tennis Management</td>
<td>BU</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>The course examines the theories, concepts, practices and methods of social and behavioral sciences relevant to health promotion and education. Students will explore the application of these concepts in the identification, solution and prevention of health behavioral problems/issues as well as other public health challenges. Pre-requisites: PUBH 200 and PUBH 210. Typically offered in Fall &amp; Spring.</td>
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<tr>
<td>PTMG472</td>
<td>Professional Tennis Management</td>
<td>BU</td>
<td>Undergraduate</td>
<td>2</td>
<td>This course introduces the student to the foundations of maternal and child health, the determinants of health and health services at various stages of the human developmental cycle, and various cross-cutting topics that affect the maternal and child population in the US and globally. Students will also gain basic skills related to research, program planning and evaluation, and policy development in the field of maternal and child health. Prerequisites: PUBH 200 or approval by instructor. Typically offered in Fall.</td>
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<tr>
<td>PUBH200</td>
<td>Public Health Introduction to Public Health</td>
<td>HP</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course examines the theories, concepts, practices and methods of social and behavioral sciences relevant to health promotion and education. Students will explore the application of these concepts in the identification, solution and prevention of health behavioral problems/issues as well as other public health challenges. Pre-requisites: PUBH 200 and PUBH 210. Typically offered in Fall &amp; Spring.</td>
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<tr>
<td>PUBH210</td>
<td>Public Health Global Health &amp; Public Health</td>
<td>HP</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course introduces the student to the foundations of maternal and child health, the determinants of health and health services at various stages of the human developmental cycle, and various cross-cutting topics that affect the maternal and child population in the US and globally. Students will also gain basic skills related to research, program planning and evaluation, and policy development in the field of maternal and child health. Prerequisites: PUBH 200 or approval by instructor. Typically offered in Fall.</td>
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<tr>
<td>PUBH300</td>
<td>Public Health Health Promotion &amp; Education</td>
<td>HP</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course examines the types of as well as the issues related to Public Health Services provided for underserved rural populations (RP), including their implications for people's health. The student will explore public health and medical care services related to general health needs and concerns as well as health care service disparities among rural and nonrural populations. Other issues will include collaboration in public health services, planning public health services, and community-based research in rural populations. Pre-requisites: PUBH 200 &amp; PUBH 210. Typically offered in Fall &amp; Spring.</td>
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<tr>
<td>PUBH305</td>
<td>Public Health Maternal and Child Health</td>
<td>HP</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course is designed to provide the student with the opportunity to explore the complex concepts of how cultural diversity can impact the delivery of public health services. Students will also have the opportunity to gain the skills necessary to provide culturally competent public health services that strive access to all populations. Emerging public health issues, theories and models related to multicultural health, worldview and health decisions, and communication and health promotion in diverse societies and their applications in practice settings will be among the topics discussed. Prerequisites: PUBH 200 or approval by instructor. Typically offered in Fall, Spring or Summer semester.</td>
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<td>Course Code</td>
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<td>PUBH315</td>
<td>Public Health</td>
<td>Multicultural Health</td>
<td>HP</td>
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<td></td>
<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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<td>PUBH320</td>
<td>Public Health</td>
<td>Nutrition and Health</td>
<td>HP</td>
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<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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<tr>
<td>PUBH330</td>
<td>Public Health</td>
<td>Environmental Health &amp; Safety</td>
<td>HP</td>
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<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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<td>PUBH340</td>
<td>Public Health</td>
<td>Mass Media &amp; Technology in PH</td>
<td>HP</td>
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<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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<td>PUBH350</td>
<td>Public Health</td>
<td>Epidemiology</td>
<td>HP</td>
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<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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<td>PUBH355</td>
<td>Public Health</td>
<td>Chronic Disease Epidemiology</td>
<td>HP</td>
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<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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<tr>
<td>PUBH400</td>
<td>Public Health</td>
<td>Health Care Services Admin</td>
<td>HP</td>
<td>3</td>
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<td>Undergraduate</td>
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<tr>
<td>PUBH405</td>
<td>Public Health</td>
<td>Contemp Pract Pub Hlth Ldshr</td>
<td>HP</td>
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<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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<td>PUBH410</td>
<td>Public Health</td>
<td>Infectious/Comm Diseases Epid</td>
<td>HP</td>
<td>3</td>
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<td></td>
<td></td>
<td>Clinical Lab-Resp Care-Hlth Ad</td>
<td>Undergraduate</td>
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</table>

This course explores the role of nutrition science in health and wellbeing of populations. Basic concepts of the food groups and the implications for health and disease causation and prevention will be comprehensively examined. The facts and myths of organic, non-organic foods, vitamins and other nutrients and substances as they affect public healthcare services and practices will be discussed. Pre-requisites: PUBH 200 & PUBH 210. Typically offered in Fall and Spring.

This course examines the use of mass media, social marketing and promotion in the dissemination of Public Health education. Terms used by health care professionals in navigating health information management and health information technology will be explained. The student will also explore the concepts, principles, and practice of health information technology and the roles of health care information technology in health care delivery services including Public Health services. Pre-requisites: PUBH 200 & 210. Typically offered in Fall & Spring.

This course will facilitate students' understanding of fundamental epidemiological concepts (e.g. terminology, calculations, etc.); methods (e.g. study designs, risk communication, etc.); and applications (e.g. screening, disease surveillance, outbreak investigation, and community needs assessment). Case studies to explore the meaning of distributions and determinants of disease, disabilities and death in human populations; the characteristics and dynamics of human populations; the natural history of disease and the biologic basis of health will be discussed. Pre-requisites: COHP 350, PUBH 200 & PUBH 210. Typically offered in Fall and Spring.

This course introduces the student to the foundations of chronic disease epidemiology, including disease background and risk factor assessment for many of the most common chronic diseases in the United States and other developed countries. The focus of this course is to provide the student with the opportunity to apply epidemiological methods, including study design and ethical aspects, in the investigation of chronic diseases. Student presentations will focus on specific chronic disease topics. Pre-requisites: PUBH 350 or approval by instructor. Typically offered in Fall.

The focus of this course is on the planning, organization, administration, management, evaluation and policy analysis of health programs. Students will explore the structure, organization, and function of contemporary health care delivery organizations with emphasis on administrative and managerial concepts. Pre-requisites: PUBH 330 and PUBH 340 and PUBH 350. Typically offered in Fall and Spring.

The course is designed to explore the mechanism through which public health care is delivered in the country. A systems approach is used to gain a clear understanding of the organization of the public health, and the integration of evidence based practices into the core disciplines of public health practice. Pre-requisites: PUBH 400 or approval by instructor. Typically offered in Spring or Summer semester.

This course provides the student with the opportunity to apply epidemiological methods, including study design, legal/ethical aspects, and public health information software programs in the investigation, surveillance, and prevention of infectious/communicable diseases. The focus of the course is on the applications of methods of screening, disease surveillance, outbreak investigation, and community needs assessment specifically regarding infectious communicable diseases. Student presentations will focus on specific infectious disease topics. Pre-requisites: PUBH 350 & BIOL 108. Typically offered in Fall and Spring.

This course is designed to provide a comprehensive overview and analysis of theories, concepts, principles and practices related to program planning, administration and evaluation. Students will explore the concepts and methods involved in the determination of health needs and the planning, implementation, and evaluation of appropriate programs designed to improve health status in various population groups and community settings. Pre-requisites: PUBH 300 and PUBH 310 and PUBH 320 and PUBH 330 and PUBH 340. Typically offered Fall and Spring.
This capstone course provides the student with an internship opportunity to integrate classroom learning and guided experiences with the challenges of the practice environment. Students will collaborate with a faculty advisor and community preceptor(s) to pursue a capstone project in a contemporary health care/public health services facility. The project focuses on the application of public health skills, concepts and principles in terms of solving problems within health care organizations and systems. A professional capstone portfolio will be developed for the experience and the student will make an exit oral presentation. Pre-requisites: Completion of all core PUBH courses. This is the last course taken in the MPH program. Typically offered in Fall and Spring.

This course will provide the student with the opportunity to explore the organizational structure, history law, ethics, essential services, global programs, and the future of public health. Students will engage in discussion, projects and presentations related to the learning outcomes. Prerequisite: Graduate standing in the MPH program or permission of the instructor is required for non-MPH students. Typically offered in the Fall semester.

This course will provide the graduate student with the opportunity to apply the principles of biostatistics in the context of multiple public health applications. Students will have the opportunity to use public health information software statistical packages to achieve learning outcomes. Prerequisite: Graduate standing in the MPH program or permission of the instructor is required for non-MPH students. Typically offered in the Fall semester.

This course will provide the graduate student with the opportunity to explore the theories of health behavior and health education and promotion. The interventions and strategies to successfully promote health behaviors through communication and collaboration will be explored within a sociocultural, diversity, and regional perspective as they pertain to public health. Prerequisite: PUBH 500 or permission of course instructor required for non-MPH students. Typically offered in the Fall, Spring, and Summer semesters.

This course will provide the graduate student with the opportunity to examine the environmental concepts of air quality, water quality, food hygiene, sanitation, vector-borne diseases, solid waste management, hazardous materials management, hazard identification and response, occupational health and safety, and legal issues related to environmental and occupational health. Prerequisite: PUBH 550 or permission of course instructor required for non-MPH students. Typically offered in the Fall, Spring, and Summer semesters.

This course is designed to provide the graduate student with the opportunity to explore the complex concepts of how cultural diversity can impact the delivery of public health services. Students will also have the opportunity to gain the skills necessary to provide culturally competent public health services that strive for access to all populations. Emerging public health issues, public health professional ethics, health informatics, communication, and their applications in practice settings will be discussed. Pre-requisites: PUBH 520 and PUBH 560. Typically offered in the Fall, Spring, and Summer semesters.

This course will provide the graduate student with the opportunity to apply epidemiological methods including study design, legal/ethical aspects, and public health information software programs. Applications of methods will include screening, disease surveillance, outbreak investigation, and community needs assessment. Student presentations will focus on special topics such as infectious disease and chronic conditions. Prerequisites: PUBH 500 and PUBH 510, graduate standing, permission of course instructor required for non-MPH students. Typically offered in the Fall, Spring, and Summer semesters.

This course will provide the graduate student with the opportunity to analyze the management principles of personnel administration, budgeting, financing, and continuous quality improvement as they pertain to public health. Planning and evaluation principles, grant writing, public health economics, public health policy, and data sources will also be examined for their application to the administrative roles in public health. Prerequisites: PUBH 520 & PUBH 550 or permission of course instructor for non-MPH students. Typically offered in the Fall, Spring and Summer semesters.

This course provides the MPH student with a limited selected elective option as an opportunity to explore specific topics of current interest to public health workers in greater depth. The MPH program will determine the topic(s) to be addressed with each offering with this information disseminated to students prior to registration each semester. Prerequisite: Graduate standing in the MPH program or permission of course instructor required for non-MPH students. Typically offered Fall, Spring, Summer.
This course is designed as an elective for MPH students who desire additional field experience in public health. The student works with a faculty advisor and community preceptor(s) to work on a meaningful public health issue. This course can be applied to the MPH program as a selected elective.

Prerequisite: Graduate standing in the MPH program or permission of course instructor required for non MPH students. Typically offered Fall, Spring, Summer.

This course will provide the graduate student with the opportunity to develop the skills for public health research designs and successful submission of proposals to federal and non-federal funding agencies, including grants management processes. Pre-requisites: PUBH 520 and PUBH 530. Typically offered in Summer semester.

This course is Part 1 of the Evidence-based capstone project sequence for the MPH program. Part 1 prepares the graduate student for the planning and organization phases of the proposed final project. Students will work with a faculty advisor and community preceptor(s) to develop a proposal for a project that will address a meaningful public health issue. Pre-requisites: PUBH 520 and PUBH 550. Typically offered in summer semester at the end of the first year in the MPH program.

This course is Part 2 of the Evidence-based capstone project sequence for the MPH program. Part 2 provides the graduate student with the opportunity to complete the implementation and evaluation phases of the project developed during PUBH 692. The student works with a faculty advisor and community preceptor(s) to address a meaningful public health issue. This work facilitates the integration and synthesis of theories and concepts from the core MPH courses. The student will complete an appropriate scholarly paper demonstrating the application of what was learned in previous courses. Prerequisites: Completion of all PUBH 500 level core courses and PUBH 620 and PUBH 692. This is the final course of the MPH program.

This course is designed to introduce the student to the basic principles of radiation physics as well as the nature, sources, and physical properties of ionizing radiation. It also introduces the student to the structure and function of the x-ray tube and other radiographic equipment used to create and control x-radiation.

Pre-Requisites: Radiography students only. Typically Offered Fall Only

Explores radiation protection practices and policies that ensure the safety of patients, radiation personnel, and the general public including the proper usage of protective devices and equipment operation. Included is a discussion of the federal and state laws regarding radiation safety as well as the basic principles of radiation biology and the genetic and somatic effects of radiation on the human body.

Pre-Requisites: Radiography students only. Typically Offered Spring Only
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Credit Hours</th>
<th>Offering Notes</th>
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<tbody>
<tr>
<td>RADI122</td>
<td>Radiography Rad Protection and Biology</td>
<td>HP</td>
<td>3</td>
<td>Undergraduate 3 An overview of the theories and concepts used in radiography. Topics addressed are the history of medical imaging, grids, film, IR, beam restriction, filtration, and the prime factors. Prerequisites: Admission to the RADI program. Co-requisite: RADI 142.</td>
</tr>
<tr>
<td>RADI141</td>
<td>Radiography Prin of Radiographic Imaging 1</td>
<td>HP</td>
<td>2</td>
<td>Undergraduate 2 Radiographic tools and techniques employed to produce quality radiographic images in the laboratory setting. An emphasis is placed on the effect and control of the primary technical factors of density, contrast, detail, and distortion. Prerequisites: Admission to the RADI program. Co-requisite: RADI 141. Typically Offered Spring Semester.</td>
</tr>
<tr>
<td>RADI142</td>
<td>Radiography Prin Radiographic Image 1 Lab</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 Continuation of RADI 141. Knowledge and skills necessary to apply the principles of radiographic exposure and technique. Students will learn the components of various pieces of x-ray equipment and how this aids in x-ray production. Prerequisites: RADI 104, 105, 121, 141 and 142. Co-requisite: RADI 144. Typically Offered Spring only.</td>
</tr>
<tr>
<td>RADI143</td>
<td>Radiography Prin of Radiographic Imaging 2</td>
<td>HP</td>
<td>2</td>
<td>Undergraduate 2 Demonstration of knowledge learned from RADI 143 to produce quality radiographs. Students will demonstrate on various pieces of radiographic equipment. Prerequisites: RADI 104, 105, 121, 141 and 142. Co-requisite: RADI 143. Typically Offered Spring only.</td>
</tr>
<tr>
<td>RADI144</td>
<td>Radiography Prin of Radiograph Image 2 Lab</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 An understanding and overview of how radiographic imaging processing, basic concepts and principles of quality assurance are used in the radiology department. Prerequisites: RADI 106, 107, 122, 143 and 144. Co-requisite: RADI 171. Typically Offered Summer only.</td>
</tr>
<tr>
<td>RADI170</td>
<td>Radiography Radiographic QA and Processing</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 Demonstration of radiographic proficiency in the use of the computed radiography, PACS, and QA test tools in a laboratory setting. Prerequisites: RADI 106, 107, 122, 143 and 144. Co-requisite: RADI 170. Typically Offered Summer only.</td>
</tr>
<tr>
<td>RADI171</td>
<td>Radiography Image Processing Lab</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 This course provides an overview of the components, principles, and operation of digital imaging systems, including factors that impact image acquisition, display, archiving, and retrieval. Guidelines for selecting exposure techniques and evaluating images within a digital system are described. Prerequisites: RADI 106, 107, 122, 143 and 144. Typically Offered Summer only.</td>
</tr>
<tr>
<td>RADI172</td>
<td>Radiography Digital Imaging</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 Special Topics in Radiography - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>RADI190</td>
<td>Radiography Special Topics in RADI</td>
<td>HP</td>
<td>1 TO 3</td>
<td>Undergraduate 1 TO 3 This self-paced course investigates various pathologic processes that are commonly identified by radiographic examinations and procedures as well as the radiographic methods of their diagnosis and treatment. Competency in medical terminology needed. Pre-Requisites: RADI 108, 109, 170, 171 and 172. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>RADI202</td>
<td>Radiography Radiographic Pathology</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 This course will provide an analysis and overview of radiation concepts, theory and positioning. Students will build upon concepts learned during the first year to gain a greater understanding of the process required to produce a quality radiograph in a patient care setting. Prerequisites: RADI 108, 109, 170, 172 and 172. Typically Offered Fall only.</td>
</tr>
<tr>
<td>RADI203</td>
<td>Radiography Adv Concepts in Radiography 1</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 This course provides an introduction to the principles of computed tomography imaging and cross-sectional anatomy. Prerequisites: RADI 202, 203, 211 and 291. Typically Offered Spring only.</td>
</tr>
<tr>
<td>RADI204</td>
<td>Radiography Prin of Computer Tomography</td>
<td>HP</td>
<td>2</td>
<td>Undergraduate 2 An exploration of the terminology, types, administration, and effects of drugs and pharmaceuticals commonly used in the radiology department. Pre-Requisites: RADI 108, 109, 170, 171, and 172. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>RADI211</td>
<td>Radiography Pharmacology for Radiographers</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 This self-paced course is constructed to give the student a basic understanding of the principles and practices necessary for the management of a modern radiology department. It includes an introduction to personnel, financial, customer service, technology, decision making, planning, administrative, and regulatory considerations and issues which successful radiology managers must confront. Pre-Requisites: RADI 204, 213 and 292. Typically Offered Summer Only.</td>
</tr>
<tr>
<td>RADI212</td>
<td>Radiography Radiology Management</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 This course builds upon RADI 203 with further analysis and overview of radiation concepts, theory, and positioning. Students have the opportunity to gain a more complex understanding of the process required to produce a quality radiograph in a patient care setting. Prerequisites: RADI 202, 203, 211 and 291. Typically Offered Spring only.</td>
</tr>
<tr>
<td>RADI213</td>
<td>Radiography Adv Concepts in Radiography 2</td>
<td>HP</td>
<td>1</td>
<td>Undergraduate 1 This course builds upon RADI 213 with further analysis of radiation protection, theory and their relationship with advanced modalities. Students will have the opportunity to gain mastery of the process required to produce a quality radiograph in a patient care setting. Prerequisites: RADI 204, 213 and 292. Typically Offered Summer only.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Department</td>
<td>Units</td>
<td>Type</td>
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<tr>
<td>RADI223</td>
<td>Radiography Adv Concepts in Radiography</td>
<td>Undergraduate</td>
<td>3</td>
<td>HP</td>
</tr>
<tr>
<td>RADI291</td>
<td>Clinical Practicum 1</td>
<td>Undergraduate</td>
<td>9</td>
<td>HP</td>
</tr>
<tr>
<td>RADI292</td>
<td>Clinical Practicum 2</td>
<td>Undergraduate</td>
<td>9</td>
<td>HP</td>
</tr>
<tr>
<td>RADI293</td>
<td>Clinical Practicum 3</td>
<td>Undergraduate</td>
<td>6</td>
<td>HP</td>
</tr>
<tr>
<td>RADI297</td>
<td>Special Studies in RADI</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>HP</td>
</tr>
<tr>
<td>RADI299</td>
<td>Radiography Review Seminar</td>
<td>Undergraduate</td>
<td>1</td>
<td>HP</td>
</tr>
<tr>
<td>READ175</td>
<td>Foundations-Analytical Reading</td>
<td>Undergraduate</td>
<td>3</td>
<td>UN</td>
</tr>
<tr>
<td>READ176</td>
<td>Analytical Reading</td>
<td>Undergraduate</td>
<td>3</td>
<td>UN</td>
</tr>
<tr>
<td>REAL210</td>
<td>Principles of Real Estate</td>
<td>Undergraduate</td>
<td>3</td>
<td>BU</td>
</tr>
<tr>
<td>REAL290</td>
<td>Special Topics in REAL</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>BU</td>
</tr>
</tbody>
</table>
Various types of real estate investments available and explains the techniques for analyzing and comparing the benefits of these investments. All aspects of real estate investment will be covered—from the location and analysis to the procurement and management. A Michigan pre-licensure course may substitute for the prerequisite. Pre-Requisites: REAL 210 or Michigan pre-licensure course. Typically Offered Spring Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered Fall, Spring, Summer

This course is a comparative approach to the study of world religions. We will consider religion critically, from the perspective of diverse philosophical themes. The specific focus of this course is neither eastern nor western in particular. It gives us the additional opportunity to study other religions of the world, such as African religions, Native American religions, and primitive religions. This course meets General Education requirements: Cultural Enrichment, Global Consciousness, and new Fall 2017 Culture, Global Diversity. Typically Offered Fall.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

An introduction to the religions and cultures of Asia. In this course the emphasis will be on the study of Hinduism and Buddhism, their cultures and scripture; but other texts of sacred scriptures, and other religions of Asia, such as Tibetan Buddhism, Zen Buddhism, Confucianism, Taoism, Shinto, and Sikhism, may be covered at the instructor’s discretion. This course meets General Education requirement: Cultural Enrichment, Global Consciousness and new Fall 2017 Culture and Global Diversity. Prerequisites: ENGL 150. Typically Offered Fall, Spring.

An introduction to the religions and cultures of the Western world, this course considers critically, in light of their historical, cultural, philosophical, and doctrinal evolution the three monotheistic religions that derive from the ancient Near East, and which constitute the principal religious heritage of the western world: Judaism, Christianity, and Islam. This course meets General Education Requirement: Cultural Enrichment and new Fall 2017 Culture. Prerequisites: ENGL 150. Typically Offered Spring, Summer, Fall.

This course is a text intensive critical study of Christianity in the light of other religions and cultures of the Western world. In this course we will study its origin in Judaism, as well as its development into various forms around the world. Topics may include the Roman context of Christianity, the Life of Jesus, the Church Councils, the authorship of the New Testament, the Protestant Reformation, and Christianity and Politics. Specific topics to be determined at the discretion of the instructor. This course meets General Education requirements: Culture. Typically Offered Fall Only, Odd Years.

Buddhism is one of the world’s primary religions, originating in India by an individual who became ‘awakened’ and began teaching about his experience regarding human life. This individual became known as the Buddha. In this course, student will become familiar with the history and cultural contexts of Buddhism both in India and beyond. Students will study the key concepts of the religion and philosophy, including the Four Noble Truths and the Eightfold Path. This course meets General Education requirement: Culture, Global Diversity, U.S. Diversity. Typically offered: Fall, odd years.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG497</td>
<td>Religions Special Studies in RELG</td>
<td>Introduces student to Respiratory Care as a health science profession. Topics include assessment of personal strengths, historical background of the Respiratory Care profession, professional collaboration, legal and ethical issues, and current trends in professional practice. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 119, RESP 123, and RESP 124. Typically offered: Fall, Summer</td>
</tr>
<tr>
<td>RESP100</td>
<td>Intro to Respiratory Care</td>
<td>Study of the respiratory, cardiovascular and renal systems as they relate to respiratory care practice. Topics include anatomy of the respiratory and cardiovascular systems, fetal lung development as well as the physiology of aging, respiration, ventilation and fluid and electrolyte balance. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 100, RESP 123, and RESP 124. Typically offered: Fall, Summer</td>
</tr>
<tr>
<td>RESP119</td>
<td>Cardiopulmonary A &amp; P</td>
<td>This course provides instruction in beginning therapeutic procedures utilized by the respiratory therapist. Course content includes basic patient and pulmonary assessment, pulse oximetry, basic gas laws, medical gas administration, oxygen therapy delivery systems, and lung expansion techniques. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 100, RESP 119, and RESP 124. Lecture portion of course will be scheduled prior to the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Fall, Summer</td>
</tr>
<tr>
<td>RESP123</td>
<td>Assessment &amp; Gas Therapy</td>
<td>This course provides practice and competency in beginning therapeutic procedures utilized by the respiratory therapist. Course content includes basic patient and pulmonary assessment, pulse oximetry, basic gas laws, medical gas administration, oxygen therapy delivery systems, and lung expansion techniques. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 100, RESP 119, and RESP 123. Lecture portion of course will be scheduled prior to the week in the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Fall, Summer</td>
</tr>
<tr>
<td>RESP124</td>
<td>Assessment &amp; Gas Therapy Lab</td>
<td>This course provides instruction in therapeutic procedures utilized by the respiratory therapist. Course content includes basic patient and pulmonary assessment, pulse oximetry, basic gas laws, medical gas administration, oxygen therapy delivery systems, and lung expansion techniques. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 100, RESP 119, and RESP 123. Lecture portion of course will be scheduled prior to the week in the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>RESP125</td>
<td>Cardiopulmonary Pharmacology</td>
<td>This course provides instruction in therapeutic procedures utilized by the respiratory therapist. Course content includes basic patient and pulmonary assessment, pulse oximetry, basic gas laws, medical gas administration, oxygen therapy delivery systems, and lung expansion techniques. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 100, RESP 119, and RESP 123. Lecture portion of course will be scheduled prior to the week in the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>RESP145</td>
<td>Respiratory Care Procedures</td>
<td>Introduction in therapeutic procedures utilized by the respiratory therapist. Course content includes basic patient and pulmonary assessment, pulse oximetry, basic gas laws, medical gas administration, oxygen therapy delivery systems, and lung expansion techniques. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 100, RESP 119, and RESP 123. Lecture portion of course will be scheduled prior to the week in the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>RESP146</td>
<td>Respiratory Care Procedure Lab</td>
<td>This course provides instruction in therapeutic procedures utilized by the respiratory therapist. Course content includes basic patient and pulmonary assessment, pulse oximetry, basic gas laws, medical gas administration, oxygen therapy delivery systems, and lung expansion techniques. Pre-requisite: Acceptance into the Respiratory Care Program. Co-requisites: RESP 100, RESP 119, and RESP 123. Lecture portion of course will be scheduled prior to the week in the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Fall, Spring</td>
</tr>
<tr>
<td>RESP162</td>
<td>Cardiopulmonary Pathophysiology</td>
<td>This course will provide the student opportunities to practice and demonstrate the function of instrumentation and physical principles of cardiopulmonary measurement and testing. Pre-requisites: RESP 125, RESP 145, and RESP 162. Co-requisites: RESP 172 and RESP 182. Typically offered: Spring, Summer</td>
</tr>
<tr>
<td>RESP171</td>
<td>Cardiopulmonary Diagnostics</td>
<td>This course will provide the student opportunities to practice and demonstrate the function of instrumentation and physical principles of cardiopulmonary measurement and testing. Pre-requisites: RESP 125, RESP 145, and RESP 162. Co-requisites: RESP 171 and RESP 182. Lecture portion of course will be scheduled prior to the week in the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Spring, Summer</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Department</td>
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<tr>
<td>RESP172</td>
<td>Respiratory Care Cardiopulmonary Diagnostic Lab</td>
<td>HP</td>
</tr>
<tr>
<td>RESP182</td>
<td>Respiratory Care Blood Gases &amp; Oxygenation</td>
<td>HP</td>
</tr>
<tr>
<td>RESP190</td>
<td>Respiratory Care Special Topics in RESP</td>
<td>HP</td>
</tr>
<tr>
<td>RESP192</td>
<td>Respiratory Care Clinical Practicum 1</td>
<td>HP</td>
</tr>
<tr>
<td>RESP193</td>
<td>Respiratory Care Clinical Practicum 2</td>
<td>HP</td>
</tr>
<tr>
<td>RESP197</td>
<td>Respiratory Care Special Studies in RESP</td>
<td>HP</td>
</tr>
<tr>
<td>RESP220</td>
<td>Respiratory Care Adult Mechanical Ventilation</td>
<td>HP</td>
</tr>
<tr>
<td>RESP221</td>
<td>Respiratory Care Adult Mechanical Vent Lab</td>
<td>HP</td>
</tr>
<tr>
<td>RESP230</td>
<td>Respiratory Care Neo/Ped Respiratory Care</td>
<td>HP</td>
</tr>
<tr>
<td>RESP231</td>
<td>Respiratory Care Neo/Ped Respiratory Care Lab</td>
<td>HP</td>
</tr>
<tr>
<td>RESP241</td>
<td>Respiratory Care Respiratory Care Sim Review</td>
<td>HP</td>
</tr>
<tr>
<td>RESP290</td>
<td>Respiratory Care Special Topics in RESP</td>
<td>HP</td>
</tr>
</tbody>
</table>

This course focuses on the clinical application of science to the practice of respiratory care. Topics include common microbial pathogens seen with pulmonary infection, infection control guidelines, oxygenations, acid-base balance, and the physical principles of ventilation in health and disease. Emphasis is placed on blood gas interpretation, capnography, puncture techniques, protection of the respiratory therapist, and disinfection and sterilization of respiratory care equipment. Pre-requisites: RESP 125, RESP 145, RESP 146, and RESP 162. Co-requisites: RESP 171 and RESP 172. Typically offered: Spring, Summer

Special topics in RESP - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Development of the clinical skills related to airway management, bronchial hygiene, resuscitation procedures, and oxygenation. Students evaluate, modify, and monitor patients' responses to respiratory care regimens. A four week directed clinical experience which includes ten 12- hour shifts in selected clinical sites. Pre-requisites: RESP 100, RESP 119, RESP 123, and RESP 124. Typically offered: Fall, Spring

Development of the clinical skills related to airway management, removal of bronchopulmonary secretions, CPR, and oxygenation. Students evaluate, modify, and monitor patients' responses to breathing treatment regimens. A 4-week directed clinical experience which includes 120 hours in selected clinical sites. Pre-requisites: RESP 125, RESP 145, RESP 146, RESP 162, and RESP 192. Co-requisites: RESP 220 and RESP 221. Typically offered: Fall, Spring

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

A study of the theories, techniques, and equipment used to achieve adequate spontaneous and artificial ventilation in the adult patient. Pre-requisites: RESP 125, RESP 145, RESP 146, RESP 162, and RESP 192. Co-requisites: RESP 193 and RESP 221. Typically offered: Fall, Spring

This course will provide the student opportunities to practice and demonstrate the function of common adult mechanical ventilators. Students will practice a wide range of mechanical ventilation interventions used in the care of the adult patient. Pre-requisites: RESP 125, RESP 145, RESP 146, RESP 162, and RESP 192. Co-requisites: RESP 193 and RESP 220. Lecture portion of course will be scheduled prior in the week to the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Fall, Spring

A study of the anatomy, physiology, and pathophysiology of the premature neonate through adolescence. This is followed by an extensive overview of respiratory therapeutics related to the care of the neonatal/pediatric patient. Pre-requisites: RESP 171, RESP 172, RESP 182, RESP 220, RESP 221 and RESP 193. Co-requisites: RESP 231 and RESP 292. Typically offered: Spring, Summer

This course will provide the student opportunities to practice and demonstrate the function of common neonatal and pediatric mechanical ventilators. Students will practice a wide range of mechanical ventilation interventions used in the care of the critically ill neonatal and pediatric patient. Pre-requisites: RESP 171, RESP 172, RESP 182, RESP 220, RESP 221 and RESP 193. Co-requisites: RESP 230 and RESP 292. Lecture portion of course will be scheduled prior in the week to the corresponding laboratory sessions, unless there is a scheduling conflict. Typically offered: Spring, Summer

This course provides the student an opportunity to apply in simulated settings concepts learned throughout the program. Students spend two hours each week working on computerized clinical case study simulations, selecting appropriate treatments and managing patients. Pre-requisites: RESP 230, RESP 231 and RESP 292. Co-requisites: RESP 284 and RESP 299. Typically offered: Fall, Summer

Special topics in RESP - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Directed clinical experience that develops therapeutic clinical skills for critical care areas. Emphasis is on assessing needs, designing care plans, and implementing and evaluating the procedures especially for mechanical ventilator support and systemic oxygenation. The student will participate in twenty 12-hours shifts over 13 weeks. Pre-requisites: RESP 171, RESP 172, RESP 182, RESP 220, RESP 221 and RESP 193. Co-requisites: RESP 230 and RESP 231. Typically offered: Spring, Summer
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Pre-Requisites</th>
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<tbody>
<tr>
<td>RESP292</td>
<td>Respiratory Care Practicum 3</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
</tr>
<tr>
<td>RESP294</td>
<td>Respiratory Care Practicum 4</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<td>RESP297</td>
<td>Special Studies in RESP</td>
<td>1 TO 4</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<tr>
<td>RESP299</td>
<td>Respiratory Care Capstone</td>
<td>2 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<td>RESP300</td>
<td>Resp Ther Prof Role Transition</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<tr>
<td>RESP310</td>
<td>Adv Cardiopulm Physiology</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<tr>
<td>RESP320</td>
<td>Adv CP Pathophysiology</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<tr>
<td>RESP350</td>
<td>COPD/Asthma Educator Prep</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<td>RESP400</td>
<td>Adv. Adult Clinical Practice</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<tr>
<td>RESP410</td>
<td>Adv. Neo/Ped Clinical Practice</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
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<tr>
<td>RESP420</td>
<td>CHD &amp; CV Assist Devices</td>
<td>3 HP</td>
<td>Clinical Lab-Resp Care-Hlth Ad, Undergraduate 4</td>
</tr>
</tbody>
</table>

Directed clinical experience that develops the clinical skills and techniques used to manage neonatal and pediatric patients requiring mechanical ventilator support. This experience also includes specialty rotations that include pulmonary function testing, pulmonary rehabilitation, sleep studies, emergency and cardiac care, sub-acute care and home care. The student will participate in twenty 12-hour shifts over 8 weeks. Pre-requisites: RESP 230, RESP 231, and RESP 292. Co-requisites: RESP 241 and RESP 299. Typically offered: Fall, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically offered on Demand.

This course provides the student with a study of the current theory and techniques encountered by the respiratory therapist in a variety of clinical settings. Emphasis is placed on advanced ventilator applications, cardiopulmonary monitoring, and the respiratory care professional’s dynamic role in the health care setting. Pre-requisites: RESP 230, RESP 231, and RESP 292. Co-requisites: RESP 241 and RESP 294. Typically offered: Fall, Summer

This course is an overview of the transition from the associate degree program to the professional role of a Bachelor of Science degree in Respiratory Therapy. The course will focus on respiratory therapy development, critical thinking skills and decision making, alternative career opportunities, professionalism through leadership opportunities and future trends in the profession. Pre-requisites: Acceptance to the RSTH Program. Meets General Education Requirements for Collaboration. Typically offered: Fall.

This course covers advanced in-depth integrated physiology of the cardiovascular and respiratory systems. Discusses the physiological dynamics, control mechanisms and system interrelationships of the cardiovascular, respiratory and kidney systems. Students will make application of advanced cardiopulmonary physiology to the management of patients requiring respiratory care services. Pre-requisites: Acceptance in to RSTH Program. Typically offered: Spring.

This course covers advanced in-depth integrated pathophysiology of the cardiovascular and respiratory disease states. Discusses the dynamics, control mechanisms and system interrelationships occurring in the cardiovascular respiratory and kidney systems when disease is present. Students will apply their knowledge of advanced cardiopulmonary physiology to reflect on clinical management of patients requiring respiratory care services. Pre-requisites: RESP 310. Meets General Education Requirements for Problem Solving. Typically offered: Summer.

This course consists of a comprehensive review of the pathophysiology, medication usage, treatment plans and patient education requirements needed for the preparation of completion and passing of the COPD and Asthma Educator Exams. This course will review the GOLD standards for care of COPD and the NAEPP guidelines for care of Asthma patients. Pre-requisites: BIOL 10B or BIOL 205. Typically offered: Spring.

This course prepares practitioners for advance clinical practice of the adult patient. The student will investigate new advances in technology that alter both the diagnostic and therapeutic approaches to adult critical care. Pre-requisite: RESP 310. Typically offered: Summer

This course prepares practitioners for advance clinical practice of the neonatal and pediatric patient. The student will investigate new advances in technology that alter both the diagnostic and therapeutic approaches to neonatal and pediatric critical care. Pre-requisite: RESP 310. Typically offered: Fall

This course covers advanced in-depth integrated pathophysiology of the cardiovascular and respiratory disease states. Discusses the dynamics, control mechanisms and system interrelationships occurring in the cardiovascular, respiratory and kidney systems when disease is present. Students will apply their knowledge of advanced cardiopulmonary physiology to reflect on clinical management of patients requiring respiratory care services. Pre-requisite: RESP 310. Typically offered: Summer

This course prepares the advanced student to be successful in leadership roles in the field of Respiratory Care. Pre-requisite: RESP 300. Typically offered: Fall
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Instructor</th>
<th>Department</th>
<th>Level</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RESP450</td>
<td>Respiratory Care Leadership</td>
<td>HP</td>
<td>Clinical Lab-Resp Care-HP - Hlth Ad</td>
<td>Undergraduate</td>
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<tr>
<td>RETG337</td>
<td>Retailing Principles of Retailing</td>
<td>BU</td>
<td>Marketing</td>
<td>Undergraduate</td>
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<tr>
<td>RETG339</td>
<td>Retailing Retail Merchandising</td>
<td>BU</td>
<td>Marketing</td>
<td>Undergraduate</td>
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<td>RETG397</td>
<td>Special Studies in Retailing</td>
<td>BU</td>
<td>Marketing</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
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<td>RETG438</td>
<td>Retailing Retail Management</td>
<td>BU</td>
<td>Marketing</td>
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<tr>
<td>RETG490</td>
<td>Special Topics in RETG</td>
<td>BU</td>
<td>Marketing</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
</tr>
<tr>
<td>RETG491</td>
<td>RETG Internship</td>
<td>BU</td>
<td>Marketing</td>
<td>Undergraduate</td>
<td>1 TO 9</td>
</tr>
<tr>
<td>RETG497</td>
<td>Special Studies in RETG</td>
<td>BU</td>
<td>Marketing</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
</tr>
<tr>
<td>RFIM297</td>
<td>Restaurant and Food Ind Mgmt</td>
<td>BU</td>
<td>Sports, Entertain, Hosp. Mgmt</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
</tr>
<tr>
<td>RMIN200</td>
<td>Risk Management and Insurance</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>RMIN252</td>
<td>Risk Management and Insurance</td>
<td>BU</td>
<td>Management</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
</tbody>
</table>

Store location and layout, retail institutions, department store organization, chain store organization, store and merchandising policies, receiving and marking operations, pricing, advertising, interpreting consumer demand, techniques of buying, terms of purchase, pricing, advertising and display, retail credit. Pre-Requisites: MXTG 321 w/C- or higher. Typically Offered Fall, Spring, Summer

Organization and responsibilities of merchandising division in a variety of retail formats. Procedures in planning, sourcing, and controlling inventory for profitable management of retail operations. Merchandise selection including information sources, and price lining. Purchase terms, pricing (mark-up and mark-down), turnover, open-to-buy. Presentation of merchandise as related to brand image, sales and aesthetics with an emphasis on profitability from a managerial perspective. Both planning and presentation to include strategic retail software applications. Pre-Requisites: RETG 337 w/C- or higher and MATH 114 or 115 w/C- or higher or 24 ACT or 560 SAT. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Management policies and practices, model stock planning, mark-up planning, unit control systems, store operating statement, inventory methods, expense classification and planning, expense control and analysis, retail audits and selected case readings. Market or area research and research on selection of channels of distribution. Pre-Requisites: RETG 339 w/C- or higher. Typically Offered Fall, Spring, Summer

Special topics in RETG - 400 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Work experience with cooperating employer organizations in business, industry, government and education. The work experience is designed to be relevant to the student’s academic pursuits, personal development and professional preparation. Need to have complete 60 semester hours prior to taking this course. Pre-Requisites: Completion of 60 semester hours and department approval. Typically Offered Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course introduces students to the basic principles and concepts of risk management as it relates to everyday personal and business life. Different forms of risk and risk management are examined. Processes for identifying, assessing, controlling, and financing risk exposures are explored. Insurance, as one of the more common risk financing techniques, is studied including the topics of common insurance policy concepts and insurance policy analysis. This is the introductory course for students wishing to pursue a risk management and insurance education. The course is aligned with CPCU 500 allowing successful students to apply for a CPCU exam waiver. Typically offered: Fall, Spring.

This course provides students an overview of commercial insurance, premium determination, and legal liability. Insurance coverages studied include commercial general liability, business auto, garage and motor carrier, commercial property, business income, workers compensation, excess liability, professional liability, cyber risk, terrorism, inland marine, crime, and surety bonds. The course is aligned with CPCU 552 allowing successful students to apply for a CPCU exam waiver. Typically offered: Fall. Prerequisite: RMIN 200.

This course explores aspects of personal risk management, and the common personal lines insurance products used to address such risks. Personal automobile, homeowners, and other residential insurance products are covered. Also addressed in this course are personal liability, life and health insurance products, disability, and retirement planning. The course is aligned with CPCU 553 allowing successful students to apply for a CPCU exam waiver. Typically offered: Spring.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Degree</th>
<th>Department</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMIN253</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Prepares students to successfully complete the Michigan property and casualty insurance producers licensing examination. This course satisfies Michigan’s mandatory pre-licensing education requirement and covers Michigan insurance code and regulation, ethics, general insurance concepts, property and casualty insurance basics, personal lines and commercial lines of insurance. Specific lines of insurance reviewed include homeowners, automobile, commercial packages, business owner’s policy, workers’ compensation, and various specialty lines. Typically offered: Fall. An overview of the operations of an insurance company and associated entities. This course also explores the regulations that apply to the insurance industry. Students will study major insurance company functions including marketing, distribution, underwriting, risk control, premium auditing, claims, actuarial, reinsurance, and strategic management. The course is aligned with CPCU 520 allowing successful students to apply for a CPCU exam waiver. Typically offered: Fall, Spring. Prerequisite: RMIN 200.</td>
</tr>
<tr>
<td>RMIN305</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Explores the information needs and a variety of applications of technology within the risk and insurance industry. This course examines current technological trends as they relate to risk management and insurance including the marketing of insurance products on the Internet, predictive analytics, information security, cyber risks, and project management. The course will survey current software systems including agency management systems, risk management information systems, carrier interfaces, underwriting systems, and claims administration systems. Hands-on learning opportunities are an integral component of this course. Typically offered: Spring. Prerequisite: RMIN 200.</td>
</tr>
<tr>
<td>RMIN320</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Students will become fluent in the principles and practices of risk management as they study the standards and guidelines followed by professional risk managers. This course examines the nature of hazard, operational, financial, and strategic risks, and the risk management process and framework. Students will learn the fundamentals of risk identification, analysis, treatment, monitoring, and reporting, including the areas of financial statement and capital investment risk analysis. Typically offered: Fall. Prerequisite: RMIN 200.</td>
</tr>
<tr>
<td>RMIN401</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Students will become fluent in the principles and practices of risk management as they study the standards and guidelines followed by professional risk managers. This course examines the nature of hazard, operational, financial, and strategic risks, and the risk management process and framework. Students will learn the fundamentals of risk identification, analysis, treatment, monitoring, and reporting, including the areas of financial statement and capital investment risk analysis. Typically offered: Fall. Prerequisite: RMIN 200.</td>
</tr>
<tr>
<td>RMIN454</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Examines the basic principles of insurance agency formation and operational environment including principles of organizational management, sales management, and production plans. Agency marketing considerations are addressed including insurance carrier relationships, public image, agency growth, customer communications, and insurance market segmentation. This course also explores the role of information technology (particularly regarding agency/Carrier interfaces), agency financial management, and customer service. Typically offered: Fall. Prerequisite: RMIN 200.</td>
</tr>
<tr>
<td>RMIN457</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Examines the basic principles of insurance agency formation and operational environment including principles of organizational management, sales management, and production plans. Agency marketing considerations are addressed including insurance carrier relationships, public image, agency growth, customer communications, and insurance market segmentation. This course also explores the role of information technology (particularly regarding agency/Carrier interfaces), agency financial management, and customer service. Typically offered: Fall. Prerequisite: RMIN 200.</td>
</tr>
<tr>
<td>RMIN483</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Examines the basic principles of insurance agency formation and operational environment including principles of organizational management, sales management, and production plans. Agency marketing considerations are addressed including insurance carrier relationships, public image, agency growth, customer communications, and insurance market segmentation. This course also explores the role of information technology (particularly regarding agency/Carrier interfaces), agency financial management, and customer service. Typically offered: Fall. Prerequisite: RMIN 200.</td>
</tr>
<tr>
<td>RMIN489</td>
<td>Risk Management and Insurance</td>
<td><strong>BU</strong></td>
<td>3</td>
<td>Management</td>
<td>Undergraduate Examines the basic principles of insurance agency formation and operational environment including principles of organizational management, sales management, and production plans. Agency marketing considerations are addressed including insurance carrier relationships, public image, agency growth, customer communications, and insurance market segmentation. This course also explores the role of information technology (particularly regarding agency/Carrier interfaces), agency financial management, and customer service. Typically offered: Fall. Prerequisite: RMIN 200.</td>
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<tr>
<td>RMLS101</td>
<td>Recreation Mgmt and Leisure St</td>
<td><strong>ED</strong></td>
<td>1</td>
<td>Recreation, Leisure</td>
<td>Undergraduate The basic components of fitness: cardiovascular endurance, muscular strength and endurance, flexibility, body composition, and nutrition. Some aerobic activities and brief fitness assessment will occur. Not to be taken by students with credit in RMLS 112. For full development of a fitness program, students should take RMLS 112. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>Course Code</td>
<td>Department and Level</td>
<td>Course Title</td>
<td>Delivery</td>
<td>Degree Level</td>
<td>Offered</td>
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<tr>
<td>RMLS111</td>
<td>Recreation Mgmt/Leis</td>
<td>Introduction to Fitness</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
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<tr>
<td>RMLS112</td>
<td>Recreation Mgmt/Leis</td>
<td>Fitness and Wellness</td>
<td>ED</td>
<td>Undergraduate</td>
<td>2</td>
</tr>
<tr>
<td>RMLS113</td>
<td>Recreation Mgmt/Leis</td>
<td>Strength Training</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
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<tr>
<td>RMLS115</td>
<td>Recreation Mgmt/Leis</td>
<td>Aerobics</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
</tr>
<tr>
<td>RMLS116</td>
<td>Recreation Mgmt/Leis</td>
<td>Beginner and Intermediate Swimming</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
</tr>
<tr>
<td>RMLS118</td>
<td>Recreation Mgmt/Leis</td>
<td>Fly Fishing</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
</tr>
<tr>
<td>RMLS119</td>
<td>Recreation Mgmt/Leis</td>
<td>Fundamentals of Disc Sports</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
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<tr>
<td>RMLS121</td>
<td>Recreation Mgmt/Leis</td>
<td>Intro to Leisure Services</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>RMLS122</td>
<td>Recreation Mgmt/Leis</td>
<td>Responding to Emergencies</td>
<td>ED</td>
<td>Undergraduate</td>
<td>2</td>
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<tr>
<td>RMLS123</td>
<td>Recreation Mgmt/Leis</td>
<td>Fitness Swimming</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
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<tr>
<td>RMLS124</td>
<td>Recreation Mgmt/Leis</td>
<td>Health and Wellness</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>RMLS125</td>
<td>Recreation Mgmt/Leis</td>
<td>Water Aerobics</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
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<tr>
<td>RMLS126</td>
<td>Recreation Mgmt/Leis</td>
<td>Justice Fitness and Training</td>
<td>ED</td>
<td>Undergraduate</td>
<td>2</td>
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<tr>
<td>RMLS127</td>
<td>Recreation Mgmt/Leis</td>
<td>Basic Canoeing</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1</td>
</tr>
</tbody>
</table>

The main components of health-related fitness: cardiovascular endurance, muscular strength and endurance, flexibility and body composition. Typically Offered Fall, Spring, Summer.

Strength training covers the history, objectives, skills, techniques, exercises, safety and equipment to improve muscular strength. Typically Offered Fall, Spring, Summer.

A course combining rhythm exercises and conditioning skills as away to develop fitness. Typically Offered Fall, Spring, Summer.

Propulsion and safety skills to non-swimmers; crawl, backstroke and safety to beginning swimmers; and breaststroke, sidestroke, safety skills and diving to intermediate swimmers. Typically Offered Fall, Spring, Summer.

The fly fishing course will offer the experiences of tying Fishing flies, development of proper casting technique, reading of the river for fishing habitat, and two days of actual fishing experience to practice the classroom information and skill. Limited Equipment will be provided and course will require two, one day trips. Student must have current state fishing license. Typically Offered Summer Only.

The course will provide students with a comprehensive history of all flying disc sports and present the objectives of the Ultimate, Disc Golf, Guts, Double-Disc Court and other forms of disc sport competition including self-caught flights, distance, accuracy, and freestyle. Students in this course will receive instruction in a variety of delivery styles and catching techniques. Typically Offered Fall Only.

A foundations course for RLM majors and other students wishing to gain a broad perspective about leisure studies and recreation services. Emphasis on leisure theory, history of leisure and recreation, international aspects of leisure, leisure lifestyle throughout the life span, philosophy, social and economic impacts of leisure, current issues, future trends, and leisure/recreational service sectors. Typically Offered Fall, Spring.

The knowledge, technical decision making, and interpersonal skills necessary to render appropriate care when first aid and/or cardiopulmonary resuscitation are needed. Emphasis on prevention of injury and illness, personal safety and healthy environment. Successful completion will result in American Red Cross Certification in Community CPR and Responding to Emergencies. Typically Offered Fall, Spring, Summer.

Fitness and training strategies for swimmers, including endurance training, interval training and strength development, and developing an aquatics fitness program. Need to have intermediate swimming level experience. Pre-Requisites: Intermediate swimming level or approval by instructor. Typically Offered Fall, Spring, Summer.

Examines the total wellness concept, as a self-designed and dynamic style of living. Optimal functioning and creative adapting both personally and in interactions with others and the environment. Wellness involves a capacity to live life to the fullest by taking self responsibility and self-initiative. Typically Offered Spring Only.

The course uses water exercises such as running, walking, jumping, and various arm exercises to create vigorous workout program accompanied by music. Typically Offered Spring, Summer.

This course will introduce students to the requirements of the MCOLES fitness test and identify individual goals in order to prepare for the test. Students will follow a planned, progressive program to increase their knowledge in living a healthy lifestyle and sustaining a higher level of physical fitness. Students will learn how to make healthy meal choices, track their daily caloric intake, and attain a higher level of physical fitness throughout the course. Assessments will be done to show fitness progression and readiness for the MCOLES test. Typically offered Fall and Spring.

The course will offer students the opportunity to develop basic canoe paddling skills, an introduction to canoe water safety and experience of paddling on the local open waters. Course is designed for non-RLM majors. Typically Offered Fall, Spring, Summer.

Fundamentals of SCUBA Diving with emphasis on comfort, confidence in the underwater environment, and equipment. Students will learn various water entry and exit procedures, equipment use and care, preparation for open diving exam and other techniques. Students will be required to rent certified equipment for a fee and provide personal mask, snorkel and fins. Pre-Requisites: Intermediate swimming level. Typically Offered Fall, Spring, Summer.
Students learn the philosophy, principles, and practices of environmental education and interpretation using appropriate educational material, teaching methods, and evaluation. Students explore ecology topics and learn practical application of problem solving and inquiry techniques. Students are introduced to a variety of local, state, and federal agencies, and Non-profit Governmental Organizations through university organized activities such as volunteer events, organized research programs and encouraging students to attend public meetings. Typically Offered Fall Only-Odd Years

The course offers students the fundamentals of volleyball with emphasis on techniques and participation. Typically Offered Fall, Spring, Summer

Introduction to first aid and long-term patient care in a wilderness setting. This course will cover, basic wound care, infection control, splinting fractures and environmental and medical emergencies that occur in wilderness settings. Certification requirements include attendance to all session, 80% on written exam and acceptable performance on all practical skills listed. A certification fee will be assessed. Typically Offered Fall, Spring, Summer

Vinyasa yoga is a series of poses that will move you through the power of inhaling and exhaling. Vinyasa movements are smoothly flowing and almost dance-like. Vinyasa yoga is for every level of fitness since all the poses can be modified and advanced students can also be challenged. Typically offered Fall, Spring Summer.

Zumba combines Latin and International music with a fun and effective workout system. This activity provides an excellent group exercise experience. Typically offered Fall, Spring, Summer

A variety of self defense and martial arts will make up the course with emphasis on fitness. The instructor will incorporate self defense moves with other forms of exercises that may include Tae Kwon Do, Tae Chi, or Kick Boxing. Typically Offered Fall, Spring, Summer

The course covers fundamental skills of golf: putting, chipping, use of irons, woods, and special shots. Basic rules of play will be discussed. Typically Offered Fall, Summer

This kayaking class is designed to teach students how to use kayaks for recreational use. Students learn principles and techniques of river and lake travel by kayak. Students will be introduced to paddling strokes/techniques, kayak safety procedures, choosing kayaking gear and clothing, reading the water and river dynamics. Typically Offered Spring Only.

Half-semester course. Introduction to necessary skills and knowledge about equipment, food, food preparation, first aid, wilderness travel, navigation and trip planning for backpacking. A 45 hour wilderness backpacking experience is required. Typically offered Fall, Spring

The rules and strategies in playing the game of tennis with emphasis on the basic strokes of serving and forehand and backhand ground strokes and volleys. Movement and court position will be stressed. Typically Offered Fall, Spring, Summer

The primary purpose of this course is to give the student a basic introduction to top-rope rock climbing skills. Students will gain a basic understanding of the equipment, techniques, and procedures necessary for safe top-rope climbing. Students will learn techniques used for face and crack climbing, as well as dihedrals and chimneys. Risk management issues will be discussed for artificial climbing walls and natural rock. Typically Offered Fall, Spring

The course will introduce students to basic skills required when using bow and arrow in archery as target sport. Student will be provided an opportunity to participate in developing the motor skills required for target shooting with a bow and arrow. Instruction will include the formal aspects of archery, target shooting, safety and competition. The course will expose students to dance techniques that may be used for physical fitness and physical awareness. Techniques will include modern dance, folk, social, square, line and/or current dances. Typically Offered Fall, Spring
| RMLS174 | Recreation Mgmt and Leisure St | Dance ED | Recreation, Leisure Serv-Well | Undergraduate | 1 |
| RMLS178 | Recreation Mgmt and Leisure St | Cross Country Skiing ED | Recreation, Leisure Serv-Well | Undergraduate | 1 |
| RMLS180 | Recreation Mgmt and Leisure St | Rec Leadership-Supervision ED | Recreation, Leisure Serv-Well | Undergraduate | 3 |
| RMLS181 | Recreation Mgmt and Leisure St | Beginning-Intermediate Skiing ED | Recreation, Leisure Serv-Well | Undergraduate | 1 |
| RMLS185 | Recreation Mgmt and Leisure St | Ice Skating ED | Recreation, Leisure Serv-Well | Undergraduate | 1 |
| RMLS189 | Recreation Mgmt and Leisure St | Bowling ED | Recreation, Leisure Serv-Well | Undergraduate | 1 |
| RMLS190 | Recreation Mgmt and Leisure St | Special Topics in RMLS ED | Recreation, Leisure Serv-Well | Undergraduate | 1 TO 3 |
| RMLS2010 | Recreation Mgmt and Leisure St | Stress Management ED | Recreation, Leisure Serv-Well | Undergraduate | 2 |
| RMLS211 | Recreation Mgmt and Leisure St | Found of Outdoor Living Skills ED | Recreation, Leisure Serv-Well | Undergraduate | 3 |
| RMLS213 | Recreation Mgmt and Leisure St | Health Promotion in Workplace ED | Recreation, Leisure Serv-Well | Undergraduate | 3 |
| RMLS216 | Recreation Mgmt and Leisure St | Officiating Sports 1 ED | Recreation, Leisure Serv-Well | Undergraduate | 2 |
| RMLS217 | Recreation Mgmt and Leisure St | Officiating Sports 2 ED | Recreation, Leisure Serv-Well | Undergraduate | 2 |
| RMLS221 | Recreation Mgmt and Leisure St | Lifeguard Training ED | Recreation, Leisure Serv-Well | Undergraduate | 3 |
| RMLS224 | Recreation Mgmt and Leisure St | Cycling ED | Recreation, Leisure Serv-Well | Undergraduate | 2 |

Cross-Country Skiing will provide interested first time or beginning skiers with knowledge of the history, principles and equipment selection and care, clothing, safety measures and techniques or Nordic (cross-country) skiing. Students must provide own ski equipment. Typically Offered Spring Only-Odd Years

Identify and practice professionalism in leadership roles of recreational activity experiences in a variety of settings and populations using the theories and principles of face to face, supervisory, and administrative leadership in leisure and recreation services. Planning and interpersonal skills will be discussed and practiced in the context of these situations. Emphasis is on understanding of, need for, and implementation of sound leadership practices. Prerequisites: RMLS 121 or approval by instructor. Typically offered Fall.

Basic skills and safety of downhill skiing. Meets one day a week during which time the student will receive a two hour instructional lesson per session plus practice. Individuals are responsible for their equipment (rental cost or own) plus ski hill fee to be determined. Typically Offered Spring Only

The fundamentals of propulsive skills of ice skating, turns and jumps. Typically Offered Fall, Spring Rules, techniques and participation in fundamentals of 10 pin bowling. Student will be responsible for shoe rental and bowling facility fees arrange by the University. Typically Offered Fall, Spring, Summer

Special Topics RMLS - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

The course is designed to acquaint students with physiology and psychology of stress. The student will learn practical and cognitive coping techniques that will enhance their abilities to manage change and promote mental and physical health. They will also learn about nutrition, exercise, time and conflict management skill so they can develop a personal stress management plan. Typically Offered Fall, Spring, Summer

Foundational skills of safe and comfortable outdoor living, including basic human needs or survival principles, outdoor clothing, use of map and compass, outdoor cooking, fire and other camcraft skills, gear and the development of a minimum impact ethic are learned and practiced. A weekend trip is required. RML majors receive registration preference. Typically Offered Fall Only

Introduction to educational, organizational, and environmental aspects of health promotion in the workplace; corporate, governmental, public and private. Emphasis is on employee service programs linking positive lifestyle with a reduction of risk of diseases and injuries and improved wellness. This course has a service learning component. Prerequisites: RMLS 121 or approval by instructor. Typically Offered Spring Only

Volleyball and Soft/Baseball rules and techniques of officiating volleyball and soft/baseball. National federation rules will be studied, interpreted and practiced. Proper official's duties and mechanics in the game situation will be stressed. Typically Offered Fall Only

Basketball and Flag Football rules and techniques of officiating basketball and flag football. National federation rules will be studied, interpreted and practiced. Proper official's duties and mechanics in the game situation will be stressed. Typically Offered Spring Only

Lifeguarding, risk management, CPR and First Aid, and the skills and knowledge necessary to maintain effective emergency systems at swimming pools, water parks, camps and beaches. Emphasis on prevention of water accidents, and optimal readiness of personnel. Certificates in Lifeguarding, First Aid, and CPR issued upon successful completion. Pre-Requisites: Above intermediate swimming ability. Typically Offered Spring Only

Students develop skills necessary for effective riding and bicycle trip planning, while they plan and take a weekend cycling trip. Students must provide their own helmets and bicycles in riding condition. A weekend trip is required. Prerequisites: RLM majors receive registration preference. Typically Offered Spring Only-Even Years

An introduction to outdoor recreation resource management principles, a review of land management policies and planning models with both historical and current perspective on natural resources use for recreational experiences. Current trends and technical tools used by managers in development and planning decisions for outdoor recreation resource management will be discussed and applied. Pre-Requisites: RMLS 121 or instructor approval. Typically Offered Spring Only-Odd Years
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit</th>
<th>Description</th>
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<tbody>
<tr>
<td>RMLS225</td>
<td>Outdoor Rec Resource Mgmt</td>
<td>3</td>
<td>A teaching methods course covering all American Red Cross swimming levels, Basic and Emergency Water Safety and Lifeguard Training. Emphasis is on skill development and practice teaching. LGI and WSI certification upon successful completion. Pre-Requisites: Current American Red Cross Lifeguard certification. Typically Offered Spring Only</td>
</tr>
<tr>
<td>RMLS229</td>
<td>Lifegrd Train-Water Safety Ins</td>
<td>3</td>
<td>Students are taught the principles and techniques of river travel by canoe. Students are introduced to canoe tripping, including trip planning, paddling strokes/techniques, water reading, introductory to map reading, and canoeing safety procedures. Students learn how to plan trip destinations, duration, travel logistics, food, equipment, natural history consideration, and companions. Weekend trip required. Prerequisites: RML majors receive registration preference. Typically Offered Fall-Even Years, Summer. Learn about the appropriate gear, specialized camping skills, and transportation skills needed for a safe winter outdoor experience as students prepare for a winter weekend backpacking experience. Weekend trip required. Prerequisites: RML majors receive registration preference. Typically Offered Spring Only.</td>
</tr>
<tr>
<td>RMLS231</td>
<td>Canoe Touring</td>
<td>2</td>
<td>The course will provide students with a learning experience involving initiatives and low elements on a ropes/challenge course. They will be exposed to philosophy of adventure education, facilitation techniques that enhance the participants learning outcomes, and safety procedures. Typically Offered Fall, Summer.</td>
</tr>
<tr>
<td>RMLS232</td>
<td>Winter Backpacking</td>
<td>2</td>
<td>This kayaking class is designed to teach students the principles and techniques of river and lake travel by kayak. Students will be introduced to choosing kayaking gear and clothing, kayak trip planning, paddling strokes/techniques, kayak safety procedures, capsize and reentry techniques, reading the weather and river dynamics. Weekend trip required. Prerequisites: RML majors receive registration preference. Typically Offered Spring Odd Years.</td>
</tr>
<tr>
<td>RMLS234</td>
<td>Initiatives and Low Elements</td>
<td>2</td>
<td>The course will provide students with information and skills necessary to become familiar with top rope rock climbing instruction skills. Students will gain basic understanding of the equipment, techniques, and procedures necessary for safe top rope climbing. Risk management issues, policy, procedures, and pedagogical techniques used to teach top rock climbing for artificial and natural rock will be discussed. Weekend trip required. Prerequisites: RLM majors receive registration. Typically offer Fall Odd Years.</td>
</tr>
<tr>
<td>RMLS236</td>
<td>Rock Climbing Instructor Train</td>
<td>2</td>
<td>Provides an understanding of the special and unique needs to therapeutic and inclusive recreation services to individuals with social, physical, or mental/psychological disabilities. An ecological model will focus on the interfacing of facilities; family and community attitudes; individual's function level and interests to mainstream them into a leisure lifestyle. An intervention process will be used in the development of activity selection for inclusive recreation programming. Prerequisites: RMLS 121 or approval by instructor. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>RMLS240</td>
<td>Inclusive Recreation Program</td>
<td>3</td>
<td>Introduction to principles and techniques of the master planning and design process used to leisure and recreation professionals. Present and future development, management, participant use and area safety will be studied with relationship to final design and selection. The master planning and design process will be reviewed and studied relative to funding sources and governmental regulation. Use of computer software for planning and design will be employed. Prerequisites: RMLS 121 or approval by instructor. Typically offered Spring semester.</td>
</tr>
<tr>
<td>RMLS248</td>
<td>LS Plan-Design Facilities-Area</td>
<td>3</td>
<td>The course will focus on theory and application of marketing, management, budgeting, customer service and other business aspects of sport facilities, organizations or programs and industry sectors in a variety of community or commercial recreation venues. Partnerships between non-profit/government or commercial agencies to create sport tourism based facilities, consumer equipment, multiplexes/arenas, and recreational related activities sectors will be studied. Programming for tournaments, sports tourism, and sponsorships of facilities will be incorporated in the content. Prerequisites: RMLS 121 or approval by instructor. Typically offered Fall even years.</td>
</tr>
<tr>
<td>RMLS250</td>
<td>Intro to Sport Management</td>
<td>3</td>
<td>The course is designed to provide a Recreation Leadership &amp; Management major student the opportunity to work as a teaching assistant under the supervision of a RLSW department faculty member in one of the many course offerings. Student may use up to three credits towards graduation electives. Pre-Requisites: By permit only. Typically Offered Fall, Spring, Summer.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Prerequisites</td>
<td>Level</td>
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<tr>
<td>RMLS275</td>
<td>Recreation Mgmt and Leisure St</td>
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<tr>
<td>RMLS290</td>
<td>Recreation Mgmt and Leisure St</td>
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<tr>
<td>RMLS294</td>
<td>Recreation Mgmt and Leisure St</td>
<td></td>
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<tr>
<td>RMLS297</td>
<td>Special Studies in RMLS</td>
<td></td>
<td></td>
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<tr>
<td>RMLS316</td>
<td>Recreation Mgmt and Leisure St</td>
<td></td>
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<tr>
<td>RMLS318</td>
<td>Ropes/Chall Course Fac. Skills</td>
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<tr>
<td>RMLS320</td>
<td>Lesi Serv Maintenance Mgmt</td>
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<tr>
<td>RMLS325</td>
<td>Youth Development</td>
<td></td>
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<tr>
<td>RMLS342</td>
<td>Program Plan for Leis Serv</td>
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<tr>
<td>RMLS347</td>
<td>Aftersch-Comm Rec-Camp Prg</td>
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RMLS - Recreation Management and Leadership Studies
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Level</th>
<th>Prerequisites</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMLS348</td>
<td>Recreation Mgmt and Leisure St Risk Mgmt for Leisure Services</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS350</td>
<td>Recreation Mgmt and Leisure St Marketing Rec and Leisure</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS365</td>
<td>Recreation Mgmt and Leisure St Festivals-Comm-Spec Event Plan</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS390</td>
<td>Recreation Mgmt and Leisure St Special Topics in RMLS</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS397</td>
<td>Recreation Mgmt and Leisure St Special Studies in RMLS</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS410</td>
<td>Recreation Mgmt and Leisure St Parks-Rec Community Plan-Dev</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS425</td>
<td>Recreation Mgmt and Leisure St Advanced First Aid</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS427</td>
<td>Recreation Mgmt and Leisure St Health and Fitness Prog Mgmt</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS428</td>
<td>Recreation Mgmt and Leisure St Spec Mkg Bus-Athl-Rec Sports</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS430</td>
<td>Recreation Mgmt and Leisure St LS Finance and Management</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
<tr>
<td>RMLS435</td>
<td>Recreation Mgmt and Leisure St Leadership in Outdoor Pursuits</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Prerequisites: RMLS 347, 349, and 351 or instructor approval. Typically offered Fall and Spring.</td>
</tr>
</tbody>
</table>

This course is designed for RML major and other students wishing to gain a broad perspective about marketing leisure and recreation services. Topics covered will include the marketing mix, marketing environment, use of social media and the internet, and development of a marketing plan. Practical dimensions of marketing in leisure and recreation services will be implemented, including development of brochures, newsletters, press releases, and other free or inexpensive marketing techniques. Prerequisites: Instructor approval. Typically offered Fall and Spring. The course will cover the planning and implementation logistics for festival, community and special events. Financing, risk management, security, economics and involved community based groups associated with these events will be explored and applied to assignments. Typically Offered Spring Even Years, Summer, Odd Years.

Special Topics in RMLS - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Governmental agencies, non-profit and private organizations use a variety of planning and development models to acquire funding or donations; construct recreational facilities to meet programming needs in a community; protect natural areas and historical sites for parks, recreational and leisure use. These groups come together in partnership with innovative methods. The students will study these approaches and how they can be used in a community setting to address solutions. Junior status or approval by instructor. Typically offered Spring, Odd Years.

First aid and emergency care designed for criminal justice personnel. Other students need permit to enroll in class. Successful completion of the course will result in American Red Cross Advanced First Aid and Basic Life Support CPR certification. Prerequisites: Criminal Justice Senior or instructor approval. Typically Offered Fall Only

The course will cover the development, design, and management of corporate health and fitness programs, facilities, and equipment for employee services and special populations. Special emphasis is placed on strategic program planning and development, facilities, staffing, management, and operations, budget and finance. Prerequisites: RMLS 231, RMLS 342, and Junior status or approval by instructor. Typically Offered Fall Only-Even Years

Students will apply various marketing techniques to sport business, athletics, and recreation organizations. Sports industry, techniques and procedures for developing and implementing a sport business marketing plan will be covered. This history, current operating practices and future trends within sport marketing business will be explored. Prerequisites: RMLS 250, RMLS 350, and Junior status or approval by instructor. Typically Offered Spring Only-Odd Years

This course is in-depth investigation of strategies for financing and management of leisure services to meet the needs of various markets. Special topics will include organizational management as it relates to financial efficiency, reduced spending (cutback) management, budgeting, and marketing impacts on budget decisions. Use of computer spreadsheet in developing budgets will be part of learning process. Prerequisites: ACCT 201, RMLS 342, and Senior status or approval by instructor. Typically Offered Spring Only

Leadership philosophy, theory and style as it relates specifically to outdoor pursuits will be covered with special emphasis on trip planning considerations and risk management. Students will plan, participate in, and evaluate an adventure trip experience. Required 4-5 day trip. Prerequisites: RMLS 211 and Junior status or approval by instructor. Typically Offered Spring Only-Odd Years

The course when completed successfully will provide students with certification as a Wilderness First Responder. First aid techniques for remote environments will be covered. To receive certification a students must attend all sessions; achieve 80% on written exam and acceptable performance on practical skills listed. Students will be charged a fee by the national certification organization to participate. Typically Offered Spring and Summer
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Level</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMLS437</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Wilderness First Responder ED</td>
<td></td>
<td>Undergraduate</td>
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<tr>
<td>RMLS438</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Wilderness Educ and Leadership ED</td>
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<td>Undergraduate</td>
<td>2 TO 4</td>
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<tr>
<td>RMLS440</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Commercial Recreation ED</td>
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<td>Undergraduate</td>
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<td>RMLS465</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Tourism Planning-Development ED</td>
<td></td>
<td>Undergraduate</td>
<td>3</td>
</tr>
<tr>
<td>RMLS468</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Research Meth in Leisure Serv-Well</td>
<td></td>
<td>Undergraduate</td>
<td>3</td>
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<tr>
<td>RMLS490</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Special Topics in RMLS ED</td>
<td></td>
<td>Undergraduate</td>
<td>1 TO 3</td>
</tr>
<tr>
<td>RMLS491</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Rec Leader-Mgmt Internship ED</td>
<td></td>
<td>Undergraduate</td>
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<tr>
<td>RMLS497</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Special Studies in RMLS ED</td>
<td></td>
<td>Undergraduate</td>
<td>1 TO 3</td>
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<tr>
<td>RMLS499</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Recr Leader-Mgmt Assessment ED</td>
<td></td>
<td>Undergraduate</td>
<td>3</td>
</tr>
</tbody>
</table>

During a backcountry expedition, participants learn the basics of judgment and decision-making skills, leadership, and other essential components of the Wilderness Education Association (WEA) Curriculum. The course format exposes the participants to the must-knows of outdoor backcountry camping skills and selected recreation activity techniques. Variable credits and course fee will be charged based on the trip length. Prerequisites: A fee for the trip is charged based on the trip length, Junior Status, RMLS majors require registrations preference, and approval by instructor. Typically Offered Summer Only

Application and evaluation of business concepts, principles and techniques in the commercial recreation setting. Case studies are used to study examples of these applications. Emphasis on the development and management of a commercial recreation business while looking at the trends and factors affecting commercial recreation business potential. Prerequisites: RMLS 350 and Junior status or approval by instructor. Typically offered Fall odd years and Summer even years.

Introduction to the community and economic impacts of tourism development. Tourism is studied at the international, national, state, regional and local levels. The roles of leisure/recreational opportunities is explored in relationship to the planning, development, management, and organization of the tourism industry. Prerequisites: Junior status or approval by instructor. Typically Offered Spring Even Years and Summer Odd Years

The course is designed to introduce students to quantitative and qualitative research regarding leisure service and wellness research. Emphasis will be placed on theoretical framework, research design, data interpretation in professional practitioner work settings. The skills may vary from doing recreational marketing research to fitness analysis. The professional will have the ability to analyze other individual's research/studies for validity and application to their own leisure service setting. Prerequisites: RMLS 350 and Senior status or approval by instructor. Typically Offered Fall Only

Special Topics in RMLS - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

The culmination of the RLM academic program is a 600 hour internship with a leisure agency working an average 40 hour per week work while having entry level supervisory professional work experience demonstrating ability to implement and manage programs or facilities, supervise other people, marketing, financial management and a minimum of one major project development responsibilities for the agency. Prerequisites: Complete all Professional-LS Mgmt Core/Concentration with 2.5 GPA and Department approval. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

The course content is designed to evaluate the senior student’s work prior to completion of the final internship. Students will present their senior portfolio as evidence of course based on designated course completion up to the semester course is taken. In addition to the portfolio review, students will be introduced to the various certifications, graduate and continuing education options available to professionals. Students will receive preparation of professional experience for the job market search. Prerequisites: Completion of EMLS 294, Senior status and department approval. Typically Offered On Demand

During this course students receive an introduction to the theory, philosophy, and methodologies of experiential education. Students analyze and examine the writings of theorists and practitioners and discuss applications of their work to experiential education. Topics include learning theory, human nature, aims of education, critical analysis, and evaluation techniques. Students analyze principles underlying curriculum development and strategies for implementing such models. Students also gain understanding about assessing individual needs, models of behavior change, and developmentally appropriate activities. Typically Offered Summer Only, Even Year
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Course Level</th>
<th>Prerequisites</th>
<th>Total Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMLS520</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Philosophy-Methods of Exp Educ</td>
<td>ED</td>
<td>Recreation, Leisure Serv-Well</td>
<td>Graduate</td>
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<tr>
<td>RMLS540</td>
<td>Recreation Mgmt and Leisure St</td>
<td>The Environment - Exper Educ</td>
<td>ED</td>
<td>Recreation, Leisure Serv-Well</td>
<td>Graduate</td>
</tr>
<tr>
<td>RMLS550</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Outdoor-Adventure Edu Meth-Pra</td>
<td>ED</td>
<td>Recreation, Leisure Serv-Well</td>
<td>Graduate</td>
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<tr>
<td>RMLS590</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Special Topics in RMLS</td>
<td>ED</td>
<td>Recreation, Leisure Serv-Well</td>
<td>Graduate</td>
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<tr>
<td>RMLS597</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Special Studies in RMLS</td>
<td>ED</td>
<td>Recreation, Leisure Serv-Well</td>
<td>Graduate</td>
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<tr>
<td>RMLS691</td>
<td>Recreation Mgmt and Leisure St</td>
<td>Experiential Educ Practicum</td>
<td>ED</td>
<td>Recreation, Leisure Serv-Well</td>
<td>Graduate</td>
</tr>
<tr>
<td>RUBR290</td>
<td>Rubber</td>
<td>Special Topics in RUBR</td>
<td>TE</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
</tr>
<tr>
<td>RUBR297</td>
<td>Rubber</td>
<td>Special Studies in RUBR</td>
<td>TE</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
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<tr>
<td>RUBR312</td>
<td>Rubber</td>
<td>Rubber Product Design</td>
<td>TE</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
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<tr>
<td>RUBR321</td>
<td>Rubber</td>
<td>Rubber Compounds-Compounding</td>
<td>TE</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
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<tr>
<td>RUBR390</td>
<td>Rubber</td>
<td>Special Topics in RUBR</td>
<td>TE</td>
<td>Plastics-Rubber</td>
<td>Undergraduate</td>
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Experiential education takes place in natural, cultural, or social environments where students engage intellectually, emotionally, socially, politically, spiritually, and physically in their learning. Using this information this course is designed to engage participants in the development of program materials for various ages/grade levels in public schools and in nature or outdoor centers. Students investigate concepts and principles of environmental and cultural interpretation. Lesson plans, articles for outdoor/environmental journals or newsletters, and field trips are part of this course. Typically Offered Summer Only, Odd Yea

Students learn about the application of the process of teaching, learning, and leading outdoor pursuits and adventure education/therapy. Program theory, instructional design, leadership techniques, and safety management principles are examined. The idea of using adventure as a means to human growth and development has become an accepted methodology in education, leadership training, counseling and corrections as well as in other human service fields. Typically Offered Summer Only, Odd Yea

Special Topics in RMLS - 500 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Consent of instructor or department chair. Typically Offered Fall, Spring, Summer

The practicum is a supervised experience in an appropriate classroom, outdoor/nature center, or other appropriate location of special interest to the student. Students gain practical experience under the guidance of supervising teachers in planning for teaching and directing the learning activities of pupils. One credit hour of RMLS 691 equals 66 clock hours. A FSU practicum supervisor will be assigned to visit sites or communicate through the appropriate technology and discuss progress. Typically Offered Summer Only, Even Years

Special topics in Rubber - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Winter and Spring.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre Requisites: Departmental approval. Typically Offered On Demand

In this course, the student will study the concepts of part design beginning with the definition of the “Customer/End-Use Requirements”, through the “Design Cycle” guidelines and product application. Special emphasis will be given to understanding the role of the following elements of rubber product design: material selection, prototyping, part drawing, rubber part design basics, part quality, relationship of tool design to part design, part costing and other. Pre Requisites: Rubber or Plastics Engineering Technology students only. Typically Offered Fall, Spring

This course will provide the student with knowledge of the basic polymers used in rubber products. The physical and rheological properties of these materials will be examined. The composition of rubber compounds will be explored. This includes the effect of each type of ingredient on the processing and performance of the material. The basics of compound modification to improve processing of the material and/or performance of the product will be taught. Pre Requisites: Rubber or Plastics Engineering Technology students only. Typically Offered Spring Only

Special topics in Rubber - 300 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Winter and Spring.

The student will work on-the-job with one cooperating firm under the guidance of both the university and the firm personnel in a position that will broaden and reinforce knowledge of rubber materials, processing, production tooling, quality control, engineering, sales design and production supervision. This course meets General Education requirements: Writing Intensive Requirement and new Fall 2017 Comm Across the Curriculum. Pre Requisites: Rubber or Plastics Engineering Technology students only. Typically Offered Fall, Summer
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Departmental approval. Typically Offered On Demand

This course will provide the student with exposure to the following advanced rubber processing concepts and technologies: cure control parameters and charts, automatic cure controllers, feedback control systems, connecting processes, constraint management, quick change tooling concepts and continuous mixing of rubber. Pre-Requisites: Rubber or Plastics Engineering Technology students only. Meets General Education requirements for Problem Solving and Collaboration. Typically Offered Fall Only

Special Topics in Rubber - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Pre-Requisites: Rubber or Plastic Engineering Technology students only and Department approval. Typically Offered On Demand

This course will consist of a series of presentations, designed to prepare the prospective rubber engineering technology graduate for entry into the rubber industry work force. Oral and written communications, interviewing and job search techniques, social interaction, industry structure, professional organizations, peer relationships and supervisor relations supported through discussion, role playing and case studies are examples of some of the subjects which are addressed. Pre-Requisites: Rubber or Plastic Engineering Tech students only & Senior status. Typically Offered Spring Only

Professional roles and settings. Overview of professional values, knowledge, and skills. History of the social work profession. Beginning emphasizes on self-awareness, cultural diversity, and helping from a psychosocial perspective. Career exploration for students undecided about program choice. Typically Offered Fall, Spring

Orientation and preparation for introductory field experience. Introduction to use of supervision, supervisory evaluation, self-evaluation, and agency structure and function. Serves as a prerequisite for SCWK 191. Typically Offered Spring Only

Human service agency placement of 120 clock hours provides the student with opportunity to observe social service roles, assist in service delivery under close supervision, and assess career interests and aptitude. Pre-Requisites: SCWK 110 & SCWK 130 & SCWK 170 & overall GPA of 2.00. Typically Offered Summer Only

First of two courses devoted to theories, methods, and values of social work practice. Primary focus on generalist and direct service roles of entry-level professionals. Selected theoretical models and social work generic method serve as instructional framework throughout two courses. Focus primarily on individuals and families. Environmental interventions stressed, as well as interventions aimed at client psychological processes. Special emphasis on worker self-understanding, cultural diversity, rural populations, and client advocacy and empowerment. Pre-Requisites: PSYC 150 & SOCY 121 & SCWK 110, 130, 170, 191 and 210 and Corequisite: SCWK 240. Typically Offered Spring Only
SCWK220 Social Work Individual & Family Practice AS Social Work Undergraduate 4

Various theories of human behavior and social environment and how they relate to social work practice. Relationships among biological, social, psychological, and cultural systems as they affect the "person-in-environment" and as they constitute a pluralistic society. Understandings of behavior and society from perspective of the humanities as well as the sciences. Corequisite: SCWK 220 and SOCY 225. Prerequisite: BIOL 101 or 109 or 111 & PSYC 226 or EDUC 251. Typically Offered Spring Only

SCWK240 Social Work Foundations of Practice AS Social Work Undergraduate 3

Programs and services provided for children in their homes, foster homes, adoptive homes, and child care institutions are studied to provide student with knowledge for future work in child welfare settings or to prepare students for use of such services while employed in other settings. Typically Offered Fall Only

SCWK261 Social Work Soc Service for Children-Youth AS Social Work Undergraduate 2

Programs, services, and agencies that deal with the many facets of health care will be surveyed to provide students with an understanding of social services, both in institutional settings and within the community. Special emphasis on health services to the elderly. Typically Offered Fall Only

SCWK262 Social Work Health Related Social Services AS Social Work Undergraduate 3

Focuses on definition of the substance abuse problem: pathophysiology, incidence within the general population, theories of causation, behavior of the abuser, behavior of the abuser's family, and substance abuse among special populations. Pre-Requisites: PSYC 150 or SOCY 121. Typically Offered Fall Only

SCWK263 Social Work Substance Abuse-The Problem AS Social Work Undergraduate 2

Assessment skills are reviewed and practiced. Philosophies of intervention are discussed, including those of abstinence and responsible-use. All major treatment approaches are investigated, including crisis intervention, individual counseling, group work, and family treatment. Beginning helping-professional intervention skills are practiced. Also reviews varieties of programming in substance abuse prevention, community education, and special treatment modalities. Pre-Requisites: SCWK 130 and 263. Typically Offered Spring Only

SCWK264 Social Work Substance Abuse-Treatment-Prev AS Social Work Undergraduate 4

Organization and function of corrections institutions in Michigan. Assessment and intervention methods specific to corrections, including special focus on substance abuse dimensions of assessment and intervention. Beginning helping-professional skills are practiced, including writing of assessments and service plans as well as simulations of helper/client interactions. Pre-Requisites: PSYC 150 or SOCY 121. Typically Offered Spring Only

SCWK265 Social Work Social Services in Correction AS Social Work Undergraduate 3

Special Topics in SCWK - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

SCWK290 Social Work Special Topics in SCWK AS Social Work Undergraduate 1 TO 3

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

SCWK297 Social Work Special Studies in SCWK AS Social Work Undergraduate 1 TO 3

Frameworks for analyzing social and economic policies as they bear on social welfare. Preparation for roles not only as service providers within existing policy but also as participants in efforts to change policy. From SCWK 210, continued discussion of values underlying the social welfare system, particularly the principles of social and economic justice. Prerequisites: SCWK 210 and SOCY 225. Typically offered: Fall, Spring.

SCWK310 Social Work SCWK Policy&Political Advocacy AS Social Work Undergraduate 3

Continuation of practice theory sequence initiated in SCWK 220. Focus primarily on the context of working on behalf of small groups, organizations, and communities. Prerequisite: Bachelor of Social Work Students only. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Summer

SCWK320 Social Work Group & Community Practice AS Social Work Undergraduate 4

Interviewing, including clarification, interpretation, confrontation, feedback, self-disclosure, immediacy, use of humor, systematic problem solving, and techniques utilized in various counseling theories. In-depth exploration of social work interviewing stages introduced in SCWK 130. Simulated and actual interviewing situations evaluated through the use of direct peer and instructor observation, as well as audio tape, video tape, and process recording. Prerequisite: Bachelor of Social Work Students only. Typically Offered Spring Only
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Academic Year</th>
<th>Campus</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCWK330</td>
<td>Social Work Interviewing 2</td>
<td>AS</td>
<td>Social Work Undergraduate 4</td>
<td>Social research design methodology, with emphasis on applied research in human service settings. Special emphasis on program evaluation, single subject designs, human service surveys, and ethical issues of research. Introduction to elementary statistics, including frequency distributions, measures of central tendency, and beginning bivariate analysis. Students are prepared for critical use of research, evaluation of their own practice, and making contributions to the professional knowledge base. Prerequisite: Junior or Senior status. Typically offered: Fall, Spring, Summer</td>
</tr>
<tr>
<td>SCWK350</td>
<td>Social Work Applied Social Research Method</td>
<td>AS</td>
<td>Social Work Undergraduate 3</td>
<td>This course will prepare social work students to effectively practice within the Children’s Services arena, including child protective services, foster care, adoption and juvenile justice. Students will learn the history, legal aspects and best practices needed to work in these domains. Students will learn investigative practices and procedures, assessment data gathering and assessment writing, how to write court reports, case notes and quarterly case reports. Student will learn about family-centered services, prevention services and case management. A theoretical underpinning of this course is how trauma affects children and families. Prerequisites: SCWK 110 and SCWK 130 and SCWK 191. Typically offered Fall and Spring. Enables student to gain necessary working knowledge of the United States legal system as it relates to social work. Teaches skills for dealing with legal ramifications which affect professional social work practice. Pre-Requisites: Completion of SCWK 220 with a C or better. Bachelor of Social Work students only. Typically Offered On Demand</td>
</tr>
<tr>
<td>SCWK360</td>
<td>Social Work Children’s Services Social Wk</td>
<td>AS</td>
<td>Social Work Undergraduate 4</td>
<td>Instructional guidance to students as they prepare for field instruction (SCWK 491, 492). Review of assessment and intervention theory, especially as discussed in SCWK 220; preview of assessment/intervention process in different agency settings. Students negotiate and document a plan for relating objectives of field instruction to proposed placement activities. Pre-Requisites: Bachelor of Social Work Students only. Typically Offered Spring, Summer</td>
</tr>
<tr>
<td>SCWK361</td>
<td>Social Work Legal Aspects of Social Work</td>
<td>AS</td>
<td>Social Work Undergraduate 3</td>
<td>This 2 week study abroad course in Latin America enhances the preparation of competent social work practitioners in both domestic and international arenas of social welfare. Through service learning they will explore themes of social welfare development and human rights, demonstrating the relationships between social work, social justice, and civic/global responsibility. Students will develop a global perspective of social work practice, enrich their multicultural experiences and increase their awareness of the interconnectedness of international issues. Pre-requisites: SOCY 121 or SOCY 122 or ANTH 122 and Instructor Permission. Typically offered Summer. Special Topics in SCWK - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>SCWK370</td>
<td>Social Work Field Instruction Orientation</td>
<td>AS</td>
<td>Social Work Undergraduate 1</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand Students negotiate research topic and prepare a proposal for a research project. Continued discussion of data analysis from SCWK 350, including bivariate analysis and inferential statistics at all measurement levels. Guidance for student research reports. Pre-Requisites: SSC 310 and MATH 115 or Higher. Typically Offered Fall Only</td>
</tr>
<tr>
<td>SCWK380</td>
<td>Social Work International Social Work</td>
<td>AS</td>
<td>Social Work Undergraduate 3</td>
<td>A forum for discussing the field application of social work values, knowledge, and skills developed throughout the program. Instructional monitoring of student’s progress in the field. Preparation for continued professional development following graduation. Co-Requisites:SCWK 491. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>SCWK390</td>
<td>Social Work Special topics in SCWK</td>
<td>AS</td>
<td>Social Work Undergraduate 1 TO 4</td>
<td>Continuation of SCWK 481. Completion of SCWK 482 must include (1) Achievement of “Acceptable” rating for the student’s presentation under the Portfolio Review and Evaluation Process (PREP) and (2) achievement of a passing grade on the program’s Comprehensive Social Work Examination. Co-Requisites:SCWK 492. Typically Offered Fall, Spring, Summer</td>
</tr>
<tr>
<td>SCWK397</td>
<td>Social Work Special Studies in SCWK</td>
<td>AS</td>
<td>Social Work Undergraduate 1 TO 3</td>
<td>Special Topics in SCWK - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
</tbody>
</table>
SCWK490 Social Work Special Topics in SCWK AS Social Work Undergraduate 1 TO 3

An educationally directed, coordinated, and monitored field placement focused on the role of the generalist social worker. Student spends 240 clock hours per semester in placement agency, engaged primarily in supervised direct services to clients. Learning objectives and assignments are planned in advance (SCWK 370) and during the first three weeks of placement. Objectives and assignments entail application of the values, knowledge, and skills developed in all other professional courses. Pre-Requisites: SSCI 310 & SCWK 320 & 330 & 370 & 2.5 GPA in SCWK courses. Co-Requisites: SCWK 481. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer

SCWK491 Social Work Field Instruction 1 AS Social Work Undergraduate 6

Continuation of SCWK 491 for additional 240 clock hours in same agency. Includes implementation of research project proposed in SCWK 450. Corequisite: SCWK 482. Prerequisite: SCWK 491, 2.50 GPA in social work courses, "C" or better in all graded social work courses, and approval of faculty advisor. Pre-Requisites:SCWK 491 and 2.5 GPA in social work courses. Co-Requisites:SCWK 482. Meets General Education requirements for Collaboration and Problem Solving. Typically Offered Fall, Spring, Summer

SCWK492 Social Work Field Instruction 2 AS Social Work Undergraduate 6

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

SCWK497 Social Work Special Studies in SCWK AS Social Work Undergraduate 1 TO 3

This course is a foundation MSW course. The course emphasizes the history of social welfare policies and the role they play at the present time. Student will utilize frameworks for analyzing social and economic policies as they relate to social welfare. Preparation for roles not only as service providers within existing policies but also participants in efforts to change policy will be discussed. The class will also have an emphasis on values underlying the social welfare system, particularly the principles of social and economic justice. Typically offered Spring.

SCWK510 Social Work Policy Analysis & Advocacy AS Social Work Graduate 3

Practice with Groups and Organizations. This course is a foundation year MSW course. The course focus is on generalist practice with organizations and communities. Macro-practice skills through group work are emphasized, along with the interconnections between micro, mezzo and macro generalist practice. Macro intervention will be practiced. Prerequisites: Bachelor's Degree. Typically offered Spring, Summer.

SCWK520 Social Work Generalist Macro Practice AS Social Work Graduate 3

Generalist Social Work Practice. This course is a foundation year MSW course. The course focuses on theories, methods, and values of social work practices as well as beginning to advanced interviewing skills with an emphasis on Trauma-Informed Perspective and Intervention and various Evidenced Based Practices. Prerequisites: Bachelor's Degree. Typically offered Fall.

SCWK530 Social Work Generalist Micro Practice AS Social Work Graduate 4

This course is a foundation year MSW course. This overview of theories of human behavior in the social environment in relation to advanced social work practice will focus on the relationships among biological, psychological, social and cultural systems as they affect the person-in-environment across the life span. Students will consider the importance of integrating multiple critical perspectives to solve complex human problems to influence wellbeing and empowerment. Typically offered Fall.

SCWK540 Social Work Human Behavior/Social Environ AS Social Work Graduate 3

SCWK550 Social Work Research Methods AS Social Work Graduate 3

SCWK 550 is the foundation Social Research course, the first in a two part advanced research sequence. Social Work research design methodology, with emphasis on applied advanced research in human services and public settings. Special emphasis are placed on program evaluation within the field agency, with emphasis on advanced clinical practice to inform the research and with the intention of this becoming part of the capstone proposal in the advanced year. Development of a new knowledge base within the agency is expected. This course is an introduction to elementary statistical concepts, including frequency distributions, measures of central tendency, and beginning bivariate analysis and inferential statistics. Student in this course are prepared for critical use of research, and evaluation of their own and other professional knowledge base. Typically offered Fall.

SCWK 551 is the foundation year MSW course. Advanced training in the recognition of cultural patterning and histories of diverse social identity groups in the US and the differential impacts of past and present attitudes, beliefs, practices and policies on the lives of individuals, families, groups and communities. Analysis of stereotyping, distortions and myths of various ethnic groups are examined. The degree to which social structure and values may oppress, marginalize, alienate or enhance privilege and power are analyzed. Prerequisites: Bachelor's Degree. Typically offered Spring.
This is the first part of the MSW foundation year practicum experience. Students are required to complete a 240 hour, hands-on social work internship in an approved agency under the supervision of a professional social worker. Participation in the guided seminar class assists the student to assimilate course content with the community based learning. The seminar provides further integration of practice with the skills, knowledge, and values and ethics of the field. The seminar is an additional 10 hours. Illustration from the students’ work in the agency setting is included through various assignments. Typically offered: Fall, Spring, Summer

This is the second part of the MSW foundation year practicum experience. Students are required to complete a 240 hour, hands-on social work internship in an approved agency under the supervision of a professional social worker. Participation in the guided seminar class assists the student to assimilate course content with the community based learning. The seminar provides further integration of practice with the skills, knowledge, and values and ethics of the field. The seminar is an additional 10 hours. Illustration from the students’ work in the agency setting is included through various assignments. Prerequisite: SCWK 591. Typically offered: Fall, Spring, Summer

This special topics course is designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Graduate Enrollment. This course is an Advanced Year MSW course designed to gain the knowledge, values and skills necessary for leadership and advanced policy advocacy. The course emphasizes the role of policy advocacy for social workers in clinical practice, evaluation of social policy and methods for policy change, and development of effective policy with emphasis on political processes. Students will also identify their individual leadership styles and gain knowledge and skills for effective leadership. Typically offered: Fall, Spring, Summer

This course focuses on intervention and individual change groups, with particular attention to the recruitment and composition of group members, leadership structure of small groups, phases of group development, and group processes such as decision making, tension reduction, conflict resolution, goal setting, contracting and evaluation. A variety of group strategies and techniques will be explored. Theories and methods consistent with the achievement of social justice and individual change through group work will be explored. The course will also consider how gender, ethnicity, race, social class, sexual orientation and different abilities impact various aspects of group functioning. Group facilitation will be practiced as a critical component of the course. Due to the nature of this course, the course will be limited to 12 students. Typically offered Fall, Summer.

This course is an elective advanced year MSW course. The course focuses on the specifics of the evidence based practice of Cognitive Behavioral Therapy (CBT). The focus of the course is specific to the key components and practice techniques of Cognitive Behavioral Therapy with introduction to Trauma Focused CBT and Dialectical Behavioral Therapy. 1 credit hour. Typically offered Summer.

This course is an Advanced Year MSW course designed to gain the knowledge, values and skills necessary for advanced clinical skills and supervision in a clinical setting. Students will learn advanced clinical skills and supervisory models through simulation and role-play. This course focuses on the core practice theories, conceptual frameworks and intervention skills necessary for social work practice. Prerequisite: SCWK 630. Typically offered: Fall, Spring, Summer
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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SCWK632</td>
<td>Social Work Adv Clinical Prac/Supervision HP</td>
<td>Social Work</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>SCWK660</td>
<td>Social Work Clinical Assessment/Diagnosis AS</td>
<td>Social Work</td>
<td>Graduate</td>
<td>3</td>
</tr>
<tr>
<td>SCWK691</td>
<td>Social Work Advanced Field Practicum I AS</td>
<td>Social Work</td>
<td>Graduate</td>
<td>4</td>
</tr>
<tr>
<td>SCWK692</td>
<td>Social Work Advanced Field Practicum II AS</td>
<td>Social Work</td>
<td>Graduate</td>
<td>4</td>
</tr>
<tr>
<td>SCWK693</td>
<td>Social Work Advanced Field Practicum III AS</td>
<td>Social Work</td>
<td>Graduate</td>
<td>4</td>
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<tr>
<td>SCWK697</td>
<td>Social Work Special Topics in Social Work AS</td>
<td>Social Work</td>
<td>Graduate</td>
<td>1 TO 5</td>
</tr>
<tr>
<td>SCWK699</td>
<td>Social Work Capstone Project AS</td>
<td>Social Work</td>
<td>Graduate</td>
<td>4</td>
</tr>
</tbody>
</table>

This course builds on the research methods course SCWK 550. In this course students will deepen knowledge and skills necessary to complete quantitative and qualitative research. Students will learn how to critically think about and apply research to social work practice. Specifically, Students will learn how to design and implement Single Subject Design research, design and implement program evaluation research and learn how to evaluate existing research for its usefulness to social work practice. Prerequisite: Advanced Standing. Typically offered Fall, Spring, Summer.

This course is designed as an intensive survey of the spectrum of the bio-psycho-social diagnoses. It examines concepts from the social work perspective of the person-in-environment to explore psychosocial disorders from different cultural perspectives, including gender, age, and minority status. It will provide students with advanced exposure to issues in the area of child and adult diagnosis, utilizing the DSM system of classification with a focus on the impact of trauma on diagnoses and how to complete assessments within this system. Prerequisites: Advanced standing. Typically offered Fall, Spring.

This is the first Advanced MSW practicum experience. Students are required to complete a 240 hour, hands on social work internship in an approved agency under the supervision of a professional social worker. Students also attend a concurrent seminar 10 hours per semester. Participation in the guided integrative seminar class assists the student to assimilate course content with the community based learning. This seminar provides further integration of practice with the skills, knowledge, and values and ethics of the field. Illustration from the students' work in the agency setting is included through various assignments. Prerequisites: Advanced standing. Typically offered: Fall, Spring, Summer.

This is the second part of the MSW Advanced practicum experience. Students are required to complete a 240 hour, hands on social work internship in an approved agency under the supervision of a professional social worker. Participation in the guided integrative seminar class assists the student to assimilate course content with the community based learning. This seminar provides further integration of practice with the skills, knowledge, and values and ethics of the field. Illustration from the students' work in the agency setting is included through various assignments. Prerequisite: SCWK 691. Typically offered: Fall, Spring, Summer.

This is the final part of the MSW Advanced Practicum experience. Students are required to complete a 240 hour, hands on social work internship, in an approved agency, under the supervision of a professional social worker, as well as 10 hours of participation in the guided integrative seminar class to assist the student to assimilate course content with the community based learning. This seminar provides further integration of practice with the skills, knowledge, and values and ethics of the field. Illustration from the students' work in the agency setting is included through various assignments. Prerequisites: SCWK 691 and SCWK 692. Typically offered: Fall, Spring, Summer.

This special topics course is designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Graduate Enrollment.

This course is an Advanced MSW Course, the final capstone course of the curriculum. The course is an extension of the Applied Social Work Research (SCWK 650) course in which students have written a proposal for research, program development, clinical development or outcome research. The course is taught as a Learner Centered Teaching course, in which students have written a proposal and identified a faculty mentor to assist in conducting some type of research or program development and an implementation plan. Students will develop individual learning outcomes, assessment of outcomes and implementation plan as a part of the learner centered course. The end product will be an article ready for publication, a grant for program development or something the faculty mentor has approved. Prerequisites: Advanced Standing and SCWK 650 and SCWK 691 and SCWK 692. Typically offered Spring, Fall, Summer.

This course teaches fundamentals of computer programming. Students learn how to write, test and debug small programs. Basic coding concepts and best practices are discussed and explained. Functions, data types, logical constructs required to produce software solutions will be the basis for this exploration. Covers popular methodologies being used in the real world and examines the merits of each. Students are introduced to Software Development Life-Cycles. Typically Offered Fall and Spring.
This course teaches fundamentals of computer programming. Students learn how to write test and debug small programs. Basic coding concepts and best practices are discussed and explained. Functions, data types, logical constructs required to produce software solutions will be the basis for this exploration. Typically Offered Fall only.

This course is designed to complement Computer Programming 1 and begin to explore more sophisticated programming concepts. Students will begin to learn advanced coding techniques and structures such as Classes, Inheritance, and Polymorphism. Prerequisites: SENG 101. Typically Offered Spring only.

This course covers the processes and procedures practiced by software engineering organizations. Methodologies and processes are presented within the framework of the software development lifecycle. Covers popular methodologies being used in the real world and examines the merits of each. Students learn theory and process as well as examine the effects through case study and applied scenarios. Typically Offered Fall only.

This course covers the tools and methods involved in capturing and tracing end user requirements through the software development process. Examines dynamics and scenarios that organizations deal with in identifying requirements and processes used in defining software needs. Prerequisites: SENG 160. Typically Offered Spring only.

Special Topics in SENG - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Prerequisites: Departmental approval. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Departmental approval. Typically Offered On Demand

This course explains software configuration management approaches for maintaining large and small scale software projects. From the time the first line of code gets written to the time the software package is released to the public, Configuration Management plays an integral role in ensuring all software components are included in the package. Additionally strategies for managing code lines and employing automated process and tools will be examined. Prerequisites: SENG 160. Typically Offered Spring only.

Special Topics in SENG - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Prerequisites: Departmental approval. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Departmental approval. Typically Offered On Demand

This course explores advanced and abstract data structures. Students will be able to learn how to identify and correctly apply these structures to solve more complex programming problems. Topics include Sorting, Trees, Graphs, and Hash tables. Prerequisites: SENG 102. Typically Offered Fall only.

This course will introduce students to the concepts of programming languages and different programming paradigms. Students will be able to identify common concepts and data structures as implemented by various programming languages. This class is intended to facilitate the student's ability to quickly learn and utilize a new programming language based on industry commonalities. Prerequisites: SENG 300. Typically Offered Fall only.

This course introduces the concepts of software quality assurance. Students learn processes involved in quality management. Topics include designing test cases, improving software quality, testing methods and tools. Prerequisites: SENG 160. Typically Offered Spring.

This course deals with the design and implementation of software subsystems. The concept of design patterns is introduced and common patterns are applied to the development of software components. Laboratory projects provide an opportunity for teams of students to implement components and to integrate them into complete systems. Prerequisites: SENG 300 with a C grade or better. Typically Offered Fall only.

This course examines the process and design techniques employed by software architects to design enterprise scale software. Students will be introduced to design tools as well as diagramming techniques and other methods for communicating software designs. Prerequisites: SENG 160 and SENG 300. Typically Offered Fall only.
Software Design - Architecture
ED
School of Digital Media
Undergraduate
3

Software Engineering Tools
ED
School of Digital Media
Undergraduate
3

Software Engineering
ED
School of Digital Media
Undergraduate
1 TO 4

Special Topics in SENG
ED
School of Digital Media
Undergraduate
1 TO 4

Software Engineering
ED
Eng Enterprise Software Applic
School of Digital Media
Undergraduate
3

Software Engineering
ED
Software Develop Industry Cert
School of Digital Media
Undergraduate
3

Program Graphical Interfaces
ED
School of Digital Media
Undergraduate
3

Software Engineering
ED
Special Topics in SENG
School of Digital Media
Undergraduate
1 TO 4

Software Engineering
ED
SENG Applied Internship
School of Digital Media
Undergraduate
3

Software Engineering
ED
Special Studies in SENG
School of Digital Media
Undergraduate
1 TO 4

Capstone in SENG
ED
School of Digital Media
Undergraduate
3

Introductory Sociology
AS
Social and Behavioral Sciences
Undergraduate
3

This course provides an introduction to industry accepted software engineering tools and practices used to develop quality software applications. Students will learn modeling and design using the Unified Modeling Language (UML), Code generation, Application Revision Control, Code Analysis, Unit Testing, Code Coverage, Coding Best Practices, Continuous Integration, revision management, and Code Performance/Profiling. Prerequisites: SENG 160 with a C grade or better. Typically Offered Spring only.

Special Topics in SENG - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Prerequisites: Departmental approval. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated between the faculty member and the student. Prerequisites: Departmental approval. Typically Offered on Demand

This course discusses the concepts involved in designing large scale applications. Architectural concerns are examined along with issues stemming from multiple concurrent users. Students will also gain an understanding of the importance of performance when implementing applications that have high volume usage. Prerequisites: SENG 350 Typically offered Fall only.

This course allows students the ability to prepare for a highly regarded industry certification program. Students will go through the recommended training materials and course work and prepare to take the certification exam. On course completion the exam is taken and certification earned. Certification is not guaranteed and dependent on student's ability to pass exam. Extra exam fee applicable. Prerequisites: SENG 350 and SENG 355 with a grade of C or better. Typically offered Fall only.

This course focuses on the techniques and technologies employed in creating Software user interfaces (UI). Students learn the importance of clean user interface design along with gaining an appreciation for programming techniques used to enhance the human user experience. UI methodologies and frameworks are explored. Prerequisites: SENG 350 Typically offered Spring only.

Special Topics in SENG - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Prerequisites: Departmental approval. Typically Offered On Demand

This course is intended to be completed between the junior and senior year. The internship shall be set up and approved by means of an internship contract, including approval by the University and employer in a related Software Engineering field. Prerequisites: SENG 301, SENG 302, and Seng 315 all with a grade of C or better. Typically offered Summer only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated between the faculty member and the student. Prerequisites: Departmental approval. Typically Offered on Demand

This course will focus on helping each student prepare for a career creating commercially viable software. Topics include career choices, software development ethics, and what organizations expect. Students will explore employment opportunities including seeking a posted position, working freelance, and establishing a business. Prerequisites: SENG 491 with a grade of C or better. Meets General Education requirements for Collaboration. Typically offered Spring only.

Human behavior as affected by group situations and relationships. Brief study of scientific method, examination of culture, investigation into the nature of social groups and social institutions. Principles and major theoretical perspectives basic for understanding human societies. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues Social Foundations and new Fall 2017 Self and Society and U.S. Diversity. Typically Offered Fall, Spring, Summer

The study of the nature, causes, and possible strategies for confronting selected social problems in contemporary society. Attention will be focused on such problems as war, population, drug and alcohol abuse, poverty, environment and resources, race and ethnic relations, gender and age inequalities, sexual orientation, and crime. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues; Social Foundations and new Fall 2017 Self and Society, U.S. Diversity and Self and Society Foundation. Typically Offered Fall, Spring
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<th>Description</th>
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<tr>
<td>SOCY122</td>
<td>Sociology</td>
<td>Social Problems</td>
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<tr>
<td>SOCY141</td>
<td>Sociology</td>
<td>The American Community</td>
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<tr>
<td>SOCY190</td>
<td>Sociology</td>
<td>Special Topics in SOCY</td>
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<td>SOCY225</td>
<td>Sociology</td>
<td>Marriage and the Family</td>
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<tr>
<td>SOCY230</td>
<td>Sociology</td>
<td>Gender Roles in Society</td>
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<tr>
<td>SOCY242</td>
<td>Sociology</td>
<td>Sociology Of Deviant Behavior</td>
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<td>SOCY270</td>
<td>Sociology</td>
<td>Sociological Theory</td>
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<td>SOCY271</td>
<td>Sociology</td>
<td>Sociological Meth/Qualitative</td>
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<td>SOCY290</td>
<td>Sociology</td>
<td>Special Topics in SOCY</td>
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<tr>
<td>SOCY297</td>
<td>Sociology</td>
<td>Special Studies in SOCY</td>
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Sociological theories and research are used to analyze a variety of communities, including communes, villages, neighborhoods, and metropolitan areas focusing on the American experience. Students will use surveys, interviews, and participant observation in selected areas. This course meets General Education requirements for Self and Society. Typically Offered Fall and Spring. Special Topics in Sociology - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand. The history of the family and its contemporary structure and functioning are covered. Topics include love, dating, mate selection, finances, and children. Changing gender roles are examined, as is the family in other cultures. This course meets General Education requirements: Social Awareness, Global Consciousness; Race/Ethnicity/Gender Issues, and new Fall 2017 Global Diversity, US Diversity, Collaboration, Problem Solving. Pre-Requisites: SOCY 121 or 122 or ANTH 122. Typically Offered Fall, Spring.

The study of male and female behavioral patterns in society. Emphasis is on the description and explanation of the male and female experiences in various institutional contexts, and on gender role changes in society. Focuses on gender roles in the United States. Cross-national variations are considered for points of comparison. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues, and new Fall 2017 Self and Society, US Diversity. Pre-Requisites: SOCY 121 or 122 or ANTH 122. Typically Offered Fall Only.

Study of the definition, nature, and patterns of interaction surrounding so-called "deviant" behavior, as well as social and institutional attempts to prevent and control it. A critical examination of sociological theories of deviant, delinquent, and criminal behavior, and application of these theories to selected forms of deviance. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues, and new Fall 2017 Self and Society, US Diversity. Pre-Requisites: SOCY 121 or 122 or ANTH 122. Typically Offered Fall Only.

This course grounds students in the general application of sociological theory as an analytical framework for scientific empirical observation. Builds on general theoretical framework introduced in SOCY 121 or SOCY 122. This course moves students to use sociological theory as a tool for organizing knowledge. Students are challenged to make use of their knowledge of theory to do sociology. The concentrations of race, ethnicity, gender and community are also linked to the theoretical frameworks considered. Prerequisites: SOCY 121 or SOCY 122. Typically Offered Fall only.

This course introduces research methods generally and then focus on qualitative methods of inquiry. These include: ethnographies, case studies, focus groups, interviews, participant observations and others. Students will apply at least one method of inquiry to an actual case study in the generalist concentration, or in race, ethnicity and gender, or community studies. Students will be expected to incorporate an understanding of social theory derived in the analysis of the case study. New Fall 2017 Self and Society. Prerequisites: SOCY 121 or SOCY 122. Typically Offered Spring only.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

Traces the history of several minority groups in the United States, and analyzes their current demographic, economic, and social situations. Minority/dominant relations are examined. Emphasis is placed on the study of prejudice and discrimination. This course meets General Education requirements: Race/Ethnicity/Gender Issues and Social Awareness and Collaboration and Problem Solving. Pre-Requisites: SOCY 121 or 122 or ANTH 122. Typically Offered Fall, Spring, Summer.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Level</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCY340</td>
<td>Sociology Race and Ethnicity in the U.S.</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Sociological theories and research are used to analyze a variety of communities, including communes, prisons, villages, neighborhoods, and metropolitan areas. Students will use surveys, interviews, and participant observation in selected west Michigan communities. This course meets General Education requirements: Social Awareness, Race/Ethnicity/Gender Issues and new Fall 2017 US Diversity and Self and Society. Pre-Requisites: SOCY 121 or 122 or ANTH 122. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>SOCY341</td>
<td>Sociology Community Studies</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Consideration of the changing position of older people from pre-industrial to modern societies and potential changes in the future. Sociological, psychological, biological, and economic aspects of the aging processes and the later years of life are discussed. Alternative living opportunities in retirement, and community support services, present and emerging are explored. Other contemporary issues in the field of social gerontology are also explored. This course meets General Education requirements: Social Awareness and Race/Ethnicity/Gender Issues and new Fall 2017 Global Diversity, US Diversity and Self and Society. Pre-Requisites: SOCY 121 or 122 or ANTH 122. Typically Offered Spring Only.</td>
</tr>
<tr>
<td>SOCY344</td>
<td>Sociology World Urban Sociology</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>The course will present a sociological approach to a variety of both natural and man-made disasters or emergency situations. After a basic sociological framework of analysis has been established, specific types of disasters or emergency situations will be examined in terms of their nature, consequences, and overall sociological significance. The future policy implications of these events and the various societal responses to those events also will be explored. This course meets General Education requirements: Social Awareness and new Fall 2017 US Self and Society. Pre-requisites: SOCY 121 or SOCY 122 or ANTH 122. Typically Offered Fall, Spring.</td>
</tr>
<tr>
<td>SOCY345</td>
<td>Sociology The Field of Aging</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Introduces the use of descriptive and inferential statistics in social scientific analysis: measures of central tendency, variability, probability, correlation and regression. Students utilize SPSS and other statistical software to properly produce and interpret data outcomes. Students apply statistical analysis in their curriculum concentrations as generalists or in race, ethnicity and gender, or community studies. Connections are made with previous considerations of social inquiry using qualitative methods. Prerequisites: SOCY 270 and SOCY 271. Typically Offered Spring Only.</td>
</tr>
<tr>
<td>SOCY350</td>
<td>Sociology Black Images in Pop Culture</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Special Topics in SOCY - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>SOCY361</td>
<td>Sociology Work and Leisure in Society</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Special Topics in SOCY - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>SOCY371</td>
<td>Sociology Sociological Statistics</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Special Topics in SOCY - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>SOCY373</td>
<td>Sociology Health-Illness in Society</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Special Topics in SOCY - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Name</td>
<td>Department</td>
<td>Year</td>
<td>Credits</td>
<td>Notes</td>
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<tr>
<td>SOCY390</td>
<td>Sociology Special Topics</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
<tr>
<td>SOCY397</td>
<td>Sociology Special Studies</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>This is a service-learning course. Students conduct research and produce a final research report for and in partnership with a community based organization in West Michigan. The course builds on students' prior research methods courses so that produce professional research on an issue of interest to the community partner. Students use the latest technology in social science research. Prerequisites: SOCY 271 or permission. Typically Offered Spring only</td>
</tr>
<tr>
<td>SOCY411</td>
<td>Sociology Applied Community Research</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>4</td>
<td>Distribution of scarce resources within human societies and the consequences of inequality. Opportunities and life chances are analyzed for various segments of the population, including race and gender. Primary emphasis will be on the United States. This course meets General Education requirements: Social Awareness and Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society, and U.S. Diversity. Pre-Requisites: SOCY 121 or 122 or ANTH 122; &amp; 1 other social awareness course. Typically Offered Spring Only</td>
</tr>
<tr>
<td>SOCY443</td>
<td>Sociology Soc Stratification-Equality</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Historical foundations and current themes in the field of criminology. The people and events behind the ideas that continue to influence our current thinking about crime, public policies, and systems of criminal justice. A critical assessment of the major theories of crime causation, and application of these theories to selected types of criminal behavior. This course meets General Education requirements: Race/Ethnicity/Gender Issues and Social Awareness and new Fall 2017 U.S. Diversity and Self and Society. Pre-Requisites: SOCY 121 or 122 or ANTH 122 &amp; 1 other Social Awareness course. Typically Offered Spring Only</td>
</tr>
<tr>
<td>SOCY450</td>
<td>Sociology Criminology</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course serves to provide students the opportunity to experience research in sociology hands on. Specifically, students are supervised while working on all aspects of a research project, including its initial development (e.g., literature review), data collection (e.g., running/supervising interviews), data analysis, and the reporting of the research. Prerequisites: SOCY 270 and either SOCY 271 or SCWK 350 and junior status. Typically offered: Spring, Summer, Fall.</td>
</tr>
<tr>
<td>SOCY480</td>
<td>Sociology Directed Research Experience</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>3</td>
<td>Special Topics in SOCY - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
</tr>
<tr>
<td>SOCY490</td>
<td>Sociology Special Topics in SOCY</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>Work experience with cooperating employer organizations in business, industry, government, and education. The work experience is designed to be relevant to the student’s academic pursuits, personal development, and professional preparation. The work experience must last a minimum of 12 weeks with total hours worked approved by the program coordinator. May be repeated for a maximum of 9 credits. Pre-Requisites: Sociology Students only &amp; Junior Status &amp; Departmental Approval. Typically Offered Fall, Summer, Spring</td>
</tr>
<tr>
<td>SOCY491</td>
<td>Sociology Sociology Internship</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
</tr>
<tr>
<td>SOCY497</td>
<td>Sociology Special Studies in SOCY</td>
<td>Social and Behavioral Sciences</td>
<td>Undergraduate</td>
<td>1 TO 3</td>
<td>Basic information about the field of Diagnostic Medical Sonography, including the different modalities; equipment overview; duties and responsibilities of sonographers; employment opportunities; registry testing, credentialing, and related topics. Prerequisites: Admission to the Diagnostic Medical Sonography Professional Sequence. Typically Offered Fall Only</td>
</tr>
<tr>
<td>SONO100</td>
<td>Diagnostic Medical Sonography Introduction to DMS</td>
<td>Dental Hygiene-Medical Imaging</td>
<td>Undergraduate</td>
<td>1</td>
<td>This course will introduce basic body systems, ultrasonic anatomical landmarks, sonographic scan planes, and theory of image production and acquisition. Prerequisites: Admission to the DMS program. Typically Offered Fall Semester</td>
</tr>
<tr>
<td>SONO102</td>
<td>Diagnostic Medical Sonography Intro to Sonographic Imaging</td>
<td>Dental Hygiene-Medical Imaging</td>
<td>Undergraduate</td>
<td>1</td>
<td>Physical application of ultrasound interactions with matter, safe use of ultrasound technology, and artifact and image acquisition. Prerequisites: SONO 100 and SONO 102. Typically Offered Spring Semester</td>
</tr>
<tr>
<td>SONO104</td>
<td>Diagnostic Medical Sonography Intro to Ultrasound Physics</td>
<td>Dental Hygiene-Medical Imaging</td>
<td>Undergraduate</td>
<td>3</td>
<td>Principles of abdominal sonography with emphasis on function, embryology, and pathology. Prerequisites: SONO 112 and SONO 115. Typically Offered Spring only</td>
</tr>
<tr>
<td>SONO105</td>
<td>Diagnostic Medical Sonography Sonography Physics Prin Lab</td>
<td>Dental Hygiene-Medical Imaging</td>
<td>Undergraduate</td>
<td>1</td>
<td>Principles of abdominal sonography with emphasis on function, embryology, and pathology. Prerequisites: SONO 112 and SONO 115. Typically Offered Spring only</td>
</tr>
</tbody>
</table>
Sono Phys of Abdominal Organs

Diagnostic Medical Sonography

Pathophysiology of Abdominal Organs

Abdominal Imaging Lab

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 4

Sono Cross Sectional Anatomy

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 1

Intro to Sonographic Interpretation

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 2

GYN Imaging

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 1

GYN Imaging Lab

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 1

Introduction to OB/GYN Imaging

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 2

OB/GYN Imaging Lab

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 1

Hemo and Doppler Prim of Sono

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 1

Hemodynamics - Doppler Lab

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 1

Special Studies in SONO

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 1 TO 3

Clinical Internship 1

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 8

Clinical Internship 2

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 8

Small Parts and Invasive Proc

Diagnostic Medical Sonography

Dental Hygiene-Medical Imaging

Undergraduate 4

Laboratory to demonstrate normal scanning protocols and anatomical landmarks for abdominal imaging studies. Prerequisites: Admission to the professional sequence. Typically Offered Fall.

A basic course in cross sectional anatomy as visualized on standard sonographic exam protocols. This will assist students in the ability to develop the spatial ability to identify transverse body planes and positional relationships of different organs. Correlation with other diagnostic modalities, i.e. CT, MRI and SPECT imaging, will also be utilized. Pre-Requisites: Admission to the professional sequence. Typically Offered Fall.

This course will incorporate lab values, patient assessment, patient signs and symptoms to formulate a preliminary diagnosis. This course will teach preliminary report writing, critical thinking and a case study approach to interpreting ultrasound images. Prerequisites: SONO 111 and SONO 112 and SONO 115. Typically Offered Summer.

Sono Imaging emphasizes gynecological sonographic anatomy and physiology with emphasis on adnexa, endometrium, cervix, cul-de-sacs. Prerequisite is entrance to the professional sequence of the DMS program. Typically offered: Fall

SONO Imaging Lab is a one credit ultrasound imaging lab with emphasis on gynecological structures including adnexa, uterus, endometrium, cervix and cul-de-sac. Prerequisite is entrance to the DMS program. Typically offered: Fall

Principles of obstetric and gynecological sonography with emphasis on structure of the female pelvis and reproductive system, sonographic appearance of normal and abnormal maternal, embryonic, and fetal anatomic structures during 1st, 2nd, and 3rd trimesters of pregnancy. Prerequisites: SONO 111 and SONO 112 and SONO 115. Typically Offered Summer only.

Laboratory demonstrates normal female reproductive system anatomy, 1st, 2nd, and 3rd trimester pregnancy anatomy, landmarks, and full scanning protocols with measurements. Prerequisites: SONO 111 and SONO 112 and SONO 115. Typically Offered Summer only.

Principles of blood hemodynamics and doppler principles are explored in conjunction to normal abdominal and extremity imaging and abnormal disease states. Hemodynamic evaluation of grafts, stents, bypass, spinal and cerebrovascular vessels are also evaluated. Prerequisites: SONO 111 and SONO 112 and SONO 115. Typically Offered Summer.

Laboratory will demonstrate complete diagnostic abdominal and extremity imaging protocols including normal doppler evaluation. Competency in gallbladder, pancreas, kidney, liver and great vessel ultrasound scans including doppler evaluation must be demonstrated in a prescribed time period. Prerequisites: SONO 111 and SONO 112 and SONO 115. Typically Offered Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered on Demand.

During the 15 week internship the student will demonstrate body mechanics, safe use of ultrasound equipment and infectious disease control procedures. The student will demonstrate mastery skill level in five abdominal organ studies and one obstetric ultrasound study while displaying professionalism. Prerequisites: SONO 121, SONO 122, SONO 131 and SONO 132. Typically Offered Fall only.

This course will teach the ultrasound protocols, procedures, normal anatomy, pathologies, and limitations of imaging breast, thyroid, scrotum, and prostate imaging. This course will also discuss the ultrasound guided interventional procedures associated with these structures. Prerequisites: SONO 121, SONO 122, SONO 131 and SONO 132. Typically Offered Fall semester.

The second of three internships. The student will demonstrate diagnostic full abdomen and complete obstetric ultrasounds independently, display professionalism, demonstrate appropriate infection control procedures and safe use of ultrasound equipment. Prerequisites: SONO 280 and SONO 281. Typically Offered Spring only.

Obstetrical and Gynecological Imaging II will discuss the interventional procedures of Obstetrical and Gynecological imaging, advanced maternal age imaging, and the neonatal imaging ultrasound scans including protocols, pathologies and limitations. Prerequisites: SONO 280 and SONO 281. Typically Offered Spring only.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>SONO283</td>
<td>Diagnostic Medical Sonography</td>
<td>OB/GYN Imaging 2</td>
</tr>
<tr>
<td>SONO284</td>
<td>Diagnostic Medical Sonography</td>
<td>Clinical Internship 3</td>
</tr>
<tr>
<td>SONO285</td>
<td>Diagnostic Medical Sonography</td>
<td>Sonographic Interpretation 2</td>
</tr>
<tr>
<td>SONO287</td>
<td>Diagnostic Medical Sonography</td>
<td>Management in DMS</td>
</tr>
<tr>
<td>SONO290</td>
<td>Diagnostic Medical Sonography</td>
<td>Special Studies in SONO</td>
</tr>
<tr>
<td>SONO297</td>
<td>Diagnostic Medical Sonography</td>
<td>Special Studies in SONO</td>
</tr>
<tr>
<td>SONO300</td>
<td>Diagnostic Medical Sonography</td>
<td>Venous Ultrasound</td>
</tr>
<tr>
<td>SONO301</td>
<td>Diagnostic Medical Sonography</td>
<td>Cerebrovascular Ultrasound</td>
</tr>
<tr>
<td>SONO302</td>
<td>Diagnostic Medical Sonography</td>
<td>Arterial</td>
</tr>
<tr>
<td>SONO397</td>
<td>Diagnostic Medical Sonography</td>
<td>Special Studies in SONO</td>
</tr>
<tr>
<td>SPAN100</td>
<td>Spanish</td>
<td>Spanish for Business-Travel</td>
</tr>
<tr>
<td>SPAN101</td>
<td>Spanish</td>
<td>Beginning Spanish 1</td>
</tr>
<tr>
<td>SPAN102</td>
<td>Spanish</td>
<td>Beginning Spanish 2</td>
</tr>
</tbody>
</table>

The third of three internships. The student will show mastery level scanning in all abdomen, small parts and OB/GYN ultrasound studies in a prescribed time parameter. The student will demonstrate professionalism, appropriate infection control procedures and the effective use of ultrasound equipment using the "ALARA" standards. Prerequisites: SONO 282 and 283. Typically Offered Summer only.

A capstone course in the Diagnostic Medical Sonography Program. The student will demonstrate critical thinking skills in determining ultrasound diagnosis using patient scenarios. The student will correlate patient signs, symptoms, lab values, other imaging modalities and ultrasound study images. Weekly case study presentation reports will be written in addition to an extensive case study presentation to a panel of experts. Prerequisites: SONO 282 and 283. Typically Offered Summer only.

SONO 287 is a management course that focuses on statistical design, medical laws, billing and coding of ultrasound procedures and lab management strategies. Prerequisite: SONO 280. Typically Offered Spring.

Special Studies in SONO - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course will teach students diagnostic ultrasound testing methods for upper and lower extremity venous exams. Venous anatomy and hemodynamics will also be covered with an emphasis on color Doppler Imaging, air and photoplysmography. Pre-requisite: SONO 131 with grade of C or better. Typically offered. Fall.

This course will focus on normal and abnormal cerebrovascular anatomy and hemodynamics. A focus on abnormal perfusion and physiology will be covered as well as Interpretation, risk factors, and clinical protocols for carotid Doppler and transcranial Doppler exams and guidelines. Pre-requisite: SONO 131 with a grade of C or better. Typically offered: Spring.

This course teaches diagnostic ultrasound testing methods for upper and lower peripheral arterial exams. Testing methods include segmental pressures, PVR, Color Doppler Imaging and duplex sonography. Students will learn current standard and guidelines for arterial testing. Pre-requisite: SONO 131 with a grade of C or better. Typically offered: Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Prerequisites: Department approval Typically Offered On Demand

Spanish 100 stresses basic language survival skills for a potential business associate/tourist. A comparative study of cultural differences between the United States and Spain, focusing specifically on situations commonly encountered by U.S. travelers in Spain. Some attention will be paid to historical influences that have shaped the two. This course is not a substitute for Spanish 101 and does not count toward the foreign language requirement for the B.A. degree. This course meets General Education requirements: Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically Offered Spring Only

Emphasis on pronunciation, vocabulary, and basic grammar. Individual oral exercises. Instruction in the cultural and historical development of the Hispanic world. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Global Diversity and Culture. Typically Offered Fall, Spring, Summer

Continuation of Spanish 101. Emphasis on grammar and composition. Individual oral exercises. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Global Diversity and Culture. Typically Offered Fall, Spring, Summer

An elementary course in bilingual conversation with emphasis on Spanish vocabulary and the expressions of concepts as related to work in specific professions such as social work, health sciences, criminal justice, and business. Typically Offered Spring Only
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Title</th>
<th>Level</th>
<th>Credits</th>
<th>Typically Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN121</td>
<td>Spanish for the Professions</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 3</td>
<td></td>
<td>On Demand</td>
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<tr>
<td>SPAN197</td>
<td>Special Studies in SPAN</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 1 TO 4</td>
<td></td>
<td>Fall, Spring, Summer</td>
</tr>
<tr>
<td>SPAN201</td>
<td>Intermediate Spanish 1</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 4</td>
<td></td>
<td>Fall, Spring</td>
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<tr>
<td>SPAN202</td>
<td>Intermediate Spanish 2</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 4</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>SPAN224</td>
<td>Spanish for Heritage Speakers</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 3</td>
<td></td>
<td>On Demand</td>
</tr>
<tr>
<td>SPAN297</td>
<td>Special Studies in SPAN</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 1 TO 4</td>
<td></td>
<td>On Demand</td>
</tr>
<tr>
<td>SPAN301</td>
<td>Advanced Spanish 1</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 4</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>SPAN302</td>
<td>Advanced Spanish 2</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 4</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>SPAN323</td>
<td>Survey of Spanish Literature</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 3</td>
<td></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td>SPAN331</td>
<td>Contemp Culture-Soc of Spain</td>
<td>AS English, Lit and World Lang</td>
<td>Undergraduate 3</td>
<td></td>
<td>Fall, Spring</td>
</tr>
</tbody>
</table>

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.

An intermediate course emphasizing Spanish conversation, composition, and grammar review. Readings in Spanish about social and human values, with particular attention to Hispanic civilization. Prerequisites: SPAN 102 or department permit. This course meets General Education requirements: Global Consciousness; Cultural Enrichment, and new Fall 2017 Global Diversity; Culture. Typically Offered Fall, Spring, Summer.

Includes work in extended Spanish composition, readings in sociological aspects of Spanish culture, drama, and contemporary Spanish literature. Review of Spanish grammar and conversation will be stressed. Prerequisites: SPAN 201 or department permit. This course meets General Education requirements: Global Consciousness; Cultural Enrichment, and new Fall 2017 Global Diversity; Culture. Typically Offered Spring and Fall.

Spanish for Heritage Speakers focuses on linguistic and cultural knowledge of the Spanish-speaking world. This course is for Native speakers who want to improve reading and writing skills in Spanish, appropriate use of grammatical structures, orthography, vocabulary, and formal and informal contexts of communication. Meets general education requirements of Cultural Enrichment. Pre-requisite: Placement test. Typically offered in Spring (or on demand).

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.

Advanced practice in composition, grammar and conversation in Spanish, using media and readings related to the Hispanic world. Special sections may be offered to students in specific professional fields. This course meets General Education requirements: Global Consciousness; Cultural Enrichment, and new Fall 2017 Culture and Global. Pre-Requisites: SPAN 202 with a grade of C or better or department approval. Typically Offered Fall, Spring.

Continued advanced level reading, writing and speaking in Spanish, particularly about economic and sociological topics. Novels, dramas, and short stories written by Hispanic authors will be introduced. Students will be expected to understand lexical and grammatical forms. This course meets General Education requirements: Global Consciousness; Cultural Enrichment, and new Fall 2017 Culture and Global Diversity. Pre-Requisites: SPAN 301 with a grade of C or better or department approval. Typically Offered Fall, Spring.

This course introduces advanced undergraduate students to Spain's most representative writings and writers from the Middle Ages to present times. Readings are complemented with the necessary historical background for better comprehension. Readings cover diverse literary genres such as: fiction, drama, poetry, and essays. Emphasis on contemporary readings and authors. Taught in Spanish. Meets General Education requirements for Culture and Global Diversity. Prerequisites: SPAN 202 with a grade of C or better or instructor approval. Typically Offered Fall, even years.

Readings and studies in the history and culture of contemporary Spain. Taught in Spanish. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Culture and Global Diversity. Prerequisite: SPAN 202 with a grade of C or better or instructor approval. Typically Offered Spring, even years.

Outlines of history and geography precede the introduction to the culture and society of Hispanic America, especially Mexico. Lectures, films, and works of fiction and nonfiction give a general overview of daily life in Hispanic countries. Taught in Spanish. This course meets General Education requirements: Global Consciousness; Cultural Enrichment and new Fall 2017 Culture, Global Diversity, Problem Solving and Collaboration Prerequisite: SPAN 202 with a grade of C or better or instructor approval. Typically Offered Spring, odd years.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Course Title</th>
<th>Degree</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN333</td>
<td>Spanish</td>
<td>Contemp Cult-Soc Hispan Americ</td>
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<td>SPAN343</td>
<td>Spanish</td>
<td>Hispanic Cinema</td>
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<td>SPAN350</td>
<td>Spanish</td>
<td>Span Culture Professions</td>
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<td>SPAN390</td>
<td>Spanish</td>
<td>Special Topics in SPAN</td>
<td>AS</td>
<td>1 TO 4</td>
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<td>SPAN397</td>
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<td>Special Studies in SPAN</td>
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<td>1 TO 4</td>
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<td>SPAN425</td>
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<td>Spanish Language Pedagogy</td>
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<td>SPAN430</td>
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<td>Business Spanish</td>
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</table>

This course improves students’ cultural and linguistic competency through the analysis and discussion of select films produced in the Spanish speaking world. Students actively participate in daily discussions, video presentations, as well as reading and writing assignments. Develops students’ critical thinking skills regarding the culture, history, politics and social problems depicted in film. Taught in Spanish. This course meets General Education requirements Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Prerequisites: SPAN 202 with a grade of C or better or instructor approval. Typically Offered Fall, odd years.

This course is designed to enhance Spanish communication skills and cultural knowledge for use in professional settings. This course covers a broad spectrum of career areas and will be beneficial to all professionals who want to communicate with the Spanish-Speaking community, both in the United States and abroad. It stresses cultural components used among Spanish speakers in the U.S. and abroad, formal and informal contexts of communication, and other unique linguistic features in Spanish dialects; such as Spanglish and code-switching. Students are also introduced to the concepts and practice of translation and interpretation. This course is the foundation for the more career-specific courses of SPAN 430, SPAN 431, and SPAN 432. This course meets General Education requirements Cultural Enrichment and Global Consciousness and Problem Solving and Collaboration. Prerequisites: SPAN 202 with a grade of C or better with instructor approval. Typically offered Fall.

Special Topics in SPAN - 300 Level. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Provides a basic methodological guide to students minoring in Spanish and interested in teaching the language as a secondary area to their specialized and secondary-school teaching. The focus is fundamental methodology and ancillary considerations peculiar to foreign-language classrooms. Students will follow a topical outline of methodology. They will also demonstrate teaching in a classroom environment, prepare course outlines and syllabi. Pre-Requisites: SPAN 302. Typically Offered Spring Only

This course provides students with a working knowledge of business-related Spanish vocabulary, cultura practices, and cultural competencies to effectively navigate the Spanish-speaking business world. Students will write business documents and carry out day-to-day professional interactions in the target language through translation activities and role-plays. In addition to the various regions in Spanish-speaking countries studied throughout the course, the U.S. Latino market, the corresponding trade agreements in Brazil, the Americas and Europe will also be addressed, along with pertinent information regarding cultural differences and economic activity. Various sources of information will be utilized throughout the course, including books, videos, magazines, online newspapers, and guest speakers familiar with the domestic and/or international Spanish-speaking marketplace. This course meets General Education requirements Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Prerequisites: SPAN 350 with a passing grade of C or higher. Typically offered Spring.

This course is designed for students in the medical field (nursing program, dental hygiene, optometry, pharmacy, etc.) who want to develop language-specific skills in this area. The main objective of the course is to provide health care providers with the necessary language skills to communicate more effectively with Spanish-speaking patients and to help them to provide better services to this community. In order to achieve these objectives, students will memorize dialogs and perform skits related to specific medical areas (e.g., assessing medical history and health risks, doctor-patient exams, etc.). Another important component of the course is the cultural readings that highlight Hispanic customs and traditions relevant to health care, as well as information on medical conditions and concerns affecting Latinos in the United States. This course meets General Education requirements Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Typically offered Fall, Spring.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Degree</th>
<th>Type</th>
<th>Credit</th>
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<tr>
<td>SPAN431</td>
<td>Spanish</td>
<td>Spanish for Health Professions</td>
<td>Undergraduate</td>
<td>AS</td>
<td>English, Lit and World Lang</td>
</tr>
<tr>
<td>SPAN432</td>
<td>Spanish</td>
<td>Span Social Services Outreach</td>
<td>Undergraduate</td>
<td>AS</td>
<td>English, Lit and World Lang</td>
</tr>
<tr>
<td>SPAN491</td>
<td>Spanish</td>
<td>Internship in Spanish</td>
<td>Undergraduate</td>
<td>AS</td>
<td>English, Lit and World Lang</td>
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<tr>
<td>SPAN497</td>
<td>Spanish</td>
<td>Special Studies in SPAN</td>
<td>Undergraduate</td>
<td>AS</td>
<td>English, Lit and World Lang</td>
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<tr>
<td>SPAN499</td>
<td>Spanish</td>
<td>Senior Capstone in Spanish</td>
<td>Undergraduate</td>
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<td>English, Lit and World Lang</td>
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<tr>
<td>SSCI114</td>
<td>Social Sciences</td>
<td>Human Sexuality</td>
<td>Undergraduate</td>
<td>AS</td>
<td>Social and Behavioral Sciences</td>
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<td>SSCI290</td>
<td>Social Sciences</td>
<td>Special Topics in SSCI</td>
<td>Undergraduate</td>
<td>AS</td>
<td>Social and Behavioral Sciences</td>
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<tr>
<td>SSCI297</td>
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<td>SSCI390</td>
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<td>Special Topics in SSCI</td>
<td>Undergraduate</td>
<td>AS</td>
<td>Social and Behavioral Sciences</td>
</tr>
</tbody>
</table>

This course reinforces students' Spanish-language skills required when working with the Latino community through social services professions and outreach (social work, school teachers and counselors, lawyers, police officers, ministries, etc.). The course will cover a broad mix of social services contexts, while building the students' written and oral communication skills. In addition, emphasis will be placed on cultural issues that may affect successful interaction with Spanish-speaking individuals and families faced with matters concerning various policies and laws. Students will give oral and written reports dealing with social services issues and engage in field experiences with local Hispanic organizations providing social services to Spanish-speakers. This course meets General Education requirements Cultural Enrichment and Global Consciousness and new Fall 2017 Culture and Global Diversity. Prerequisites: SPAN 350 with a grade of C or better. Typically offered Spring.

The Internship in Spanish provides students the opportunity to develop hands-on experience in occupational fluency and intercultural competencies in their non-Spanish primary or secondary area(s). Students will be required to meet with a faculty mentor who will approve and monitor the internship in a Spanish-speaking country. In some instances, students will be allowed to work in an organization or community that works closely with Spanish speaking community in the U.S. in lieu of travelling abroad. In either case, the student will create a set of personal outcomes, and present a final portfolio that highlights the gained intercultural competencies and occupational fluency in the language. The Internship in Spanish is required for the completion of the B.S. degree in Spanish for the Professions. Prerequisites: SPAN 350 with a grade of A or better and approval from the Spanish Internship Coordinator. Typically offered Fall, Spring, Summer.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.

The Senior Capstone in Spanish is a required course for the fulfillment of the B.S. degree in Spanish for the Professions and is designed to highlight the students' achievement and application of the Spanish language and intercultural competencies in his/her primary or secondary area(s). In addition to the main course goals of demonstrating intercultural competencies and language proficiency in the profession, each student will create a set of personal outcomes to their specific career interests, and present the final portfolio to a committee of Spanish faculty. The goal of the Senior Capstone is to demonstrate how the courses, internship, and residency in a Spanish-speaking country abroad or with the Latino community in the U.S. helped to develop these intercultural competencies and occupational fluency in the language. Prerequisites: SPAN 302 and SPAN 491 and SPAN 430 or SPAN 431 or SPAN 432 with passing a grade of A in an English course or better or special permission by instructor. Typically offered Spring.

An interdisciplinary course covering some of the anthropological, biological, ethical, psychological, and sociological aspects of human sexuality. Students will receive one credit hour of biology and one credit hour of social science. This course meets General Education requirements for Social Awareness (1 credit) and Scientific Understanding (1 credit) and fall 2017 Self and Society and Natural Sciences. Typically Offered Fall, Spring Special Topics in SSCI - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated between the faculty member and the student. Typically Offered On Demand Special Topics in SSCI - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.
An interdisciplinary, social science approach to the analysis of prominent public policy issues (e.g., the environment, Native American self-determination, education policy, international issues, etc.). Diverse and opposing views will be considered, as well as the process of democratic deliberation among citizens to reach consensus. Electronic technology will be used to conduct research and to communicate with involved parties. Gathering evidence, proposing and testing hypotheses, and reporting results by way of oral and written presentation will be emphasized. This course meets general education requirements: Social Awareness and new Fall 2017 Self and Society. Pre-Requisites: Senior Status and Education students only. Typically Offered Spring Only

Capstone course for the Multicultural Relations in the United States minor. Advanced training in the recognition of cultural patterning of behavior in social and occupational settings. Skills development in interpersonal communication including observation, listening, reflection, interpretation, information-sharing, information-gathering, rapport-building, and intervention techniques. This course meets General Education requirements: Social Awareness and Race/Ethnicity/Gender Issues and new Fall 2017 Self and Society, and U.S. Diversity. Pre-Requisites: Junior or Senior status. Typically Offered Spring Only

Special topics in SSCI 400 - Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Introduce and explore practical aspects of sampling, data presentation, measures of central tendency and dispersion, basic probability theory, the normal probability distribution, the sampling distribution of sample means and sample proportions, confidence intervals and hypothesis tests for one-sample designs, simple linear regression and correlation. Pre-Requisites: MATH 114, 115, 116, 120, 126, 130, 132, or 135 with a grade of C- or better or 24 on ACT or 560 on pre 2016 SAT or 580 post 2016 SAT. Typically Offered Fall, Spring, Summer

Define data mining and explore various real world applications. Explore data mining processes and data mining strategies. Prepare appropriately the data for a data mining session. Create models within each of the data mining strategies using appropriate data mining techniques such as decision trees, k-means, apriori algorithm, and/or neural network. Using a data mining software, create models appropriate to the problem, interpret and evaluate the results, and compare to obtain the best model. Pre-Requisites: STQM 260 or COHP 350 or MATH 251 or MGIE 341 or PSYC 210 or SOCY 371, all with C- or higher. Typically Offered Fall, Spring and Summer.

STQM260 \( \text{Statistics and Quantit Methods} \)  
Introduction to Statistics  
BU  
Marketing  
Undergraduate  
3

STQM270 \( \text{Statistics and Quantit Methods} \)  
Introduction to Data Mining  
BU  
Marketing  
Undergraduate  
3

STQM285 \( \text{Statistics and Quantit Methods} \)  
Foundations Business Analytics  
BU  
Marketing  
Undergraduate  
3

STQM290 \( \text{Statistics and Quantit Methods} \)  
Special Topics in STQM  
BU  
Marketing  
Undergraduate  
1 TO 3

STQM297 \( \text{Statistics and Quantit Methods} \)  
Special Studies in STQM  
BU  
Marketing  
Undergraduate  
1 TO 4

STQM311 \( \text{Statistics and Quantit Methods} \)  
Cont Improvement Tools-Techniq  
BU  
Marketing  
Undergraduate  
3
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<tr>
<td>STQM322</td>
<td>Statistics and Quantit Methods</td>
<td>In-depth study of inferential statistics and planning course. The course focuses on various concepts and techniques in quantitative approaches to decision making. Topics covered in depth include the graphical and computer solution to linear programming, transportation and assignment problems, network models, project management using PERT/CPM, inventory models, and decisions. The students are expected to identify and apply appropriate quantitative models and techniques to business situations. Prerequisites: STQM 260 with a C- or better. Typically Offered Fall, Spring, Summer. Principles and tools are used to extract information and create knowledge from large databases through software applications. Tools include attributes dimension reduction, multiple linear regression, regression, Bayesian classifier, k-nearest neighbors, and others. Prerequisites: STQM 270 with a C- or higher. Typically Offered: Fall, Spring, Summer. An introduction to modern quality control techniques, with emphasis on Juran, Deming, and Japanese enhancements. In-depth coverage of quality costs, basic statistical tools, control charts and process capability, and use of quality control software. Pre-Requisites: STQM 260 with a C- or better. Typically Offered On Demand.</td>
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<tr>
<td>STQM341</td>
<td>Statistics and Quantit Methods</td>
<td>Management Science BU Marketing Undergraduate 3</td>
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<tr>
<td>STQM342</td>
<td>Statistics and Quantit Methods</td>
<td>Data Mining Tools BU Marketing Undergraduate 3</td>
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<tr>
<td>STQM351</td>
<td>Statistics and Quantit Methods</td>
<td>Quality Control for Management BU Marketing Undergraduate 3</td>
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<td>STQM360</td>
<td>Statistics and Quantit Methods</td>
<td>Risk Analysis and Strategy BU Marketing Undergraduate 3</td>
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<td>STQM375</td>
<td>Statistics and Quantit Methods</td>
<td>Programming for Analytics BU Marketing Undergraduate 3</td>
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<td>STQM390</td>
<td>Statistics and Quantit Methods</td>
<td>Special Topics in STQM BU Marketing Undergraduate 1 TO 3</td>
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<td>STQM397</td>
<td>Statistics and Quantit Methods</td>
<td>Special Studies in STQM BU Marketing Undergraduate 1 TO 3</td>
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<tr>
<td>STQM421</td>
<td>Statistics and Quantit Methods</td>
<td>Applied Linear Statistical Mod BU Marketing Undergraduate 3</td>
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<tr>
<td>STQM427</td>
<td>Statistics and Quantit Methods</td>
<td>Data Analytics-Healthcare Mktg BU Marketing Undergraduate 3</td>
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<td>STQM450</td>
<td>Statistics and Quantit Methods</td>
<td>Data Warehouse Struc/Des/Query BU Marketing Undergraduate 3</td>
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<td>STQM465</td>
<td>Statistics and Quantit Methods</td>
<td>Text and Web Mining BU Marketing Undergraduate 3</td>
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<td>STQM490</td>
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<td>STQM491</td>
<td>Statistics Internship</td>
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<td>STQM497</td>
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<td>STQM498</td>
<td>Capstone Experience</td>
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<td>STQM590</td>
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<tr>
<td>STQM645</td>
<td>Decision Making w/Data Analyti</td>
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<td>STQM690</td>
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<td>SURE100</td>
<td>Intro to Surveying Engineering</td>
<td>TE</td>
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<tr>
<td>SURE110</td>
<td>Fundamentals of Surveying</td>
<td>TE</td>
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<tr>
<td>SURE115</td>
<td>Intro To Computer Mapping</td>
<td>TE</td>
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<tr>
<td>SURE215</td>
<td>Surveying Computation</td>
<td>TE</td>
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<td>SURE230</td>
<td>Advanced Surveying</td>
<td>TE Surveying, Undergraduate 3</td>
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<td>SURE272</td>
<td>Prog Applications in Geomatics</td>
<td>TE Surveying, Undergraduate 2</td>
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<td>SURE290</td>
<td>Special Topics in SURE</td>
<td>TE Surveying, Undergraduate 1 TO 4</td>
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<td>SURE297</td>
<td>Special Studies in SURE</td>
<td>TE Surveying, Undergraduate 1 TO 4</td>
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<tr>
<td>SURE331</td>
<td>Ethics-Prof in Engineering-Tec</td>
<td>TE Surveying, Undergraduate 3</td>
</tr>
<tr>
<td>SURE340</td>
<td>Photogrammetry</td>
<td>TE Surveying, Undergraduate 3</td>
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<tr>
<td>SURE365</td>
<td>Legal Aspects of Surveying 1</td>
<td>TE Surveying, Undergraduate 3</td>
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<td>SURE366</td>
<td>Evidence-Proc Boundary Locat</td>
<td>TE Surveying, Undergraduate 3</td>
</tr>
<tr>
<td>SURE372</td>
<td>Adjustment Computations 1</td>
<td>TE Surveying, Undergraduate 2</td>
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<tr>
<td>SURE373</td>
<td>Adjustment Computations 2</td>
<td>TE Surveying, Undergraduate 3</td>
</tr>
<tr>
<td>SURE390</td>
<td>Special Topics in SURE</td>
<td>TE Surveying, Undergraduate 1 TO 4</td>
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<tr>
<td>SURE397</td>
<td>Special Studies in SURE</td>
<td>TE Surveying, Undergraduate 1 TO 4</td>
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</table>

Exploring fundamental concepts of visual programming to solve surveying and mapping related problems. Topics covered include: object oriented syntax for looping and if statements, input/output statements, arrays, user-defined functions and procedures, reading and writing text and binary files, and introduction to database programming and graphics. Programming projects may include: angular units conversion; transformation of coordinates from polar to rectangular and rectangular to polar; traverse computation, adjustment and plotting. Pre-Requisites: MATH 130 or a minimum score of 26 on ACT or 590 on pre 2016 SAT or 610 post 2016 SAT; and SURE 215. Typically Offered Spring Only

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Discusses the codes of ethics which have been adopted by many engineering societies. Explain meaning and attributes of professionalism along with the ethical, moral, and social responsibilities of technologists and engineers. Also standards, law, safety, risks, obligations of loyalty to employer, professional client relationship, global awareness, bribery, contracts, and intellectual property are discussed. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture. Pre-Requisites: ENGL 150. Typically Offered Fall and Spring.

An introductory course in photogrammetry covering, in part, the history of photogrammetry, aerial cameras and camera calibration, geometry of the aerial photograph, stereo scope and stereoscopes, parallax, and the theory and techniques of orientation. Students will perform basic mapping tasks in the stereoplottor. Pre-Requisites: SURE 110. Typically Offered Spring Only

An introductory study of the subdivision of public lands, theory of original survey, resurvey, subdivision survey, and methods describing real property. The more important statute laws affecting the surveyor are studied. This course meets General Education requirement: Writing Intensive and new Fall 2017 Comm Across the Curriculum. Pre-Requisites: ENGL 250. Co-Requisites: SURE 215. Typically Offered Fall Only

A study of the rules of evidence and their application in conducting boundary surveys. It includes an introduction to littoral and riparian rights and major environmental considerations and their applications to survey projects. The course focuses on federal and state statutory law and case studies, melding the theoretical with the practical. Pre-Requisites: SURE 365. Typically Offered Fall.

This is the first of the two sequential courses on adjustment computations. Topics to be covered include: use of vectors, set theory, partial differentiation, matrix differentiation, statistical inference and hypothesis testing, an introduction to differential equations, propagation of random errors, and the relationships between variance covariance, weight and cofactor matrices as applied to least squares adjustment. Pre-Requisites: SURE 230 and MATH 230 and SURE 272 and MATH 322. Typically Offered Fall Only

Topics covered include: review of error propagation, development and application of least squares, horizontal and vertical control network designs; adjustment of indirect of observations, adjustment of observations and parameters combined. Student adjustment projects include: level network, traversing, triangulation, trilateration, and GPS network. Pre-Requisites: SURE 372. Typically Offered Spring Only

Special Topics in SURE - 300 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

A study of business practices as they apply to the organization offering professional engineering and/or surveying practices. This course meets General Education requirements: Writing Intensive Requirement and new Fall 2017 Comm Across the Curriculum. Pre-Requisites: SURE 365 and ENGL 250. Typically Offered Spring.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Type</th>
<th>Area</th>
<th>Credit</th>
<th>Description</th>
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<tr>
<td>SURE420</td>
<td>Surveying Prof Practice of Surveying</td>
<td>TE</td>
<td>Surveying</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course acquaints the student to advanced photogrammetric concepts that are normally encountered in photogrammetric practice. Topics include an introduction to analytical photogrammetric principles, concepts of the bundle adjustment, principles of advanced sensors, and principles of digital photogrammetry. Pre-Requisites: SURE 340 and SURE 373. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>SURE440</td>
<td>Surveying Advance Photogrammetry</td>
<td>TE</td>
<td>Surveying</td>
<td>Undergraduate</td>
<td>3</td>
<td>This is the first of the two sequential courses in geodesy. Topics covered include: ellipsoidal geometry, direct and inverse solution of geodetic line, geodetic datum, refraction of vertical, celestial sphere, solution of spherical triangles, time systems, astronomical azimuth and Laplace’s equation, developable surfaces, basic properties and characteristics of most common map projections with stronger emphasis on the projections used in State Plane Coordinates such as Lambert conformal, transverse Mercator and UTM. Pre-Requisites: SURE 230 and SURE 372. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>SURE452</td>
<td>Surveying Geodesy 1</td>
<td>TE</td>
<td>Surveying</td>
<td>Undergraduate</td>
<td>4</td>
<td>This course is a continuation of SURE 452, Geodesy 1. Topics covered include: introduction to physical geodesy, gravity observations and reduction, Stoke’s integral, Bruns formula, basic concepts of positioning by observing satellites, satellite geodesy, Global Positioning System (GPS) including both theoretical and practical aspects, VLBI, lunar and satellite laser ranging, satellite altimetry, and inertial positioning system. Pre-Requisites: SURE 373 and SURE 452. Meets General Education Requirements for Collaboration and Problem Solving. Typically Offered Fall Only.</td>
</tr>
<tr>
<td>SURE453</td>
<td>Surveying Geodesy 2</td>
<td>TE</td>
<td>Surveying</td>
<td>Undergraduate</td>
<td>4</td>
<td>A study of the total body of law as it applies to the practice of Land Surveying. Both Statute Law and Common Law are covered. A number of court cases are studied for the purpose of defining the Land Surveyor’s role in the judicial process and the use of legal precedent in answering related questions of law and fact. Practical description writing and interpretation is an essential portion of this course. This course meets General Education requirements: Writing Intensive Requirement and new Fall 2017 Curriculum Across the Curriculum. Pre-Requisites: SURE 365 and ENGL 250. Typically Offered Spring. Special Topics in SURE 453 - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand.</td>
</tr>
<tr>
<td>SURE465</td>
<td>Surveying Legal Aspects of Survey 2</td>
<td>TE</td>
<td>Surveying</td>
<td>Undergraduate</td>
<td>3</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand.</td>
</tr>
<tr>
<td>SURE490</td>
<td>Surveying Special Topics in SURE</td>
<td>TE</td>
<td>Surveying</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>Introduction to Video Communications is a three-credit course designed to familiarize the student with an overview of electronic media broadcast, cable, film and other methods of distribution, with an eye towards future technologies. Typically offered Fall, Spring, Summer.</td>
</tr>
<tr>
<td>TDMP110</td>
<td>TV &amp; Digital Media Production Intro to Video Communications</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>Digital Media Art and Technology combines art, design and digital media technology to include a solid foundation of digital video, photographs and audio from an art perspective. This course serves as an introductory course and digital primer for foundational concepts of science and techniques in digital media. Digital storytelling includes abstract or conceptual content through projects involving illustration of story elements with media and will provide students digital communications skills in digital media, art and technology. Prerequisites: TDMP Major or by Permission. Typically offered Fall, Spring, Summer.</td>
</tr>
<tr>
<td>TDMP132</td>
<td>TV &amp; Digital Media Production Digital Media Art &amp; Technology</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>Audio Production covers the basics of sound production and control in relation to video: Sound theory, stereo recording techniques, microphone selection and placement, recording equipment, various levels of audio signals, cables and connector, editing electronically, mixing stereo sound, mastering a stereo soundtrack, overdubbing stereo on multi-track recorders, equalization and filtering, minor maintenance of equipment, audio recording and playback systems, computer based audio editing. Typically offering Fall, Spring, Summer.</td>
</tr>
<tr>
<td>TDMP136</td>
<td>TV &amp; Digital Media Production Audio Production</td>
<td>ED</td>
<td>School of Digital Media</td>
<td>Undergraduate</td>
<td>3</td>
<td>Entertainment Arts and Production offers students many different facets of the entertainment world as they appear in diverse cultures and international cities. Students produce a digital journal of images and shoot video #4cinema verité # style providing a broader perspective of shooting on location to document the reality of the cultural experience. Traditions of the culture will be experienced through visits to art galleries, museums and television, film and entertainment venues of the country visited. Prerequisites: TDMP Major or by Permission. Typically offered Summer.</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Division</td>
<td>Degree</td>
<td>Credits</td>
<td>Prerequisites and Notes</td>
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<td>TDMP240</td>
<td>TV &amp; Digital Media Production Ent. Arts &amp; Production</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Field Production introduces you to the set-up and operation of camcorders, camera techniques basic composition, terminology, shot lists; producing and directing single camera remotes, production planning and organization; basic lighting techniques; field audio, voice-overs, and sound-on-tape (natural sound); video editing equipment and concepts. Prerequisites: TDMP Major or by Permission. Typically offered: Fall, Spring, Summer.</td>
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<tr>
<td>TDMP243</td>
<td>TV &amp; Digital Media Production Field Production</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>This class provides you with an understanding of the concepts of video compositing including the history of the art and the technical implementation of motion graphics. Through hands-on, applied learning, you will utilize industry standard software to create professional motion graphics. Prerequisites: TDMP 132. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>TDMP255</td>
<td>TV &amp; Digital Media Production Compositing Video</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Special Topics in TDMP-200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand</td>
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<tr>
<td>TDMP290</td>
<td>TV &amp; Digital Media Production Special Topics in TDMP</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1 TO 6</td>
<td>This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand</td>
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<tr>
<td>TDMP297</td>
<td>TV &amp; Digital Media Production Special Studies in TDMP</td>
<td>ED</td>
<td>Undergraduate</td>
<td>1 TO 4</td>
<td>This course offers practical experience in all aspects of live production. Students will work together to produce and direct multi-camera productions in the field at sporting and other live events. Students will rotate through a variety of crew positions while operating various pieces of video and audio equipment in real-life production conditions. Prerequisites: TDMP 243 or by Permission. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>TDMP314</td>
<td>TV &amp; Digital Media Production Remote Television Production</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course is designed to provide hands-on television and digital media production experience working in a supervised production setting at Ferris State University. Student will work with clients that are established between the instructor and the student. Working in teams and working to meet client expectations are key components of this course. Prerequisites: TDMP 243 or by Permission. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>TDMP318</td>
<td>TV &amp; Digital Media Production Film &amp; Digital Media Practicum</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>This is a writing intensive course designed to familiarize the student with a variety of writing styles and formats to both commercial (broadcast) and short story / film mediums. The course also integrates group activities and discussion to further investigate the ever-changing world of script writing. Along with covering the staples of television writing like PSAs, commercials, television dramas and news, this course will also look at short format drama currently in circulation and on the internet (mobisodes). Prerequisites: ENGL 211 or ENGL 250 or by Permission. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>TDMP326</td>
<td>TV &amp; Digital Media Production Script Writing</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>This course will cover the core technology of encoding video, web publishing technologies such as CSS and HTML, optimization of graphics and content creation for a website. As a web producer, students will oversee streaming media technologies, design engaging browser content, social media integration, video sharing, and data asset management and coordinate web hosting and cloud computing. Planning and usability of student-produced websites includes content creation, encoding and embedding video and publishing on the Internet. Prerequisites: TDMP 132 or by Permission. Meets General Education Requirements for Collaboration and Problem Solving. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>TDMP328</td>
<td>TV &amp; Digital Media Production Streaming Media Production</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Documentary Production provides you with a broader knowledge of the fundamentals of television and cinematic video production. By challenging you to expand your creativity, the course will provide you with the tools needed to develop a visually stimulating, technically sound video production of the highest caliber. Prerequisites: TDMP 243 or by Permission. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>TDMP343</td>
<td>TV &amp; Digital Media Production Documentary Production</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Advanced Compositing for Video will expand on the knowledge gained in TDMP 255 (Compositing Video) by challenging students with more advanced techniques. Through project work including &quot;Building a Better Key&quot; and &quot;Extending Your Set,&quot; Advanced Compositing for Video will provide students with a more in-depth skill set for use in the motion graphics work environment. Prerequisites: TDMP 255 or by permission. Typically offered Fall, Spring, Summer.</td>
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<tr>
<td>TDMP355</td>
<td>TV &amp; Digital Media Production Advanced Compositing for Video</td>
<td>ED</td>
<td>Undergraduate</td>
<td>3</td>
<td>Refinement of skills needed for television production activities in the technical area, including the use of the remote camera package, waveform monitors and vectorscopes, high definition standards, and editing equipment. Prerequisites: TDMP 243.</td>
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</tbody>
</table>
In assigned groups, students will produce a short digital film production for a theatrical audience. Production planning, casting, rehearsing, blocking, continuity, shooting for the edit and the post-production activities involved with editing, including sound editing, music and effects, will be covered. All crew positions will be chosen and/or assigned within the class. Talent may be cast from outside of the class. Prerequisites: TDMP 243 or by Permission. Meets General Education Requirements for Problem Solving. Typically offered Fall, Spring, Summer.

Television Studio Production introduces you to basic studio production techniques including lighting, audio, studio camera operation, floor managing, video switcher operation and directing. You will participate weekly in the creation of studio-based productions, which will demonstrate your understanding of each component of a studio production. Prerequisites: TDMP 359 or by Permission.

Special Topics in TDMP: 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

This course will provide an examination of the DVD technology standard, authoring methods and production techniques that contribute to the successful creation of DVDs for various applications. Prerequisites: TDMP 359 or by Permission. Typically offered Fall, Spring, Summer.

This course provides students career focus and internship preparation and planning through discussion, career portfolio development and networking resources. Students will write effective industry targeted resumes, cover letters and design a career portfolio including a video demo-reel. In addition, the course helps prepare students for their internship assignments with in-depth discussions on internship requirements, responsibilities and opportunities. Development of professional network resources, participation in job/career fairs and career promotion technologies will be emphasized. Prerequisites: TDMP 385 and Co-requisites: TDMP 499 and TDMP 466.

This course provides students career focus and internship preparation and planning through discussion, career portfolio development and networking resources. Students will write effective industry targeted resumes, cover letters and design a career portfolio including a video demo-reel. In addition, the course helps prepare students for their internship assignments with in-depth discussions on internship requirements, responsibilities and opportunities. Development of professional network resources, participation in job/career fairs and career promotion technologies will be emphasized. Prerequisites: TDMP 385 and Co-require: TDMP 499 and TDMP 464. Meets General Education Requirements for Collaboration.

Upon completion of the senior sequence of courses (TDMP 464, 466, 499) within the TDMP program, students will complete an 18 credit, 40 hour per week internship at an approved internship location. The internship experience will be designed to provide a real world, applied learning experience across the core competencies required for a career in this field. Students will enroll in TDMP 493 for 6 credits in the summer, either preceding taking 12 credits in the fall semester, or following the completion of 12 credits in the spring semester. Prerequisites: TDMP 499 and TDMP 464 and TDMP 466. Typically offered Fall, Spring, Summer.

Independent study. Various topics and credit load. See your TDMP advisor. Prerequisites: TDMP 499. Typically offered Fall, Spring, Summer.

Advanced Producing and Directing will provide you with practical experience in all aspects of television production and direction. Each week you will work collaboratively with your classmates to produce a half-hour studio program and a half-hour magazine-style program. These programs will allow you to develop and demonstrate your knowledge of pre-production planning, scripting, organizational abilities, production skills, and post-production editing. Samples from your portfolio of work will be showcased in a resume reel that you will create. Co-requisites: TDMP 464 and TDMP 466.
**TDMP499 TV & Digital Media Production**

Advanced Producing & Directing  
ED  
School of Digital Media  
Undergraduate  
6

An appreciation of the theatre arts: the role of the audience; play structure and genres; theatre artists; and the fundamentals of play production. The students will read representative plays, view selected films, and attend live theatre. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture.  
Typically Offered Fall, Spring

**THTR215 Theater Introduction to Theatre**  
AS  
Humanities  
Undergraduate  
3

This course will explore the contextual and historical areas of theatrical design and technical production. Areas include scenic design, costume design and lighting design and stage management. The course will also provide practical experience in one of the areas of the student’s choice. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture.  
Typically Offered Fall, Spring

**THTR219 Theater Beginning Technical Theatre**  
AS  
Humanities  
Undergraduate  
3

The basic physical and vocal skills required in acting on the stage are explored and developed through exercises, improvisation, and scenes. Includes acting theory, stage acting terminology, script and role analysis. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture.  
Typically Offered Fall Only

**THTR222 Theater Acting**  
AS  
Humanities  
Undergraduate  
3

This course will explore the contextual and historical areas of theatrical design and technical production. Areas include scenic design, costume design and lighting design and stage management. The course will also provide practical experience in one of the areas of the student’s choice. This course meets General Education requirements: Cultural Enrichment, and new Fall 2017 Culture.  
Typically Offered Fall, Spring

**THTR224 Theater Theatre Practicum**  
AS  
Humanities  
Undergraduate  
1

Theater History to Mid-19th Century. A survey of the major developments in the physical theatre and drama from 5th century BC Greece to mid-19th century Europe including the origins of Eastern Theatre. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture.  
Pre-Requisites:ENGL 250.  
Typically Offered Spring Only, Odd Years

**THTR255 Theater Educational Theatre**  
AS  
Humanities  
Undergraduate  
3

Typically Offered On Demand

**THTR290 Theater Special Topics in THTR**  
AS  
Humanities  
Undergraduate  
1 TO 3

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  
Typically Offered On Demand

**THTR297 Theater Special Studies in THTR**  
AS  
Humanities  
Undergraduate  
1 TO 3

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  
Typically Offered On Demand

**THTR322 Theater Advanced Acting**  
AS  
Humanities  
Undergraduate  
3

Theater History to Mid-19th Century. A survey of the major developments in the physical theatre and drama from 5th century BC Greece to mid-19th century Europe including the origins of Eastern Theatre. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture.  
Pre-Requisites:ENGL 250.  
Typically Offered Spring Only, Odd Years

**THTR331 Theater Theatre History 1**  
AS  
Humanities  
Undergraduate  
3

This class will consider the development of theatre from the mid-19th century to the present, both western and non-western styles. The physical stage, theatre movements, and representative plays are studied. This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture.  
Pre-Requisites:ENGL 250.  
Typically Offered Spring Only, Even Year

**THTR332 Theater Theatre History 2**  
AS  
Humanities  
Undergraduate  
3

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  
Typically Offered On Demand

**THTR390 Theater Special Topics in THTR**  
AS  
Humanities  
Undergraduate  
1 TO 3

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  
Typically Offered On Demand

**THTR397 Theater Special Studies in THTR**  
AS  
Humanities  
Undergraduate  
1 TO 4

This course covers various topics taught by diverse faculty and may not be offered every semester.  
Typically Offered On Demand

This course meets General Education requirements: Cultural Enrichment and new Fall 2017 Culture.  
Pre-Requisites:THTR 222 or THTR 255 or THTR 315.  
Typically Offered Fall Only, Odd Years
Research and lab based course in dramatic production. Students will receive credit for advanced work in several areas of play production. Areas include Design, Stage Management and Directing. The final project, supporting paperwork and analysis of the process will be critiqued by the Theatre Faculty. This course can be repeated to a maximum of 4 credits. This course meets General Education requirements: Cultural Enrichment Activity and new Fall 2017 Culture Activity. Pre-Requisites: THTR 224 or THTR 319 or THTR 423. Typically Offered Fall, Spring

Special Topics in TVPR - 200 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Studio television production techniques for non-television majors. Students will use studio facilities to produce and direct productions. Typically Offered Spring Only

Special Topics in TVPR - 300 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Special topics in TVPR - 400 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Special Topics in UNIV - 000 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered Fall, Spring, Summer

This college methods course will assist students in the development and use of effective and efficient study strategies that can be utilized in college courses. Students will learn about goal-setting and self-monitoring, learning styles, test preparation and test-taking, lecture and textbook note-taking, time management and concentration, and general strategies for more efficient learning. Through an assessment process, students will be able to identify study skill challenges and will develop strategies designed to help improve study skills. Students will be required to implement the study methods and provide evidence of application of these study methods to other courses. Typically Offered Fall, Spring

Special Topics in UNIV - 100 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Special topics in UNIV - 200 level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

Initial lecture environment for students enrolled in associate degree program in Welding Technology. Theory and techniques pertaining to shielded metal arc welding, oxy-fuel welding/cutting, brazing and soldering methods and applications are discussed. Equipment and consumable materials required for specific welding processes and applications are discussed. Requirements for use of industrial welding codes to develop Welding Procedures and Welder Qualifications are discussed. Introduction to gas metal welding process. Pre-Requisites: Welding students only. Co-Requisites: WELD 113. Typically Offered Fall Only

An introductory course designed to give the Welding Technology student experience in print reading and drafting of common welded products. Course work will include generating multiview drawings, interpreting welding drawings, calculating weld and part weights and an introduction to welding symbols. Also, the student will develop templates for optically guided cutting equipment, calculate plate utilization, and calculate bend allowance. Pre-Requisites: Welding students only. Typically Offered On Demand

Practical experience in the use and application of shielded metal arc welding on various joint configurations in all positions on plate. Oxyacetylene welding, brazing and cutting applications. Introduction to the process of gas metal arc welding in the flat and horizontal positions. Destructive testing methods of weldments to develop Welding Procedure Qualification and Welder Qualification records. Co-Requisites: WELD 111. Typically Offered Fall Only
WELD113  Welding  Welding Processes 1 Lab  TE  Welding Eng Tech  Undergraduate  4

WELD121  Welding  Welding Processes 2 Lecture  TE  Welding Eng Tech  Undergraduate  3
Practical experience in the use and application of out-of-position shielded metal arc welding. Practical experience in the use and application of gas metal arc welding in all positions. Practical experience in gas tungsten arc welding of ferrous and non-ferrous alloys and flux cored arc welding. Continuation of destructive testing methods of weldments to develop Welding Procedure Qualification and Welder Qualification records.  Pre-Requires: WELD 111, WELD 112 and WELD 113.  Co-Requires: WELD 121.  Typically Offered Spring Only

WELD123  Welding  Welding Processes 2 Lab  TE  Welding Eng Tech  Undergraduate  4
A welding theory and practice course offered as an elective to anyone interested in welding. Manipulative skills are emphasized for the gas metal arc, shielded metal arc and oxy-fuel and braze welding processes. An introduction to plasma arc cutting, gas tungsten arc, resistance spot welding, stud welding and plastic welding is included. Appropriate reading assignments are included.  Typically Offered Spring only.

WELD150  Welding  Introduction to Welding  TE  Welding Eng Tech  Undergraduate  2
Non-traditional or advanced welding and processing procedures. Resistance welding, plasma arc welding and cutting, submerged arc welding, automated shape cutting, and stud welding. Design of a weldment, cost estimating of the design, material processing, welding procedure development, and fabrication of the design. Customer repairs with cost analysis.  Pre-Requires: WELD 121 and WELD 123.  Typically Offered On Demand

WELD211  Welding  Welding Fabrication 1  TE  Welding Eng Tech  Undergraduate  5
Non-destructive testing methods: magnetic particle (dry, wet, and fluorescent), dye penetrant, eddy current, radiographic, and ultrasonic testing in compliance with the following codes: A.W.S., D.1-1, A.P.I. 1104, and A.S.M.E. Section #X. Much of the information necessary to satisfactorily complete the American Welding Society's certified welding inspectors' test.  Pre-Requires: WELD 121 and WELD 123.  Typically Offered On Demand

WELD212  Welding  Quality Testing  TE  Welding Eng Tech  Undergraduate  4
The capstone course in the two year Associate in Applied Science degree, assorted construction projects dealing with process selection, joint design, cost estimating, and design of welded projects. Students will also complete a research paper dealing with various forms of welding and joining. Students will be required to complete two written semester projects which will be entered in a national welding contest.  Pre-Requires: WELD 211 and 212 and ENGL 250.  Typically Offered On Demand

WELD221  Welding  Welding Fabrication 2  TE  Welding Eng Tech  Undergraduate  4
Introduction to welding automation used in manufacturing. Review of common justifications procedures and feasibility studies on basic weldments. Includes variations in joint design and filler materials, selection of optimum welding process and equipment. Laboratory will include the set-up and operation of basic automatic welding system with a study of the effects of welding parameters on weld outcomes.  Pre-Requires: WELD 211 and 212.  Typically Offered On Demand

WELD222  Welding  Intro to Welding Automation  TE  Welding Eng Tech  Undergraduate  3
This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student.  Typically Offered On Demand

WELD290  Welding  Special Topics in WELD  TE  Welding Eng Tech  Undergraduate  1 TO 3
Advanced welding theory and practical applications. Emphasizes the economics, feasibility, and fundamentals of welding automation. Fixturing, positioning, safety, and adaptive control devices will be applied to various fixed, flexible, and programmable automated welding processes. Students will be required to program, perform, and analyze various automated welds.  Pre-Requires: Welding students only.  Typically Offered On Demand
The design, drawing, manufacturing engineering, and cost considerations of creating weldments. Includes engineering graphics review, weld joint types and welding symbols, an introduction to estimating welding costs, production considerations needed in designing and fabricating weldments, the use of tolerance dimensioning, geometric tolerancing, mechanical and section properties of materials, an introduction to load and stress analysis and code requirement for welding. Pre-Requisites: Welding students only. Typically Offered On Demand

Continuation of Weld 311 advanced theory and laboratory welding automation course. Emphasizes laser, plasma, robotic and fixed automated welding and cutting applications. Technical and economic feasibility studies are performed. Students will be required to set-up, program, operate, and apply various welding automation hardware and software systems. Pre-Requisites: Weld 311 and Weld 312. Typically Offered Spring Only

An engineering technology course in resistance welding. Information on set-up and operation of resistance welding systems typically found in automotive, appliance, and other sheet metal manufacturing industries. Written laboratory reports will be a course requirement. Pre-Requisites: Weld 311 and Weld 312. Meets General Education Requirements for Collaboration and Problem Solving. Typically Offered On Demand

The student is placed in an industrial setting (for a minimum of 400 hours over a ten-week period) to face the realities of the working world. The unique experience that the student will receive is combined effort of the training site, university and student. Students will be involved in the industrial projects and daily activities of a product designer for their employer. Pre-Requisites: Weld 321 and Weld 322. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand

Typically Offered On Demand

Welding processes, techniques, and methods for joining materials not previously covered. Mechanical and chemical energy joining systems, high energy electrical joining processes, adhesive bonding, and mechanical fasteners. How to and why select a process for a specific application. Pre-Requisites: Weld 412 and Weld 422. Typically Offered Spring.

Application of computer aided drafting, material selection, and finite element analysis software and hardware to facilitate the process of designing weldments. Mechanical and shape properties of materials utilized to determine and analyze weldment design functionality. Design approach methods and programs are addressed. Engineering economic methods are applied to weldment design and processes selection. Students will be required to solve several weldment design problems. Pre-Requisites: Weld 393. Typically Offered Fall Only.

A theory and demonstration course for engineering technology students. Exposure to the typical production welding and joining processes found in today’s manufacturing environment, including process selection, design considerations, and the economics of each. Pre-Requisites: Manufacturing Engineering Technology students only. Typically Offered On Demand

This is a lecture and laboratory course designed to give the student exposure to the chemical composition, metallurgical aspects, applications, weldability, and specific requirements for welding various metal alloys. The metallurgical response to heating and cooling during the welding cycle will be emphasized, along with proper welding techniques and requirements. Ferrous and nonferrous alloys will be addressed. Pre-Requisites: Weld 393. Typically Offered Fall.

Special Topics in Weld 422 - 400 Level. This course covers various topics taught by diverse faculty and may not be offered every semester. Typically Offered On Demand

This special studies course has been designed to allow students to work closely with a faculty member to pursue a topic of specialized interest. Topics for study and project requirements will be negotiated jointly between the faculty member and the student. Typically Offered On Demand
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<th>Degree</th>
<th>Description</th>
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<tr>
<td>WELD497</td>
<td>Welding Special Studies in WELD</td>
<td>1 TO 3</td>
<td>Undergraduate</td>
<td>The capstone course for the welding engineering technology program. Designing, engineering, manufacturing, and managing a welding project. Design of welded structures and machine elements in terms of allowable stresses, joint configuration, material and process selection, welding procedures, equipment specification and purchasing, production forecasting, project supervision, and resource management techniques. Pre-Requisites: WELD 412 and WELD 422. Typically Offered Spring.</td>
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<tr>
<td>WELD499</td>
<td>Welding Welding Proj Engineering-Mgmt</td>
<td>3</td>
<td>Undergraduate</td>
<td>The course focuses on the experiences of women and the significance of gender in society in an international context. Readings, literature, film, and art will be used to study such issues as the social construction of gender, women and work, race and class, the family, women in media and popular culture, domestic violence, and women's spirituality. This course meets General Education requirements: Cultural Enrichment and Race/Ethnicity/Gender. Typically Offered Fall Only</td>
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<tr>
<td>WGST105</td>
<td>Women and Gender Studies Intro To Women's Studies</td>
<td>3</td>
<td>Undergraduate</td>
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