

Ferris State University
College of Health Professions
MOLECULAR DIAGNOSTICS – Bachelor of Science (BS) Degree

REQUIRED COURSES	COURSE TITLE (Pre-requisites)	CREDITS
GENERAL EDUCATION REQUIREMENTS		
http://www.ferris.edu/HTMLS/academics/gened/courses/GenEd-bachelor.pdf		
Communication Competence: 12 Credits Required		
COMM 105 or 121 or 221	Communications Foundation Course (none) Select one: COMM 105: Interpersonal Communication or COMM 121: Fundamentals of Public Speaking or COMM 221: Small Group Decision Making	3
ENGL 150	English 1 (ENGL 074 or minimum ACT subscore of 14 or 370 on SAT)	3
ENGL 250	English 2 (ENGL 150)	3
ENGL 311, 321, 323 or 325	ENGL 311 Advanced Technical Writing (ENGL 250 or 211 w/ C or better) or ENGL 321 Advanced Composition (ENGL 250 or 211 w/ C or better) or ENGL 323 Proposal Writing (ENGL 250 or 211 w/ C or better) or ENGL 325 Advanced Business Writing (ENGL 250 or 211 w/ C or better)	3
Scientific Understanding: 7 Credits Required		
	Met within Major	
Quantitative Skills: 3 Credits or Proficiency Required		
<ul style="list-style-type: none"> • See all proficiency options: http://www.ferris.edu/HTMLS/academics/gened/courses/GenEd-bachelor.pdf • 		
MATH 115 or ACT Math sub-score of 24	Intermediate Algebra (MATH 110 with a grade of C- or better, or 19 on ACT or 460 on SAT)	3
*Social Awareness: 9 Credits Required		
<ul style="list-style-type: none"> • Choose three Social Awareness courses, in at least <u>two different</u> subject areas • One of the Social Awareness courses must be a Foundations course • One of the Social Awareness courses must be at the 200-level or higher 		
		3
		3
		3
*Cultural Enrichment: 9 Credits Required		
<ul style="list-style-type: none"> • Choose three cultural enrichment courses • No more than 5 credit hours in cultural enrichment activities courses may apply to this requirement 		
		3
		3
PHIL 220 OR PHIL 320	Ethics in Healthcare or Biomedical Ethics	3
*Race-Ethnicity-Gender: one course Please note that many Race/Ethnicity/Gender courses also meet Social Awareness or Cultural Enrichment requirements.		
*Global Consciousness: one course Please note that many Global Consciousness courses also meet Social Awareness or Cultural Enrichment requirements.		
MOLECULAR DIAGNOSTICS MAJOR REQUIREMENTS		
Core Curriculum for Health Professions: 8 Credits Required		

COHP 100	Orientation to Medical Vocabulary (none)	1
COHP 101	The U.S. Health Care Systems (none)	3
COHP 102	Safety Issues in Health Care (none)	1
COHP 350	Statistics in Health Care (MATH 110)	3
Professional Support Courses: 7 Credits Required		
CLLS 219	Hemostasis (BIOL 205 with a C or better)	1
CLLS 231	Hematology (BIOL 205 and CHEM 214 with C or better)	2
CLLS 241	Virology-Mycolology-Parasitology (BIOL 108 or BIOL 286 with a C or better)	2
CLLS 252	Introduction to Clinical Immunology (BIOL 205 with a C or better)	2
Biology and Chemistry Courses: 39 Credits Required		
CHEM 114	Intro to General Chemistry (CHEM 103 with a C- or better or a year of HS CHEM and MATH 110 with a C- or better or ACT 19 or SAT 460)	4
CHEM 214	Fundamentals of Organic Chemistry (CHEM 114 with a C- or better)	4
CHEM 324	Fundamentals of Biochemistry (CHEM 214 with a grade of C- or better)	3
BIOL 121	General Biology (CHEM 121 or CHEM 114)	4
BIOL 122	General Biology (BIOL 121 with a C- or better and CHEM 121 or CHEM 114 with a C- or better)	4
BIOL 205	Human Anatomy and Physiology (CHEM 114 or CHEM 121 with a C- or better)	5
BIOL 108 or BIOL 286	Medical Microbiology or General Microbiology (CHEM 122 with a C- or better)	3
BIOL 300	Pathophysiology (BIOL 205 or 321 with a C- or better and CHEM 124 or 214 or 321 with a C- or better)	3
BIOL 373	Cell Biology (BIOL 122 with a C- or better and CHEM 124 or 214 or 322 with a C- or better)	3
BIOL 375	Principles of Genetics (BIOL 122 with a C- or better)	3
BIOL 475	Bioinformatics (BIOL 375 with a C- or better)	3
Molecular Diagnostics Courses: 37 Credits Required		
DMOL 101	Molecular Diagnostics Orientation (none)	1
DMOL 110	Lab Techniques in Molecular Diagnostics (none)	2
DMOL 210	Advanced Lab Techniques in Molecular Diagnostics (DMOL 110 with a C or better)	2
DMOL 220	Clinical Flow Cytometry (DMOL 110 with a C or better, co-requisite DMOL 221)	3
DMOL 221	Clinical Flow Cytometry Lab (DMOL 110 with a C or better, co-requisite DMOL 220)	2
DMOL 236	Techniques in Microbiology (DMOL 110 with a C or better and BIOL 108 or BIOL 286)	2
DMOL 410	Principles of Molecular Diagnostics (DMOL 110 and DMOL 210 with a C or better, co-requisite DMOL 411)	2
DMOL 411	Principles of Molecular Diagnostics Lab (DMOL 110 and DMOL 210 with a C or better, co-requisites DMOL 410)	2
DMOL 420	Molecular Diagnosis of Infectious Disease (DMOL 410 and DMOL 411 with a C or better)	2
DMOL 421	Molecular Diagnosis of Infectious Disease Lab (DMOL 410 and DMOL 411 with a C or better, co-requisite DMOL 420)	1
DMOL 430	Molecular Hematology/Oncology (DMOL 410, DMOL 411 with a C or better)	2
DMOL 431	Molecular Hematology/Oncology (DMOL 410, DMOL 411 with a C or better; co-requisites DMOL 430)	1
DMOL 440	Molecular Genetics (DMOL 410, DMOL 411 with a C or better)	2

DMOL 441	Molecular Genetics Lab (DMOL 410, DMOL 411 with a C or better; co-requisite DMOL 440)	1
DMOL 450	Molecular Forensics/Identity Based Testing (DMOL 410, DMOL 411 with a C or better)	2
DMOL 451	Molecular Forensics/Identity Based Testing Lab (DMOL 410, DMOL 411 with a C or better; co-requisite DMOL 450)	1
DMOL 460	Management and Regulation in Molecular Diagnostics (DMOL 410, DMOL 411, DMOL 420, DMOL 421, DMOL 430, DMOL 431, DMOL 440, DMOL 441, DMOL 450, DMOL 451 with a C or better)	2
DMOL 491	Molecular Diagnostics Internship (DMOL 410, DMOL 411, DMOL 420, DMOL 421, DMOL 430, DMOL 431, DMOL 440, DMOL 441, DMOL 450, DMOL 451 with a C or better)	6
DMOL 499	Molecular Diagnostics Seminar (DMOL 410, DMOL 411, DMOL 420, DMOL 421, DMOL 430, DMOL 431, DMOL 440, DMOL 441, DMOL 450, DMOL 451 with a C or better)	1
	Total Program Credits	124

OTHER PROGRAM INFORMATION: Progression / Graduation

Program Grade Requirements:

- Students must complete BIOL 300, BIOL 373, BIOL 375, BIOL 475, all DMOL courses, all CLLS courses, and all COHP courses with a grade of C or better (ENGL 150 requires a grade of C- or better).

Policy on Repeated Courses:

- If a student earns less than a C in any DMOL or CLLS course, he/she will be required to repeat that course when there is a seat available. Students in good academic standing have priority over a student who needs to repeat the course.
- A student may repeat a maximum of 3 credits of DMOL or CLLS courses. Earning less than a C in DMOL or CLLS courses totaling 4 or more credits will result in a student's being denied from progressing further in the DMOL program.

Program Progression Policy:

- Qualified, accepted students begin the professional phase each May. Professional phase classes take place in Grand Rapids.
- A student may repeat a maximum of 3 credits of DMOL or CLLS courses. Earning less than a C in courses totaling 4 or more credits will result in a student's being denied from progressing further in the DMOL program.
- Failing to earn a C or better in the same course after two (2) attempts will result in a student's being denied from progressing further in the DMOL program. An attempt is defined as enrollment in the course for one week or longer.
- Students in the DMOL program must complete the professional phase within 5 years of beginning. Student who cannot complete the program within the stipulated time will be required to reapply to the professional phase of the program.
- No student will be allowed to enter the clinical experience or graduate from the program with less than a 2.50 cumulative grade point average, or with a grade of less than a C in any of the required professional courses.

Policy on FSU Credit Requirement:

- A minimum of 40 credits must be earned at the upper division (300 or 400) level for the BS degree.
- Students must earn a minimum of 30 of the total BS degree credits from FSU.

FSU Sunset Policy:

- If a student returns to the university after an interrupted enrollment (not including summer semester), the requirements of the curriculum (including General Education) which are in force at the time of return must be met, not the requirements in effect at the time of original admission. In special circumstances, the academic department head/chair may permit the student to finish under the program requirements in force at the time of original admission to the program.

PROGRAM LEARNING OUTCOMES	ASSESSMENT METHODS
Graduates will be able to successfully carry out molecular clinical assays involving a polymerase chain reaction (PCR) amplification.	<ul style="list-style-type: none"> • Final lab practicum assessment • Internship Preceptor Evaluation • Employer Survey
Graduates will communicate effectively to acquire/develop/convey ideas and information to diverse populations.	<ul style="list-style-type: none"> • Internship Preceptor Evaluation • Employer Survey

Graduates of the DMOL program will demonstrate professional and ethical behaviors regarding conduct toward coworkers, conduct toward patients, and conduct toward patient specimens.

- Faculty evaluation of affective behaviors in final lab practicum
- Internship evaluation by preceptor
- Employer Survey

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