

GEOMATICS COMPUTATION/SURE 272

Winter, 2005/06 (3 Credit Hours)

Instructor:	Robert Burtch
Office:	Johnson Hall 304
Office Hours:	Tues 3:00-3:50pm, Wed 9:00-9:50am, Thurs 3:00-3:50pm, Fri 12:00-12:50am
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PREREQUISITE COURSES: MATH 130, SURE 215

COURSE DESCRIPTION:

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.

COURSE OBJECTIVE/FOCUS:

The primary goal for this course is to learn to develop event-driven programs in Windows environment and for surveying engineering applications. At the end of this course the student will be able to write and debug a structured program, develop procedures and function procedures, use logical operators, perform repetitive calculations, work with multi-dimensional arrays, and add visual controls to the graphical interface.

REQUIRED COURSE MATERIALS:

1. Textbook(s):	AN INTRODUCTION TO PROGRAMMING USING VISUAL BASIC.NET, 5 th edition, by D. Schneider, Pearson Education, Inc. Prentice Hall.
2. References:	SAMS TEACH YOURSELF VISUAL BASIC 6 IN 21 DAYS, by Greg Perry, Macmillan Computer Publishing

COURSE SCHEDULE (Lecture: Tues 8:00-9:15am, Thurs 8:00-9:15am):

Week 1 Jan 9 - Jan 13	Introduction: Understand course objectives, grading policy, etc.; Why Programming with Visual Basic. Designing an algorithm. Creating a Visual Basic Application- Environment.	Chapter 1 Chapter 2
Week 2 Jan 16 - Jan 20 (No class Jan 16)	Creating a Visual Basic Application, Objects – Command button, label- and Events. Numbers and Strings	Chapter 3
Week 3 Jan 23 - Jan 27	Creating a Visual Basic Application Input and output, Build-In Functions	Chapter 3
Week 4 Jan 30 - Feb 3	Procedures, Function Procedures Structured programming	Chapter 4
Week 5 Feb 6 - Feb 10	Logical operators, If Statement, Select-Case blocks	Chapter 5
Week 6 Feb 13 - Feb 17	Mid-Term Exam #1 Feb 16 Repetition, Do-Loops, For-Next loops	Chapter 6
Week 7 Feb 20 - Feb 24	Arrays, Creating and accessing an array	Chapter 6
Week 8 Feb 27 - Mar 3	Passing an array between procedures, Two dimensional arrays, Sorting and Searching	Chapter 7
Mar 6 - Mar 10	Spring Break	
Week 9 Mar 13 - Mar 17	Sequential files, Open, Append, Write, Kill, Close, Error trapping	Chapter 8
Week 10 Mar 20 - Mar 24	Sequential Files	Chapter 8
Week 11 Mar 27 - Mar 31	Additional controls and objects, List box, Check box, Common Dialog control. Surveying programming project 1.	Chapter 9
Week 12 Apr 3 - Apr 7	Mid-Term Exam #2 Apr 6 Additional controls	Chapter 9
Week 13 Apr 10 - Apr 14 (No class Apr 13-14)	Database management, The data control, Relational database and SQL	Chapter 10
Week 14 Apr 17 - Apr 21	Database management	Chapter 10
Week 15 Apr 24 - Apr 28	Surveying programming project 2.	
Week 16	Final Exam Week: Day and time to be announced	

ASSIGNMENTS:

All work will be due on the date specified. Late assignments will be assessed a penalty of 5% per day or fraction thereof. All work must be completed to receive a passing grade for this course. Each assignment will be submitted in a report folder. A cover sheet will be included with each assignment that identifies the assignment. Assignments will be typed, double spaced. Program assignments will consist of the following items: a disk containing the program, sample data and any sample output files created in the program. Additionally, the lab report will contain a printout of the source code, a printout of the sample input and output, and instructions on how the program is executed. If the program reads from a data file, there should be a listing of the order in which input is placed in the input data file.

It is assumed that you can put together a correctly structured assignment, free of technical and spelling errors. Assignments with more than 4 combined spelling or grammar errors will be returned to be rewritten. I will require any student that is found to have significant deficiencies in their writing to use the services of the University Writing Center in an effort to improve such deficiencies to a satisfactory level. When graphical output is required from an assignment, the output should be properly identified and located in the appropriate part of the lab report. Periodically through the semester there may be outside reading assignments that require an overview report.

ATTENDANCE POLICY

I understand that each student may upon occasion need to be away from class due to illness or other important matters. The following policy recognizes these life issues but at the same time reflects the real world need to be present in class in order to learn and share your learning with others in the class.

Each student will be allowed to miss up to 3 classes, either lectures or lab, without penalty. These absences may be for any reason and do not require giving me an excuse. A student who is absent a fifth time will be required to withdraw from the course if this absence occurs during the withdrawal period of the semester. If this absence occurs after the withdrawal period the student will receive a failing (F) grade in the course. The three absences a student may have represents 10% of the meeting dates and far exceed any absence policy that would exist in business, industry or other professional areas. Please note, being absent is not an acceptable excuse for not being prepared when you return to class. All laboratory absences must be made up during the semester. It is your responsibility to check with you classmates to obtain the information that was covered during lecture and lab periods.

Exceptions to the Attendance Policy (Verification of all exceptions is necessary):

1. A University-sponsored event in which an excused absence from the Vice President for Academic Affairs office is given.
2. Death of a family member or close personal relation (friends, neighbors).

3. Extended hospitalization (this does not apply to a visit to the health center because of a cold or other illness).
4. Jury duty or being subpoenaed to testify in a court case.
5. Dangerous weather conditions in which driving is considered by local authorities to be unsafe (for commuter students).

Note that exceptions must be discussed with me at the time they occur to be considered an excused absence. What is not likely to be considered an exception include:

1. Day care problems
2. Employment commitments
3. Being in jail
4. Transportation problems

CLASS CONDUCT

It is essential that everyone in this class establish a mutual respect amongst each other in this class. Therefore, there are a few simple rules that you will be asked to adhere to, most of these can be defined as good manners. These rules are:

- Class starts on the hour so please make every effort to arrive on time by planning ahead for any contingencies.
- Class lasts for 75 minutes so do not begin to pack up your books and other items early. This is very distracting to me and your fellow students. You are expected to participate throughout the entire class period.
- Turn off all cell phones, pagers, pda's, and other electronic devices before class. If there are extenuating reasons, please see me.
- During the lecture, feel free to ask questions, but refrain from conducting personal conversations. Again, this is very disruptive.
- Sleeping, eating and reading newspapers are not allowed in class. While in class the student is expected to pay attention and participate in this class and not finish work for another class during this class periods.
- Come to class prepared. Instructional material students should not be without include, as a minimum, writing material, computer disks and calculators.
- Students are expected to check the web page for this course weekly and students are responsible for all material on this web page along with textbook and other readings.
- When you leave the classroom, please pick up after yourself. Try to leave the room cleaner than when you found it.

PERFORMANCE CRITERIA:

60% from exams

40% from assignments

100% TOTAL

Students absent from class for a test must make arrangements to take the exam prior to the next class meeting. Failing to do so will result in a grade of 0%. It is the student's responsibility to call me to set up a time to make up the test. This course will have a cumulative final exam. Exam questions will be of the Short Answer variety with some problems. Most will involve either interpreting or writing Visual Basic code to solve a particular problem.

GRADING POLICIES:

90 - 100% - A Range

80 - 89% - B Range

70 - 79% - C Range

60 - 69% - D Range

0 - 59% - F Range

ADDITIONAL COMMENTS:

This class represents a commitment of time and energy for both the faculty and student. It is expected that the student put in an additional 2-3 hours of work for every credit hour of this course. This number represents an average and not an absolute maximum threshold. This means that some students will have to put in even more time to learn the material presented in this course. Work schedules or other responsibilities do not represent acceptable exceptions to this obligation.

Office hours are given above. Other times can be arranged if needed. If you have problems, please see me as soon as possible. Waiting until the end of the semester may be too late.

FINAL NOTE:

I reserve the right to make needed and appropriate adjustments in this syllabus