CISC106 – General Computer Science for Engineers
Fall 2008

Instructor: Foster McGeary, Ph.D., Assistant Professor
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Office Hours: MWF   10:00 a.m. – 11:00 a.m. (My office hours are held in 415 Smith Hall)
                MW   3:30 p.m. – 4:00 p.m.
                And by appointment

Teaching Assistants:

      TA: Ilknur Aydin, "zjohnson@Udel.Edu"
      Office Hours: TBD, in Smith 102
      TA: Zelphia "Sola" Johnson, "zjohnson@Udel.Edu"
      Office Hours: Fridays, 3:00-5:00 p.m., in Smith 102
      TA: Yin "Amy" Siu, siu@udel.edu
      Office Hours: Mondays and Fridays, 11:00-noon and 1:00-2:00 p.m., in Smith 102

Schedules:

CISC106010

      Lecture: MoWeFr, 8:00a.m. – 8:50 p.m., Kirkbride Hall Room 206
      Labs: CISC106020L: Fr, 12:20-1:10 p.m., Pearson Hall Room 101D (Johnson)
                    CISC106021L: Fr,   1:25-2:15 p.m., Pearson Hall Room 101D (Johnson)
                    CISC106022L: Fr,   2:30-3:20 p.m., Pearson Hall Room 101D (Siu)
                    CISC106023L: Fr,   3:35-4:25 p.m., Pearson Hall Room 101D (Siu)

CISC106011

      Lecture: MoWeFr, 9:05-9:55 a.m., Brown Lab Room 207
      Labs: CISC106030L: We, 12:20-1:10 p.m., Pearson Hall Room 101D (Aydin)
                    CISC106031L: We,   1:25-2:15 p.m., Pearson Hall Room 101D (Aydin)
                    CISC106032L: We,   2:30-3:20 p.m., Pearson Hall Room 101D (Siu)
                    CISC106033L: We,   3:35-4:25 p.m., Pearson Hall Room 101D (Siu)

Required Materials:

(1) MatLab Programming for Engineers,
         Stephen J. Chapman (Fourth Edition)
         Student Companion Site
         ISBN: 0-495-24449-X, 13-digit ISBN: 978-0-495-24449-3, Thomson Learning, 2008
         (We'll cover most all of Chapters 1-6, much of Chapters 7 and 8)

(2) C++ Programming: Visual QuickStart Guide,
         Larry Ullman and Andreas Signer (First Edition)
         ISBN-10: 0-321-35656-X; ISBN-13: 978-0-321-35656-7; Copyright 2006
         (We'll cover most all of Chapters 1-5, parts of Chapter 6)

(3) Visual QuickStart Guide: UNIX, 3rd Edition , Deborah S. Ray and Eric J. Ray
         ISBN: 0-321-44245-8, PeachPit Press, 2007
         (We'll cover chapters 1 and 2 and parts of chapters 3-8 and 13, as needed.)

(4) Smart Card for Sun Rays

(5) Clickers

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Course Description and Objectives

Course Description

Principles of computer science illustrated and applied through programming in MATLAB and C++. Programming projects illustrate computational problems, styles, and issues that arise in engineering computation.

Course Objectives

If you participate fully in the assigned readings, lab exercises, homeworks, projects, and other course activities, by the end of course, you should achieve all of the following objectives:

Objectives for the first two-thirds of the course (MATLAB-centric):
1. Write MATLAB programs (M-files) to do simple calculations, including
    o prompting for input and
    o printing output
2. Write source code that exhibits good style, contains helpful documentation, and can be maintained and updated easily by the original author or another competent programmer
3. Use UNIX commands to create and maintain a basic directory structure
4. Write MATLAB programs to plot functions or data
5. Write more complex MATLAB programs using control structures
    o if/else
    o for loops
    o while loops
    o switch statements
6. Write MATLAB programs that read/write data from/to files on disk
7. Write MATLAB functions that take parameters
8. Work with MATLAB matrix operations

Objectives for final third of the course (C++-centric):
1. Write, compile and run simple C++ programs
2. Use the C++ versions of the control structures studied in MATLAB.
3. Perform basic file Input/Output,
4. Achieve an introductory level of competence in C++
    o You will not become a C++ expert, but you will transfer your MATLAB skills to C++ as a starting point for further study of C++ or other programming languages
    o You will understand differences between MATLAB and C++, including how parameters are passed and how arrays are treated.

Essence of the course:

You will experience the frustrations and rewards of communicating with an inanimate object using that object's restricted language. You will learn to write elementary computer programs, first using the language of the MATLAB software package and then using the C++ language. You will learn to use the MATLAB language to create simple plots of data. In the process, you will acquire some of the computer science concepts that underlie the computations of MATLAB, C++, and computers in general.

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Academic Honesty Policy:

University of Delaware policies for student conduct and academic honesty apply to this course. See the webpage "www.udel.edu/stuguide/08-09/code.html" and related material for details. Cooperative work projects, if assigned, would be clearly identified as such. In general, however, ___all homework and project work must be independently prepared.___ Labs, however, tend to be cooperative and collaborative.

Students are encouraged to discuss course material, problem areas, and related ideas. It is appropriate to help another student understand a particular concept or construct. However, it is specifically not appropriate, for example, to examine another student's code or to isolate another student's coding problem for them. It is never appropriate to copy implementation ideas from other students, or to supply such ideas to them. It is also not appropriate to share either your code or your original ideas with another student or to obtain code or solution procedures from sources other than the intendedly student-accessible material associated with the required texts. If you are ever in doubt about the appropriateness of information exchange in a particular situation, do not engage in that exchange of information.

It is a violation of the Academic Honesty Policy to allow another individual to provide clicker responses on your behalf or for you to provide clicker responses on behalf of another. Use of any electronic device (such as a cell phone) during a test or written quiz is a violation of the Academic Honesty Policy.

Suspected violations of academic honesty are prosecuted through the office of Judicial Affairs, and may result in probation, deferred suspension, suspension, or expulsion. We catch people all the time. Do honest work; otherwise you cheapen your own self-image. It isn't worth the risk.

Attendance Policy:

Attendance at all classes, lab sessions, and tests is required. The absent student is responsible for obtaining information presented in a missed instructional period. Actual topics and material covered may deviate from the syllabus due to class dynamics.

Preparation Policy:

Assigned readings are to be completed before class so that students attending class may identify portions of the material that were not clear and ask questions about that material. Classroom time is spent concentrating on problematical issues and questions of concern to prepared students.

Machine Policy:

Student-submitted programming projects and homework are to be executable on the set of machines known as "the composers." Students are responsible for the care and maintenance of their accounts on any machines they use, and for protecting the confidentiality and integrity of information located on such machines.

Exams are closed book.

Accommodations: If you have a disability that requires special accommodation, please contact me by email (fmcgeary@udel.edu) or by phone (831-0072) within the first week of classes. You may also choose to contact the University's ADA office (http://www.udel.edu/ADA) directly.

Lab Policies

Lab attendance is mandatory. Attendance is recorded and reported on WebCT. Be sure to sign the attendance sheet and return it to the TA before leaving your lab session.

Attending a lab section other than the one to which you are assigned will not meet your lab attendance obligation unless you have advance permission from the affected TAs by email (this will be granted only in unusual circumstances, at the TAs' discretion, and Prof. McGeary must be copied on the email.) In any event, attending a lab other than the one to which you are assigned is on a "space available" basis; you may do so only if there is room after all students attending their correct lab session have found a place to work.

 Your lab grade is affected by the following:
1. Show up for lab. Some credit is given simply for attending the lab.
2. Most lab assignments are to be submitted electronically, however, some lab work may require the submission of paper. Printed lab assignments must be turned in during lab.
3. Observe due dates. Some lab work can only be turned in during the lab, with no provision for completing the work at any other time. If you miss the lab, you will get zero for the portion of the work completed during lab.
4. Respect late penalties.   The acceptance of late work is done as a convenience to those who are unable or unwilling to properly schedule the completion of their work. Learning programming is best accomplished through the completion of a large number of small assignments over the course of a semester. Completing a large amount of work in a short period will not provide the mental conditioning needed to program well on tests.
5. Do honest work. See Honesty Policy.

Reading Assignments are usually made in class. Students are responsible for staying current with the reading.

Quizzes (announced or unannounced) may be given at any time. Quizzes count. Missed quizzes due to unexcused absences will be counted as zeroes. For excused absences, the instructor will substitute a default grade which is the nearest integer approximation of the student's average so far at that point in the course (i.e., the quiz neither helps nor hurts the grade).   Oddly, a perfect score will be substituted if a quiz is missed before any other grades are recorded.

Follow instructions in assignments regarding submission. For homework assignments, some work must be submitted on paper, while electronic submission may be required for other work. Consequently, you must follow the submission instructions in the assignment because you may not submit electronically if the assignment specifically requires paper submission (and vice versa). Paper submissions may only be done in person in lecture for lecture exercises and homework, and in lab for lab homework and lab assignments.   (Exceptions to the mode of submission require prior permission from the TA via email with a CC to Prof. McGeary; Exceptions are done only in unusual, and hence quite rare, circumstances.)

No makeup for in-class assignments except for "official excused absences." When an in-class exercise is missed, there is no makeup. Exercises missed due to an official excused absence will receive a grade equal the average of actual quizzes taken, not to exceed the grade received on the final exam (which must be taken in any case).

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Official excused absences include those where there is a note from the athletic department (e.g. for intercollegiate sports teams) or from the Dean's office (e.g. for serious illness or family emergency). For the occasional cold or flu, missing one or two classes will not seriously reduce your grade.

Disclaimer: Information in this syllabus is subject to change as the instructor sees fit, or as required by Departmental, College, or University policy. Reasonable notice will be given.

Invitation: Please contact me by email, phone, or during my office hours if you would like to discuss any aspect of the course. I welcome the opportunity to be of assistance.

Grading:

First Interim Exam	10 percent	Tentatively set for Friday, October 3
Second Interim Exam	20 percent	Tentatively set for Friday, October 31
Final Exam	30 percent	During Final Exam week
Quizzes	10 percent	(About 10 at about 1 percent each)
Laboratory	10 percent	(10 at 1 percent each)
Homework	10 percent	(5 at 2 percent each)
Two Independent Projects	10 percent	(2 at 5 percent each)

Late work is first graded as though it were on time. This regular grade is then divided by the quantity 1.05 raised to the integer power equal to the number of days the work is late (up to the cutoff date), and that result is truncated to the next lower integer to obtain the recorded grade.   Any work not completed by its cutoff date receives a zero grade for the item. In some circumstances, late homework will not be accepted after the graded assignment has been returned to students who completed it in a timely manner.

An unexcused absence from an exam results in a zero grade for the exam.

Letter grades will be determined by the following scale, which may be altered (but only toward higher grades) at the discretion of the instructor, depending on the final numerical grade distribution.

grade >= 93	A		73<= grade < 77	C
90 <= grade < 93	A-		70<= grade < 73	C-
87 <= grade < 90	B+		67 <= grade < 70	D+
83<= grade < 87	B		63<= grade < 67	D
80<= grade < 83	B-		60<= grade < 63	D-
77 <= grade < 80	C+		grade < 60	F

Approximate Reading Sequence

Sequence	Reading	Topics
1	Chapman Ch 1-2	Introduction
2	UVQ pp 13-42, 91-95	Basic Unix Commands
3	CHAPMAN Ch. 3	Branching and Program Design
4	Chapman Ch 5.1-5.2	User-Defined Functions
5	CHAPMAN Ch. 4	Loops
6	CHAPMAN Ch. 5	User-Defined Functions
7	CHAPMAN Ch. 8.1-8.6	Reading and Writing Files
8	CHAPMAN Ch. 6	Additional Data Types
9	CHAPMAN Ch. 7.2 & 7.3	Cell Arrays and Structures
10	C++ Ch. 1-3	Introduction to C++
11	C++ Ch. 4	Translating MATLAB Code
12	C++ Ch. 5	Functions
13	C++ Ch. 6	Strings and Arrays

Sample late submission grade calculations:

Days Late	Factor	Adjusted Grade	
0	1.000	100	80
1	1.050	95	76
2	1.103	90	72
3	1.158	86	69
4	1.216	82	65
5	1.276	78	62
6	1.340	74	59
7	1.407	71	56
8	1.477	67	54
9	1.551	64	51
10	1.629	61	49
11	1.710	58	46

A note on email:

Use the email facility in WebCT for your correspondence with the TAs and the instructor. Emails set via WebCT will generally be answered within 24 hours during the regular Monday-Friday work week. Responses over weekends and holidays will likely be slower, or delayed until regular instructional days. Email sent directly (i.e., not through WebCT) may be answered with a much greater delay. It is unreasonable to expect email responses between 9:00 p.m. and 8:00 a.m., although it does happen.