COMP 208
Computers in Engineering
Fall, 2017

McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/integrity for more information).

In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded.

1. Instructor and Schedule

Nathan Friedman, ENGMC 325, 514 398-7076

email: nathan.friedman@mcgill.ca
Office Hours: Tu 2:00-3:30
We 11:00-12:30

Lectures (section 1): Tu, Th 11:30-1:00 in RPHYS 112
Lectures (section 2): Tu, Th 4:00-5:30 in ENGTR 0100

2. Teaching Assistants

Check MyCourses for the list of TA's, their contact information and a schedule of office hours. This information will be posted in the content section of MyCourses.

3. Course Resources

I encourage you come to office hours to meet and interact with the course staff. You are also welcome to contact the instructor or the TAs by email with questions you may have about assignments and the course material

The discussion groups on MyCourses are an invaluable resource and we encourage you to raise any questions or issues of general interest there. The instructors and TA's will monitor these forums and try and help answer questions. Other students may be having problems or questions similar to yours and these discussion groups can be of great help.

Textbook

- We will be using an online text produced by zybooks
- There will be required exercises from this text book
- There is a charge for subscribing to this text for the term.
- To access your copy of the text:
    1. Sign up at zyBooks.com
    2. Enter zyBook code MCGILLCOMP208FriedmanFall2017
    3. Click Subscribe
- **You must use your official McGill email address to subscribe. If you use a different email address, your grades will not be recorded properly**
- **Please subscribe during the first week of classes. Complete the four sections of Chapter 1 of "How to use zyBooks". The first set of exercises will be due soon.**

MyCourses resources provide much additional material. These resources include:

- Lecture notes
- Code for algorithms studied in class
- Previous midterms and final examinations
- Reference material on the languages studied

4. Tests and Assignments

There will a midterm test worth 20% of the final mark.

Completion of activities from the zybook text will be worth 10% of the final grade. They must be completed by the due date or they will not be counted.

There will be 6 programming assignments. These will be worth 20% of the final grade.

The final examination will be worth 50% of the final grade.

Programs must be submitted using MyCourses with the source code and, if requested, test cases that demonstrate that the program meets the problem specification.

5. Course Outline

The course has three components. It first covers the design and implementation of programs using C as the programming language. A second and very different language, Matlab, will be studied and used. We shall apply the concepts discussed to an assortment of algorithms that arise in solving many Scientific and Engineering problems.

The following is an approximate outline of the material covered. The times given may vary depending on the specific examples and applications chosen to illustrate the concepts. In addition, there will be review lectures before the midterm and before the final exam.

- A general introduction to programming and machine organization (2 lectures)
- Programming in C – getting started (1 lecture)
- Arithmetic expressions (1 lecture)
- Selection mechanisms in C (1 lecture)
- Loops (1 lecture)
- Functions (1 lecture)
- Files and arrays (1 lecture)
- Pointers (1 lecture)
- Number representation and more C operators (1 lecture)
- Multidimensional arrays (1 lecture)
- Additional Topics in C (1 lecture)
- Searching and Sorting Algorithms (1 lecture)
- An introduction to MatLab (4 lectures)
- Recursion (1 lecture)
- Mergesort (1 lecture)
- Finding the roots of nonlinear equations (1 lecture)
- Initial value problems for ordinary differential equations (2 lectures)
- Numerical Integration (1 lecture)
- Solving Linear Systems of Equations (1 lecture)