Simon Fraser University
School of Engineering Science
ENSC 251: Software Design and Analysis for Engineers
Fall 2015
Facts Sheet

Instructor:
Dr. Lesley Shannon   E-mail: lshannon@ensc.sfu.ca
                            Office: ASB 8819
                            Office Hours: Mondays: 12:50pm-2:30pm
                                               Wednesdays: 11:45am-12:30pm & 3:45-4:30pm

Teaching Assistants:
Eric Matthews (Head TA), Mohammad Akbari, Yawar Khan, Poonam Upadhyay, Rui Wang
Office hours: TBA on the Discussion Board

Class:
Lecture: Monday 10:30am-11:30am, AQ 3182
              Wednesday 10:30am-11:30am, AQ 3182;   &   2:30-3:20pm, SWH 10081
Tutorial: Monday 11:30am-12:20pm, AQ 3182
Labs: Multiple sections (*please be sure to attend the section for which **you** have registered as space is limited.*)
             Each lab group will have two individuals (unless specifically permitted by the instructor).

The Course:
This is a course on software design. Software is a key component for almost all electronic systems- ranging from consumer devices, to mobile phones, signal processing systems, biomedical devices, workstations, etc. This course will extend students' software design skills and introduce them to the object-oriented programming model by providing them with multiple practical software design opportunities.

Course Web Page:
The course web page is at http://www.ensc.sfu.ca/~lshannon/courses/ensc251/. Handouts will be posted here. I will try to post lecture notes before each lecture. We will be using Piazza for the Discussion Board and Canvas will be used to post your marks. However, the majority of the course materials can be found on the course web page.

Course Discussion Board:
All students *must* regularly check the course Discussion board. All course related questions **_must_** be posted to the Discussion board. *Emails of a technical nature to either TAs or instructor will not be answered.* Both good questions *and* good answers will contribute towards bonus marks for the course. Announcements and hints regarding the labs and project will be posted here. I have also created a class mailing list so that last minute announcements can be sent when necessary. *Students are not permitted to send email to this list and should use the bulletin board to communicate.*

Suggested Reading Materials:
Course Textbook:
Problem Solving with C++. Walter Savitch. Addison Wesley, 9th Edition.

Additional Reference Material:
Discrete and Combinational Mathematics: An Applied Introduction. Ralph P. Grimaldi. Pearson Education Inc. 5th Edition. (*Note: This is the textbook for MACM 201 as well.*)

Algorithms in C. Robert Sedgewick. (Parts 1-4: Fundamentals, Data Structures, Sorting, Searching) Addison Wesley.

Numerical Recipes in C: The Art of Scientific Computing. William H. Press, Brian P. Flannery, Saul A. Teukolsky, and William T. Vetterling. Cambridge University Press. (*Note: There is also a "Numerical Recipes in C++."*)

Labs:
There is a weekly 2-hour lab component to the course. Initially, these lab periods will be used to work on and evaluate assignments. The remaining labs will be used to work on the final project. Students are required to follow the lab policies outlined by the School of Engineering Science along with those provided in the lab handouts. *Please read them carefully.* We will be using the software Codeblocks for the lab. You can install it on Windows, Mac, and Linux machines. Be sure to use the same version of the gcc compiler as in the lab (otherwise your code may work on your laptop, but not in the lab or on the server).

Tutorials:

I will provide a bunch of recommended practice examples for both the theoretical and programming components of the course. In some cases, I may provide sample solutions; however, in either case, these examples will not be evaluated. It is highly recommended that you attempt the majority of these tutorials to obtain further practice as these skills will be useful for both your course evaluation and your search for coop placements.

Lab Assignments:

Students will be required to complete 3-4 lab assignments. Although students will work in pairs, each student should attempt to program the assignment independently. Labs will be evaluated by criteria including: the number of test cases they successfully pass, a cohesive system metaphor (clear naming conventions), as well as appropriate commenting, selection of data types and algorithms. ***Team members will be evaluated individually*** and will be expected to be able to answer questions about any and all portions of their software. Students will be required to submit a copy of their lab software electronically. Please note that you will lose 5% off your mark for every ***minute*** that you are late. ***Code submissions will be evaluated to determine if they have been plagiarized.***

Final Project:

Students will be required to work in teams to complete a final project. The project will be evaluated by criteria including: the number of test cases it successfully passes, a cohesive system metaphor (clear naming conventions), as well as appropriate commenting, selection of data types and algorithms and any *additional* features you choose to support. ***Team members will be evaluated individually*** and will be expected to be able to answer questions about any and all portions of their software.

Students will be required to submit a copy of their lab software electronically. Please note that you will lose 5% off your mark for every ***minute*** that you are late. ***Code submissions will be evaluated to determine if they have been plagiarized.***

Exams and Tests:

There will be one midterm and one final exam as part of this course:

       Midterm: **October 19th, in class**   (Focus: All lecture, tutorials, and lab materials completed to date)

       Exam: **December 14th, 3:30-6:30pm**   (Focus: All material covered in lectures, tutorials, and labs)

Mark Breakdown:

- Final Exam (Dec 14th)   50 %
- Midterm (Oct 19th)   25 %
- Lab Assignments   15 %
- Final Project   10 %
- Class Participation ***Bonus***   5 %

Class Participation:

Finally, it is important in this class that people work together. In a design team, everyone needs to contribute to the group. That means speaking up when there's a problem or when you see a solution. Although the Discussion Board will not be marked, good "citizenship" demonstrated through in class participation, in-lab cooperation, and asking and answering each other's questions on the bulletin board will be rewarded with a maximum of a ***5% bonus*** on a student's final mark.

Important Notes: While I promote teamwork and helping each other, code copying and plagiarism will ***NOT* be tolerated. Any individual found copying code from other class members or the web will receive an automatic ***0*** on the ***entire*** lab component. Similarly, anyone found copying during midterms or the final exam will receive a ***0*** for that testing component. ***This type of unethical behaviour will result in an automatic 0 for the class participation bonus, a note in the student's file and a recommendation to the director that you receive a grade of FD in the course- Failure for Academic Dishonesty, which will appear on your transcript.***

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You will be required to sign a statement indicating that you recognize these rules and consequences.

Finally, please take note of the disclaimer posted to the bulletin board regarding improper usage.