CMPT 102 - D100 Introduction to Scientific Computer Programming

Instructor(s): Brian Funt

SFU Burnaby

Calendar Objective/Description:
A programming course which will provide the science student with a working knowledge of a scientific programming language and an introduction to computing concepts, structured programming, and modular design. The student will also gain knowledge in the use of programming environments including the use of numerical algorithm packages. Corequisite: MATH 152 or 155 (or 158). Students with credit for CMPT 120, 128, 130 or 166 may not take this course for further credit. Students who have taken CMPT 125, 129 or 135 first may not then take this course for further credit. Quantitative

Instructor's Objectives:
The course provides an introduction to computer programming and computing science specifically tailored to science students. Matlab will be used as the programming language. Matlab is widely used by scientists across all scientific disciplines. It is popular because it has a very large set of built-in mathematical and numerical routines, excellent graphing and plotting capabilities, and many specialized "toolkits." Furthermore, it is interactive. As a result, students can expect to learn about programming, about computing-related approaches to problem solving, about debugging strategies, and about a language they should find useful in their future scientific endeavours. The lectures will be given in CSIL (Computing Science Instruction Laboratory) so that students will be able to carry out some Matlab exercises during class.

For additional information please see http://www.cs.sfu.ca/~funt/

Prerequisites:
None

Topics:
- Introduction to computing and programming
- Getting started with Matlab
- Matrix operations
- Modular programming using functions
- Control Structures, loops, conditionals
- Implicit and explicit iteration
- Debugging
- Characters and String Processing
- Recursion
- Plotting

Grading:
Assignments 25%, Midterm and quizzes 25%, Final exam 50%
Students must attain an overall passing grade on the weighted average of exams in the course in order to obtain a clear pass (C- or better).

Recommended Books:
Matlab for Engineers, 5th Edition, Holly Moore, Pearson, 2017, 9780134589640, Any addition is acceptable including all the way back to the 1st edition

**Academic Honesty Statement:**

Academic honesty plays a key role in our efforts to maintain a high standard of academic excellence and integrity. Students are advised that ALL acts of intellectual dishonesty will be handled in accordance with the SFU Academic Honesty and Student Conduct Policies [http://www.sfu.ca/policies/gazette/student.html](http://www.sfu.ca/policies/gazette/student.html).