

CS211 - A Functional syllabus

CS211 is a second level programming course using C++.

We will assume that you have mastered basic C++ on the level of CS111 as taught at QC with an earned grade of B or better and go on from there.

If you are shaky with CS111 material Prof. Ryba has graciously granted access to the material on his website (including many examples and past exams). The link can be found at:

<http://venus.cs.qc.cuny.edu/~ryba/Spring16/cs111/> Please review it!

Among other things this course aims to

- further develop your ability to test and debug C++ programs
- further develop your ability to abstract problems and to express them in C++
- develop consequences of the idea that a “program =algorithm + data structure”
- develop your ability to recognize common structures underlying seemingly different problems
- develop your ability to work with pointers
- develop your ability to understand, analyze, and create recursive programs
- present the C++ memory models
- develop your ability to work with dynamic memory in C++
- introduce some basic standard library containers such as vector, deque, list, and the container adapters stack and queue and use them in programs
- introduce you to object based programming, including
 - general concepts of object based and object oriented programming
 - classes and structs
 - operator overloading
 - function templates and template classes
- Depending on the available time, use the above to implement new data types and containers such as
 - rational and imaginary number classes
 - “big integer” number class
 - a bounds-checked array container
 - a vector container
 - a list container
 - a queue container
 - a deque container
 - a stack container.

Projects

Between the lecture and the lab, there will be about 15 (give or take) projects assigned. **Don't panic!!!** ☺ Many of these will be quite small and simple, just to exercise the lecture and lab material. Some projects will be more substantive and challenging but there should be enough time and help available for you to get these done without too much difficulty.

Quizzes

There will be a quiz each week, during the first lab of that week. The quiz will cover the material of the previous week's lecture and lab. They will also include material based on the projects that are then current.

Exams

There will be two exams; a midterm and a final.

Grading

Lab quizzes	10 points
Class notes	10 points
Projects (programs)	20 points
Midterm	20 points
Final	40 points

Textbooks and course materials

Required

There is a lecture notes/workbook/reference book for CS211 at the Queens Copy Center. When the lecture notes are available I will notify you by email. You are expected to bring these notes to lecture and take notes in them.

Reference – not required

The following are some resources that you might find useful:

1. C++ Without Fear: A Beginner's Guide That Makes You Feel Smart (3rd Edition) Paperback –
2. Schaum's Outline of Programming with C++ by John R. Hubbard, J. R. Hubbard, Publisher: McGraw-Hill, Date: May 2000, ISBN-13: 9780071353465
3. <http://eplusplus.com/>

Course website

<http://venus.cs.qc.edu/~waxman/211/>