MTH 4300: Algorithms, Computers, and Programming II

Spring 2024

Course Number: 56474; Section: KTRA

Instructor: Evan Fink

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Student Drop-In Hours: Mondays 2:30 - 3:30, Tuesdays 11:30 - 12:30 PM, in VC 6-296. Note that these are just the hours when I am guaranteed to be around – I'll be around quite a lot, and you're welcome to drop by any time.

Meeting Time & Location: Tuesdays and Thursdays 2:55PM - 4:35PM, VC 6-125.

Recommended Texts: S. Lippman, J. Lajoie, B. Moo, *C++ Primer*, 5th Edition, Addison-Wesley Professional, 2012 and B. Stroustrup, *The C++ Programming Language*, 4th Edition, Addison-Wesley Professional, 2013.

Prerequisite: MTH 3300 or CIS 2300, as well as at least one class in Calculus (MTH 2205, 2206, 2207, 2610, 2630, 3010). **Note: this class is not open to those who have credit for CIS 3100 or CIS 4100. If you have credit for CIS 3100 and have not already been in contact with me about this, please see me immediately.**

Software/Technology: A C++ compiler. See the "Get Started" document on Blackboard.

Learning Goals: Upon completion of this course students will be able to:

- make use of pointers;
- create classes (abstract data types);
- create constructors and destructors;
- write class methods;
- overload functions and operations (polymorphism);
- understand the notion and the implementation of inheritance;
- properly implement portions of the C++ Standard Template Library;
- and solve problems efficiently by constructing and implementing appropriate algorithms and data structures such as lists, stacks, and binary search trees.

This syllabus is likely to evolve as the term progresses.

Class Number	Date	Topics
1	1/25	Intro
2	1/30	Basics of C++
3	2/1	Control Flow in C++
4	2/6	Functions
5	2/8	Recursion
6	2/13	More Recursion
7	2/15	Pointers
8	2/20	Dynamic Memory
	2/22	NO CLASS (CUNY Monday)
9	2/27	Object-Oriented Programming
10	2/29	Classes
11	3/5	Midterm 1
12	3/7	Methods
13	3/12	Overloading Operators
14	3/14	Pointers and Classes
15	3/19	Linked Lists
16	3/21	Linked Lists Continued
17	3/26	Stacks
18	3/28	Trees
19	4/2	More on Trees
20	4/4	Midterm 2
21	4/9	Standard Template Library, Vectors
22	4/11	Maps and Sets
23	4/16	More on Maps and Sets
24	4/18	Inheritance
	4/23	NO CLASS
	4/25	NO CLASS
	4/30	NO CLASS
25	5/2	Virtual Functions
26	5/7	More on Inheritance
27	5/9	Catch-Up
28	5/14	Catch-Up
	R 5/16	Final 3:30 - 5:30 PM (Tentative)