New York University Tandon School of Engineering

CS 2134: Data Structures and Algorithms
Spring 2016

Polytechnic School of Engineering, NYU

Instructor: Dr. Linda Sellie

Contact Information:

Please send a message to me through NYU Classes. Do not send email.

OFFICE HOURS: Thurs. 12:30-1:30, Thur. 4:30-5:30, and by appointment. My office is 10.047 on the 10th floor of 2 Metrotech Center. If you want to meet me right at 4:30 on Thurs., please send me a message on NYU Classes. Otherwise I may be delayed getting to my office because I am talking to students after class. If you'd like to meet me at another time, send a message to me on NYU Classes to request an appointment, including several times when you're available.

Textbook:

Mark Allen Weiss, Data Structures and Algorithm Analysis in C++
Fourth Edition
Published by Pearson, 2014
ISBN-13: 9780132847377
ISBN-10: 013284737X

The library has two copies of the textbook.

Useful link:

http://www.cs.usfca.edu/~galles/visualization/Algorithms.html

Catalog Description:
Abstract data types and the implementation and use of standard data structures. Fundamental algorithms and the basics of algorithm analysis. Grade of C- or better required of undergraduate computer science and computer engineering majors.

Prerequisites:

CS1124(C- or better)

Course Work and Grading.

Your final grade will be determined roughly[1] as follows:

homework assignments	12%
quizzes (based on homework assignment topics)	8%
extra credit question (you must explain your code to me)	1%
4 exams (20% each)	80%
recitation participation, and other evidence of engagement (e.g. answering questions on Piazza, …)	1%

Homework Assignments

Homework assignments and lecture slides will be posted on NYU classes.

Although the homework makes up a relatively small percentage of the final grade, it is a key component to mastering the course material. Experience has shown that you will not do well on the exams if you have not done the homework.

The written portion of your homework assignment must be submitted as a *PDF*. The coding portion of your homework assignment will **only be graded** if it *compiles*.

If your code does not compile, you may comment out the parts of your code that do not compile. To do this successfully, it might be necessary for you provide a code *stub* for the part that you did not get working. Please provide appropriate comments that state you did not get this part of the assignment to work, and if appropriate provide the pseudo code for the part of the code you did not get to work. "Stubs are used commonly as placeholders for implementation of a known interface, where the interface is finalized/known but the implementation is not yet known/finalized. The stub contains just enough code to allow it to be compiled and linked with the rest of the program." from https://en.wikipedia.org/wiki/Method_stub

Late submissions will be treated as a 0 unless otherwise stated on the assignment. Some assignments you will be allowed to turn in late with a %10 penalty, etc. Some assignments will have a bonus for turning the assignment in early. Look for this information on the assignment. If it is not stated, you will **not** be allowed to turn in the assignment late.

Exams and Quizzes

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[1] If you do poorly (i.e. your score is less than 70) on exam 1, 2 or 3, please stop by and demonstrate to me that you understand the material on the exam within one week of receiving your exam grade. If you do this, it is possible for you to receive a C- for the course if you pass the final, you have done well on the quizzes based on homework assignments, and have done well on the homework assignments.
If you are on the border between two grades, more weight will be given to your exams and quizzes than your homework assignments.

Attendance at exams and quizzes is mandatory. Make-up exams or quizzes will only be given in the case of a emergency, such as illness, which must be documented, e.g. with a doctor's note. In such cases, you **must** notify me as early as possible, preferably **before** the exam or quiz is given. If you miss an exam or quiz without a valid excuse, you will receive a grade of zero for that exam or quiz.

Piazza

Homework assignment solutions, announcements, and the occasional helpful hint will be posted on Piazza. *You* are responsible for being aware of any information posted there, so you should check it regularly.

Recitation

Please attend the recitations given on Friday 11:00-11:50 and 12:00-12:50. At the beginning of the semester we will be holding two recitations at each time slot: one for students to review current/ upcoming material, and one to review older material / C++ prerequisites.

Moses Center Statement of Disability

If you are student with a disability who is requesting accommodations, please contact New York University's Moses Center for Students with Disabilities (CSD) at 212-998-4980 or mosescsd@nyu.edu. You must be registered with CSD to receive accommodations. Information about the Moses Center can be found at www.nyu.edu/csd. The Moses Center is located at 726 Broadway on the 2nd floor.

Policy on Collaboration

Cheating will not be tolerated. Absolutely no communication with other students is permitted on quizzes or exams.

You are encouraged to discuss general concepts, key concepts, review class notes, draw pictures, etc. with other members of the class. However, you must *write up the solutions alone*, and *write your programs on your own*. No copying. No cut and paste. No listening while someone dictates a solution. No looking at someone else's solution. No writing down a group answer, etc. All work turned in must be written in your own words. (See http://engineering.nyu.edu/academics/code-of-conduct/academic-misconduct) If you discuss the material with other students, you **must** fully understand the work you submit. If you are not sure whether you are crossing the line between general discussion and inappropriate collaboration, please ask me. **If you discuss the material with anyone else, you must list all collaborators.**

If you allow your work to be copied, you are cheating.

Cheating may not only result in a zero grade for the assignment/quiz/exam and the CS department being informed, potentially you will receive a zero for the entire course, and possible additional actions at my discretion including involving the CS department and the administration.

NYU School of Engineering Policies and Procedures on Academic Misconduct

Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who

A. breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.

B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:

1. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam for someone else; violating other rules governing the administration of examinations.

2. Fabrication: including but not limited to, falsifying experimental data and/or citations.

3. Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.

4. Unauthorized collaboration: working together on work that was meant to be done individually.
5. Duplicating work: presenting for grading the same work for more than one project or in more than one class, unless express and prior permission has been received from the course instructor(s) or research adviser involved.

6. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.

APPROXIMATE SCHEDULE

Please check for updates during the semester

Exam Dates:

- Exam 1: Feb 19
- Exam 2: March 25
- Exam 3: April 15
- Exam 4: TBD

The class before an exam will be used for catching up on the schedule and for review

Topic	Chapter or other resources
Algorithmic Analysis	2
"	"
C++	1.1-1.2.4, 1.4-1.6 & http://www.bogotobogo.com/cplusplus/C11/5_C11_Move_Semantics_Rvalue_Reference.php
C++	"
The STL	3.3-3.4
STL cont.	
Recursion	1.3
Sorting	7.1-7.3, 7.6
Sorting cont.	7.7
Linked Lists	3.1-3.3, 3.5
Linked Lists	"
Stacks & Queues	3.6-3.7
Compilers	
Compilers	3.6.3
Trees + Binary Search Trees	4.1-4.3
Binary Search Trees cont.	"
Red-Black Trees	12.2
Hash Tables	5.1-5.4, 5.6
Hash Tables Cont.	"
Graphs	9.1, 9.3.1
Priority Queues	6.1-6.3
Graphs cont.	9.3.2
DFS & Topological Sort	
TBD	