CSCI 135 SOFTWARE ANALYSIS & DESIGN 1 SPRING 2018

Section 02: Monday, Wednesday 7:00 – 8:15 PM, Hunter North 510
Instructor: Subash Shankar (subash.shankar@hunter.cuny.edu)
Office hours: Mondays 3:30 – 5:30 in Hunter North 1000F (Graduate advising is given priority after 5:00)

Sections 01 & CSH1: Monday, Thursday 8:10 – 9:25 AM, Hunter North 118
Instructor: Genady Maryash (gmaryash@hunter.cuny.edu)
Office hours: Wednesdays 12:00 – 2:00 PM in Hunter North 1001B.

Pre-/Co-requisites:
The prerequisite is CSCI 127 or instructor's permission. At the very least, you should have written, compiled, and run a greater than one page long program containing iteration (while/for) and selection (if) statements.
CSCI 136 is a co-requisite, and you will receive a 0 in 135 if you don't take 136. If you have already passed 136, you must contact me before the 2nd class, so that you can be added to a BlackBoard section and your work can be graded.

Text:
Walter Savitch, Absolute C++, 6th Edition, ISBN 0-13-397078-7
You may also use any other less expensive print or electronic edition, as long as you can find corresponding topics on different pages. You are responsible for all the material on the reading list whether or not covered in lectures.

Software:
You may use 1001C (in CSCI 136) or 1001B to do your work for this course. The standard Linux/Unix/MacOS C++ compiler is g++. If you wish to use a home computer, there are several free Linux OSs which you can install for dual-booting with Windows, including http://www.ubuntu.com. If you want a Linux-style environment for windows that doesn't require installing Linux, http://cygwin.com is an alternative.

Grading:
5% Mid-lecture quizzes. Two lowest quiz scores will be dropped to account for unavoidable absences.
25% Programming Projects (3-4) This may not seem like a lot, but beware that many exam questions will be based directly on these programs.
35% each Midterm and Final Exams.
Your 136 instructor also acts as your grader and is thus the first point of contact for any grading questions.

Guidelines for final grades:
A: You understand the concepts well enough to successfully understand and solve a problem by implementing a C++ program on your own.
B: Between the above and below.
C: You understand all basic C++ concepts, but have trouble implementing a complete correct program.
F: You do not understand basic C++ concepts, or are unable to implement programs.

Late Policy:
Late project submissions lose 10% of the grade per 24 hours of lateness – proportionally to the time passed.
Make-up exams are not given under any circumstances.

Department's learning goals:

- Have a deep practical knowledge of one widely used programming language
- Be experienced in working in at least two widely used operating system environments
- Be able to apply principles of design and analysis in creating substantial programs and have experience working in teams on projects of moderately realistic scope.

How to Learn:

- From the beginning, students will be expected to work independently outside of the lectures. There will be very little "hand holding" in the course – you are expected to find your way around your computer on your own . For example, the way each of you will save your work, compile/debug an assignment, etc. will vary. These techniques will not be covered in class. Get started NOW (especially if you are going to install your own compiler and/or OS software). The first programming project is due soon.
- There will be many obstacles to overcome, both in absorbing the many examples of C++ programs and in doing the assignments. It is difficult to understand software development concepts without sitting in front of a computer many hours a week actually writing and debugging programs. Attacking the obstacles head on, outside of class time, in front of a computer, is the key to success. Keep trying, if your program is not working, try again. Still not working? Try again. And again. And again. When it comes to programming, the learning is in the doing. There is no substitute for spending many hours in front of a computer – trying and failing, trying and failing, trying and failing – until you finally get your program up and running correctly. Every time you fail, you actually learn quite a bit, and to pass the course, you will repeat this trying-failing cycle many times, every week of every month during the entire semester. There are virtually no "slow points" during the semester.
- There will be approximately three programming projects. By far, the main cause for an unsatisfactory final grade is falling behind on the assignments. Exams are largely based on the programming assignments. If you don't do the assignments, on time, you will almost certainly not pass the tests.

Questions:

Ask many in class! Questions may also be asked on Piazza, office hours, or to your 136 instructor (especially for those needing hands-on assistance). The beginning of each 136 class is also devoted to answering questions. The department also offers tutoring (in the Tutoring Center).

Course Goals:

This course is ...

- An introduction to software development, using the C++ programming language. Software development is a skill involving understanding the problem being modeled, as well as expressing a solution using a programming language. Thus, it has both conceptual and technical components. The successful student will be able to clearly and logically transform a problem, while being comfortable with C++ to express the transformed problem.
- A preparation for further courses in computer science. This course comprises the ABCs of computer science, and you're not allowed to forget it anymore than you can forget the alphabet after kindergarten. Students who expect to take more advanced courses in computer science need to go beyond "understanding" the material presented in this course – they need to master it.
- Time consuming, very, very time consuming. Any programming course takes up a lot of a student's time. In addition to the time spent in class, most students will need to spend between 10 and 20 hours a week at a computer. That makes for a total of 15-25 hours a week.
- Will require you to dedicate JUST FOR THIS COURSE 15-25 hours a week of sitting in front of a computer actually writing and debugging programs, no kidding!

This course is **NOT** ...

• An introduction to computers in general. we will not cover: Linux, networks, databases, etc. This course teaches a specialized skill – programming – and only programming. You should already possess basic computer skills such as compiling simple computer programs, editing files, manipulating files, etc.

• An overview of the C++ language. C++ is a huge language with a lot of highly technical details. We will cover the fundamentals of C++, but the focus is on designing algorithms and solving problems.

• A good idea to take if you are working full time and taking a full course load, or, for any other reason(s) you don't have a lot of free time to devote to CSCI 135. Although much of the material isn't especially difficult, it usually requires many, many hours to master (see above). Be honest with yourself. Make sure this course is for you, – now – at this point in your academic life. If you would like to discuss the time requirements further please feel free to come talk with me.

Bulletin Board:

You should check the Blackboard (http://bb.hunter.cuny.edu) sites for both 135 and 136 regularly, since all class material will be posted there. We will use Piazza (https://piazza.com/hunter.cuny/spring2018/csci13500/home) for class discussion. Please make sure you have configured BlackBoard to use your preferred email address (your Hunter email address, by default), since you are responsible for any email I might send there.

• I ask that all cell phones be put away in class. • All course material (including lectures, solutions, etc.) is owned by me and protected by copyright. You may use material for yourself, but any other use (including posting on websites, whether free or not) is illegal without my express written permission.

• We take academic honesty very seriously, and any violation results in an automatic F for the course along with sanctions in accordance with Hunter College procedure. • Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

• In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of Accessability located in Room E1124 to secure necessary academic accommodations. For further information and assistance please call (212-772-4857)/TTY (212-650-3230).

• In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College. * a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444). * b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123. CUNY Policy on Sexual Misconduct Link: http://www.cuny.edu/about/administration/offices/la/Policy-on-SexualMisconduct-12-1-14-with-links.pdf