Syllabus
COSC-051-20 - Computer Science I - Summer 2020
Jul 6, 2020 - Aug 6 2020

1:00 pm - 3:00 pm Monday, Tuesday, Wednesday, Thursday

Instructor: Willis Addison Woods, Ph.D.
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Office Hours: Monday, Tuesday, Wednesday 11:00 am – 12:15 pm, STM 342A
TAs: TBD (see TA Calendar link on Canvas for office hours)

Course Description: This is an intense, accelerated summer experience. The rapid pace is mitigated by relatively small class sizes and individual attention available to each student. During the normal school year sections may have 30 or 40 students. Instructors generally have less availability and personalized assistance is often provided by teaching assistants. Summer sections typically have 10 or less students. This results in more personal interaction with the instructor and one-on-one assistance with complex concepts and programming techniques. Take advantage of this opportunity to completely and thoroughly explore exciting advanced topics and develop proficiency in one of most venerable programming languages within industry and academia alike.

This class is intended for computer science majors and minors. Other students with a serious interest in learning C++ programming may also take this class. Topics covered include: basic data types, the C++ string class, variables and constants, and their declaration, input/output (cin/cout) operators, assignment operators, arithmetic operators, control structures for selection, control structures for repetition, basic file operations, user-defined functions, value and reference parameters, scope rules, name precedence, function overloading, template functions, elementary software engineering principles, Standard Template Library (STL), the vector class, elementary searching and sorting, abstract data types, stacks, user-defined classes, operator overloading, pointers, self-referential classes, dynamic object creation and destruction, linked lists, and recursion.

This course prepares computer science majors and minors for subsequent course requirements. It also satisfies the college science requirement.

Prerequisites: Working knowledge of computers. Although there are no formal prerequisites, you do need to know how to use computers: create, modify, and delete files; create and remove directories; use the Web; use e-mail; and other like skills. You will also be assigned, and are required to use, an account on the class UNIX server.

Course Objectives:
- Learn the C++ programming language
- Learn to analyze problems
- Learn to break problems into components that can be solved by computer programming
- Use C++ to create computer programs that implement problem solutions

Required Text:
Starting Out With C++, Early Objects, 10th Edition
by Tony Gaddis, Judy Walters, and Godfrey Muganda

Optional Reference:
C++ Primer Plus, 6th Edition by S. Prata

Grading:
Exams: Midterm (18%), Final (25%)
Programming Projects: A total of 4 assignments (40%)
Homework/Quizzes/Class participation & Citizenship (17%)

Grading Scale:

Grade	Range
A	94 and up
A-	90-93
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	74-76
C-	70-73
D	61-69
F	60 and below

Submitting Assignments: Unless otherwise specified, assignments will be submitted to Canvas. All electronic submission requirements (source code, reports, conclusions, etc.) must be posted to Canvas prior to the due date and time. Source code should be text files with the appropriate extension. Other file formats will be specified in the project description if applicable, naming conventions will be specified in the project description.

Additionally, please note:

- Unless otherwise specified in the assignment document; all assignments are due before class begins on the due date.
- A 2.5% penalty will be deducted per quarter-hour for any assignment that is submitted late.
- No make-up exams or early exams will be provided.
- If you miss a pop quiz or in-class graded exercise, no make-up will be provided (see below for possible exceptions).
- In general requests for due date extensions will not be considered. If you have a personal or family emergency that affects your schoolwork, I expect you to notify me immediately. Your notification to me must include contact information for your academic advisor. After discussing your emergency situation with your academic advisor and/or dean's office; I will determine if an accommodation is justified. If you have a medical issue or emergency notify me immediately. Once the medical situation is under control I will need a copy of a doctor's note explaining any missed class time or inability to work on assignments. At that time, I will determine if an accommodation is justified. Your doctor's note must be acquired **prior to** the missed requirement and must **clearly and definitively state** that you were unable to complete academic duties during the time of the missed requirement.

Programming Environment: This class is about the use of computer programming to solve problems. You will do a lot of C++ programming. There are several Integrated Development Environments (IDEs) that you can use to create C++ programs. I will provide links to some of these options separately. Installation and use of any such third-party application is optional, is your responsibility, and will not be covered during class. ALL graded projects and homework assignments MUST compile on the computer science server specified for this class (cs-class.uis.georgetown.edu). Before submitting any programming assignment, your source code must be copied to the server and compiled using the GNU C++ compiler provided on that server. Again, there are many different development environments and computer tools that you may use to accomplish this. The simplest option is to create your programs directly on the server using a UNIX text editor. This is perfectly acceptable and eliminates the need to transfer files to the server prior to compiling your program.

Attendance and Expectations: Attendance is required. Not attending lectures will have an adverse effect on your class participation score. Further, you will be responsible for everything covered in class even if it is not in the textbook. Class participation could include pop quizzes and if you miss one of those there will be no makeup. If you need to leave the classroom during a lecture feel free to do so as quietly as possible. Please turn off cell phones or set them to vibrate prior to the start of class. Food and drinks are not allowed in the classroom.

Academic Honesty: I am required to report any suspicion of academic dishonesty to the Honor Council.

Exams must be entirely your own work. During exams, you are not allowed to view any other students work, show any other student your work, or engage in any discussion unless you need to ask **me** to clarify something regarding an exam question. Exams will be closed book and closed notes unless otherwise specified.

All homework assignments and individual projects must be the result your own effort. You may use outside resources such as research papers and books from the library but any solution techniques taken from outside sources must be properly documented. In the case of computer code submissions, these references should be cited in the program comments. Material from web sites should be cited with a url and adequate information to determine what was used from that site.

You are permitted to have conversations and interactions with other students concerning general programming techniques. This means discussions that one would reasonably expect to occur standing in front of a whiteboard. This **explicitly precludes** the detailed discussion of program code or other assignment products. You are **strictly prohibited** from discussing the specific details of your project or homework solution. You are **strictly prohibited** from viewing or copying someone else's source code. You are **strictly prohibited** from allowing someone else to view or copy your source code. You may not email or otherwise provide to someone else the files associated with your programming project or other assignment documents. You may not submit someone else's file or files as your own.

Weekly Class Schedule: A class schedule is provided separately. It is possible that inclement weather, such as a snow emergency; or some other event could shut down the Georgetown campus. If that happens our class will meet as scheduled using Canvas Zoom Conferencing. I will schedule some "virtual office hours" using Canvas and/or test this out in class. You are encouraged to connect to one of those sessions early in the semester to ensure that you can successfully join and participate in a Zoom meeting. The morning a campus shutdown is announced is not a good time to start dealing with connection issues.

Course topics, administrative guidelines, and other specifics discussed in this syllabus are subject to change. Notice of any changes will be provided in class.