CSC112: Introduction to Computer Science II (Revised for Online Instruction)

Dr. Robert Lowe

Spring (March 30–May), 2020

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Office Phone: N/A
Office Hours:
MWF 1:00PM – 2:00PM
TR 3:00PM – 4:00PM
Synchronous Time: W 2:00 – 4:00
Office: Zoom Room (See Blackboard)
Primary Contact Point: The Tartan

Syllabus Revisions

Normally, a syllabus cannot be revised in any substantial way. Schedules and activities may adjust, but the overall layout of a course should be settled by the first day of classes. This semester, however, is anything but normal. We are shifting from a traditional in-person class format to an online course for our final few weeks of this semester. As such, this requires a more substantial change to the syllabus. This document contains the revised format of the class. Grading and expectations for the period prior to March 30, 2020 remain in full force. The grading categories will not change, but the requirements to receive credit from this time forward will change. The end result is a hybrid course that met in person for the most of the semester and is now online.

Please read this syllabus carefully. This document specifies how we will proceed for the remainder of the semester.

Course Description

A continuation of Computer Science 111 with emphasis on advanced programming features. Laboratory work supplements and expands lecture topics and offers supervised practice using programming.

Required Materials

- Big C++. 3/e. Cay Horstmann. https://tinyurl.com/bigcpp
- An internet connected computer of some sort.

Prerequisites

CSC111

Course Goals

- Gain an advanced understanding of Object Oriented Programming.
- Learn to use Object Oriented Analysis and Design to build large complex programs.
- Gain a preliminary understanding of low level programming concepts, especially memory addressing.
- Increase your knowledge of using and programming the UNIX operating system.
- Hone your knowledge of programming tools like make, g++, and gdb.
- Learn advanced tool usage for programs like git and gdb.
- Begin to establish an online portfolio to make yourself attractive to future employers.

Course Structure

Methods of Instruction

This course will meet online for the remainder of this semester. The primary point of contact will be via The Tartan (aka blackboard). In an online course, material is usually split between synchronous and asynchronous modes of instruction.

Synchronous Instruction

Synchronous instruction activities are activities where the entire class meets at the same time and performs the activity together. This is, of course, difficult in an online environment. We will therefore rely more on asynchronous activities, which are outlined in the next section. However, synchronous instruction is needed because it affords you with the best ability to ask questions, and it gives me the best assurance that you are being honest during exams. **We will have one weekly synchronous session during our normal class time (2:00 – 4:00) every Wednesday, beginning April 1.** We will also have a synchronous session for our final exam. These sessions will take place via Zoom and links will appear on the Tartan. With the exception of exams, these sessions will likely be shorter than a normal class period. Synchronous activities will include:

- Lab Periods where you can work and ask questions of me and each other.
- The Final Exam

Asynchronous Instruction

Asynchronous instruction is what makes online learning desirable to so many students! However, it is also the biggest disadvantage. These are course materials which will be posted online, which you can explore at your own pace on your own schedule. That last bit is the key, for if you do not schedule time to actually avail yourself of these things, you will not look at them and you will perform poorly on the final portion of the course. My recommendation is to use these during the normal class periods, and to help you along I have strict due dates on completing asynchronous activities. These activities and materials include:

- Lab activities, where you will code along with a recorded video. Most of these will get you started on a lab and ask you to make a small last step.
- Programming Projects - These will be posted on the specified days and will include a video introducing them.
- Online Discussions via Blackboard Forums – Please post questions and help each other. Chat about our courses, or share some nice programming memes. Also, there will be a problem of the week. Solving these problems will earn you a few points of extra programming assignment points!

Grading

This course is graded using a weighted average among four categories. The assignments within each category are equally weighted and are all graded out of 100 points. Hence your final numeric grade is computed by finding the average of each category, and then multiplying them by the corresponding weight. The weights for each category are as follows:

Category	**Weight**
Exams	20%
Attendance & Hands-On Lab Activities	20%
Programming Assignments	35%
Term Project*	25%

* Note that your course letter grade cannot be higher than the letter grade you earn for the term project.

Grade reports will be returned to you via a private GitHub repository. If you notice any inaccuracy in your grading, please report it as soon as possible.

Letter grades will be assigned according to the following scale:

A+	96.7–100%	B+	86.7–90%	C+	76.7–80%	D+	66.7–70%	F	less than 60 %
A	93.3–96.7%	B	83.3–86.7%	C	73.3–76.7%	D	63.3–66.7%		
A-	90–93.3%	B-	80–83.3%	C-	70–73.3%	D-	60–63.3%		

Assessments

The standards of assessment in each grading category will be as follows.

Exams ***(20% of the final grade)***

There will be two exams given in this class: a midterm exam and final exam. The final exam is not comprehensive, it merely covers the material from the second half of the course. Both exams are mixed format exams including multiple choice, fill-in-the-blank, and short answer questions.

The final exam will be administered online during a synchronous session.

Attendance & Hands-On Lab Activities ***(20% of the final grade)***

Attendance in this class is mandatory, and attendance is defined as full participation for the entire duration of a class period. Attendance will be taken at the end of every class period. Partial attendance for a class meeting will receive no credit. All assignments will be due at the beginning of their respective class period and all quizzes will be given during the first few minutes of their respective class periods. Failure to submit an assignment and/or failure to take a quiz will also result in an absence for the day.

In most class meetings, there will be a hands-on activity which we will complete together as a class. Should any part of these assignments not be completed in class, it is your responsibility to complete them on your own. In-class lab assignments are due on the Friday of each week, and are turned in electronically. No late lab submissions will be accepted.

For the final part of the course, these labs will be conducted by your following along with a recorded lab lecture.

Programming Assignments (35% of the final grade)

There will be **three** programming assignments given throughout the year. You are expected to work independently on these assignments. The source code you submit must come from one of three sources:

- Your own original code.
- Code from class examples and lab assignments.
- Code from your textbook.

If you do use code from class examples and/or your textbook, you are required to cite the sections of your code that are not original. Using source code from any other source will be considered cheating, and will be dealt with according to the cheating and plagiarism policy stated later in this syllabus. (This includes paraphrasing code found on code repository sites such as GitHub, git lab, etc. It also includes using code snippets from help sites such as stack overflow. You may use these sites to study, but you must not ever submit code from these sources as your own!)

Term Project ***(25% of the final grade)***

There is a project which is due at the end of the term. The project is an open ended project in that you will create a video game of your choosing. The constraints of this project are:

- The game must be written in C++.

- The game must make use of the FLTK graphics library.
- The game must consist only of source code form the following sources:
  - Your original code.
  - Code from the textbook.
  - Code from labs and in-class coding examples.

  As is the case with the programming assignments, you must cite the source of any code you use in this project. Doing otherwise constitutes plagiarism.
- At the end of the term, you will make the code public under an open source license of your chosing.

This project is assigned as of the beginning of the course, and various milestones will be announced as the semester progresses.

Your overall letter grade for the course cannot be higher than the letter grade on this assignment.

Schedule

This is the tentative schedule for the remaining time in our course.

March, April, May 2020

Su	Mo	Tu	We	Th	Fr	Sa
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	1	2
3	4	**5**	6	7	8	9

- **March 30 – April 3**
  - Overloaded Operators
  - FLTK Keyboard Input
  - Lab Activity: Etch - A - Sketch (Due April 6 at 11:59PM)
- **April 6 – April 10**
  - Sprites and Collision Detection
  - Animation and Game Loops
  - Lab Activity: Trajectory (Due April 13 at 11:59PM)
  - **Program 2 - Game of Life** Due Friday, April 10 at 11:59PM

- **April 13 – April 17**
  - Backtracking (Read Chapter 11.6)
  - Lab Activity: Insanity (Due April 20 at 11:59PM)
  - **Program 3** – Pegboard Games Assigned (Due Friday, April 24 at 11:59 PM)
- **April 20 – April 24**
  - Advanced Use of Debuggers
  - Machine Code and C
  - Read `https://learnxinyminutes.com/docs/c/`
  - Lab Activity: Disassembling a Program in gdb (Due April 27 at 11:59 PM)
- **April 27 – April 30**
  - The UNIX Memory Model
  - Lab Activity: Smashing the Stack for Fun and Profit (Due April 29 at 11:59 PM)
  - **Course Project Due** April 29 at 2:00 PM
- **Tuesday May 5 – 3:30PM** - Final Exam

Course Policies

Late Policy

No late work will be accepted under any circumstances (except as mercy and decency may dictate in extremely rare events).

Extra Credit

No extra credit will be given under any circumstances.

Excused Absences

In some cases, absences may be excused. These include:

- School Sanctioned Events (Sports, Concerts, etc.)
- Severe Illness
- Family Emergencies
- Court Appearance / Jury Duty

In the case of a school event, notice must be given at least one week prior to the absence. The notice must include a signed note from the faculty or staff member in charge of the event. This note must be given in physical form, electronic notes will not be accepted. In the case of illness, a doctor's note is required. Note that except in extreme circumstances, doctor's appointments do not qualify as a valid reason to miss a class. Please be respectful of the other students, and schedule appointments during your free time.

Family emergencies will require some form of proof. Where possible, you must give advance notice of missing a class. The exception to this would need to be fairly severe, and hopefully it will not come up. For court appearances and/or jury duty, you must provide a copy of your summons. You may redact any details you wish, save for the actual date and time of your appearance. Court appearances must be cleared at least one week in advance.

Making Up Excused Absences

Should you be in a situation in which you receive an excused absence, this in no way will extend your due dates (excepting extreme emergencies). You must make up any test at a designated time prior to your excused absence. Also, homework or projects must be submitted prior to the class period in which they are due.

Communication and Extra Help

You are always welcome at office hours for help with any questions you may have about the course. For help at other times during the day, stop by or call my office to see if I'm available. You can also contact me by email, but often I can better help you face to face and may respond with

a request that you come to see me. Note that I do not typically respond to email between 5 p.m. and 8 a.m. You may make appointments to see me at other times if your schedule does not permit you to attend my office hours.

Plagiarism and Cheating

You are expected to do your own work. Never submit the work of others, never give unauthorized assistance to others, do not use unauthorized aids during exams, and do not ask for help from other faculty members without the approval of your professor. Plagiarism and cheating are serious offenses that will not be tolerated. Explanations regarding these offenses and how they are handled can be found in the MC Student Handbook at
https://www.maryvillecollege.edu/academics/catalog/handbook/section-nine/.
You are expected to read and understand these policies. Offenses on specific assignments, quizzes, or exams will result in a score of 0 on the relevant assignment, and a letter of censure will be placed in your college file. Repeat offenses will result in further disciplinary action, including the possibility of failing the course.

Students with Disabilities

Any student who feels s/he may need learning or physical accommodation(s) based on the impact of a disability should contact Services for Students with Disabilities to discuss your specific needs. Please contact 981-8124 to coordinate reasonable accommodations for students with documented disabilities. The Disability Services office is located in the Learning Center in the basement of Thaw Hall. Undocumented disabilities will not be accommodated.