

CSC 6003 - Foundations of Programming

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Course Description: An introduction to programming concepts. Emphasis will be placed on algorithms, test driven design, development, and structured programming in the Python language. Topics include program development, modularity, variables and data types as numbers, strings, arrays, and lists, plus the basic programming concepts as conditionals and Boolean algebra, loops, I/O operations, classes and objects, abstract data types, tree and graph data structure.

Textbook: Open-source texts and resources to be employed throughout the course.

Course Objectives: At the completion of this course, students should be able to

1. understand basic data manipulation in a programming language, including variables, data types, and Files.
2. understand basic Flow control in structural programming languages, including if statements, loops, and functions.
3. understand advanced data types, such as strings, arrays, and objects.
4. understand and apply the OO paradigm and its key concepts: data abstraction, encapsulation, inheritance, and polymorphism.
5. understand the use of recursion in methods and classic data structures.

Course Expectations: I expect that you will spend a reasonable amount of your time outside of class fully mastering the material. You should plan on spending at least twenty (10) hours a week on work outside of class. This time will be spent on reading, studying, and problem-solving tasks.

Activity	Hours
Lectures / In-class exercises	2 hours per week
Outside reading and video watching	2 hours per week
Projects/Quizzes	6 hours per week

I further expect students to keep up with the corresponding reading. Remember, you will only get out of this class what you put into it.

Lecture and Attendance: I expect students to attend or watch all lectures, pay full attention, and take notes when appropriate. You should read ahead in the textbook, so you are prepared for each class. I will be posting lecture notes for each class ahead of time on Google Classroom. You will need to take notes in addition to these. General good practice is to download and print these documents to take additional notes on them, or simply take notes in a notebook and use the lecture notes as reference.

There will be a series of in-class practice exercises at the end of each unit.

Please respect your classmates by silencing your cell phones and other electronic devices before class begins. I will be doing the same. There will be no text messaging, instant messaging, gaming, or surfing the web during class. No electronic devices of any kind (phones, calculators, laptops, etc.) are allowed during lecture. If you are disruptive in class I will ask you not to be. If you continue to be disruptive, I will ask you to leave.

Communication: I will be communicating through e-mail as needed. This will be the primary method for dissemination of information between us, so please check your e-mail at least once a day. I check my e-mail several times a day, so it is the quickest way to reach me with questions (aside from visiting office hours). I will also be archiving important announcements through Google Classroom.

When e-mailing me, include a greeting and a closing signature, or I will likely not respond. Using my name as a greeting and yours as a closing signature is sufficient.

If you are having trouble with an assignment or an upcoming quiz, please do not suffer in silence. Let me know if you are struggling, either in my office hours (during which you can just stop by) or by scheduling an appointment. I'm interested in seeing students succeed and am more than happy to provide extra help.

Grading: If you wish to dispute a grade, you must do so within one week of receiving the grade. This is non-negotiable. Your Final grade will be determined using the following percentage breakdown:

Activity	Percentage
Projects (7)	50%
Quiz (7)	25%
Final Project	25%

All grading will be on a single point scale. At the end of the semester, I will simply add the number of points you've earned, divide by the number of points possible (400) and that will be your Final average.

Please note that this course follows the grading policies for graduate courses outlined here:

<http://catalog.merrimack.edu/content.php?catoid=13&navoid=318> **Topic**

List: The following is a list of topics covered in this course.

Unit	Week	Topic	Project	Quiz
1	1	Introduction to Programming, Variables, Flow Control, and I/O	Project #1	Quiz #1

2	2	Strings, Lists, and Arrays	Project #2	Quiz #2
3	3	Dictionaries and Files	Project #3	Quiz #3
4	4	Classes and Objects (O-O concepts)	Project #4	Quiz #4
5	5	Methods (O-O concepts)	Project #5	Quiz #5
6	6	Inheritance (O-O concepts)	Project #6	Quiz #6
7	7	Tree (data structure)	Project #7	Quiz #7
8	8	Graphs (data structure)	Final Project	-

Late Penalties: All weekly evaluated tasks are due in their stated deadline, the late penalties reduced 10% of the evaluation, plus 2% for each full day of delay. However, there is a cut-off Final deadline on the last day of class. Since this is also the deadline for the Final exam, the Final exam deadline is hard.

Letter grades will be assigned as follows: A [95,100], A- [90,95), B+ [87,90), B [83,87), B- [80,83), C+ [77,80), C [73,77), C- [70, 73), F [0,70). I do not round off to the nearest integer. I do not scale the class grades to achieve a desired distribution or curve, so your grade does not depend on doing better than your classmates. I encourage you to work together, help each other, learn from each other, and then do your own graded work.

Please note that this course follows the grading policies for graduate courses outlined here:

<http://catalog.merrimack.edu/content.php?catoid=13&navoid=318>

Academic Integrity: All written work for this class must be your original work. Presenting material from other sources, either print or electronic, as one's own work constitutes plagiarism. Please review Merrimack College's Academic Integrity Code:

<http://catalog.merrimack.edu/content.php?catoid=9&navoid=202#academic-integrity>

Please consult the library's web site for a complete discussion on academic integrity

<http://libguides.merrimack.edu/content.php?pid=120821> for a complete discussion of academic integrity.

Specifically concerning the production of code, it is important to recall that using code, text or other forms of media, such as homework solutions, from previous offerings of the course is expressly forbidden. This includes using this type of material as a "reference" or "guide" to work from.

Providing your work from previous offerings to current students carries the same penalties as using the material. Tutors or other students who have taken the course in the past may help current students but should not show them the solutions that they have developed for given assignments. Use of work from previous offerings of the course is sometimes useful as a basis for ongoing work in an area of work. This should only be done with the instructor's permission and the use should be cited. Simply put, any work that is not your own should be clearly identified either through citations in written work or in comments in submitted Files. This includes not only things that are directly copied from other's work, but also for ideas and procedures gathered from outside sources. It is not necessary to cite the materials presented in lecture or the procedures in the lab sheets distributed by the instructor.

Academic Accommodations from Accessibility Services Office: Regardless of whether the course or the student is on-campus or remote, Merrimack College provides reasonable accommodations for students with documented disabilities through the Accessibility Services Office. Students who have, or think they may have, a disability are invited to contact the Accessibility Services Office via the online request form found on the Accessibility Services website: www.merrimack.edu/aso, email accessibilityservices@merrimack.edu or by visiting us on the third Floor of McQuade Library (subject to change if the college is remote).

Students are encouraged to contact the office as soon as possible via the website or via email at accessibilityservices@merrimack.edu to ensure adequate time to meet and create a plan. Students already registered with Accessibility Services are encouraged semesterly to request for their letters to be emailed and students are responsible to then email the letter to their instructors personally. The Accessibility Services Testing Center remains available to students whether in-person or remote. While it is understood that some students will not use all accommodations in all courses, accommodations cannot be made retroactively.

Learning Continuity and Contingency Plans: In the event of a snow day, we will still meet using Google Meet linked from Google Classroom. Our meeting will be casual and will count towards attendance. If we lose power, we will not meet.

Merrimack College Withdrawal Policy: Please be mindful of the academic calendar and what the last day to drop, add, and withdraw from the class are. The Registrar's Office publishes and manages those deadlines. Please be aware that a form submitted to the instructor just before the Registrar's deadline does not satisfy the need to get any signed forms to the Registrar's Office by their published deadlines.

All are Welcome: This classroom is a safe and collaborative environment and diversity will be respected including differences in race, religion, class, sexual orientation, gender, and gender identity, age, body-type, disability, and psychological struggle. Because we live in a global world, members of this class have diverse language backgrounds. While oral communication in a new language takes only a few years, academic language acquisition takes 5-7 years. Like those of us with other differences, students with accents will be respected in this class. If there is anything that I can do to make your time in the class better, please do not hesitate to let me know.

Free Speech/Intellectual Interaction: Debate, critical inquiry, and intellectual diversity are essential elements to higher education and a process of learning. There is the potential during this course for controversial and sensitive topics to be discussed during small group or whole class interaction, and to surface through our social media activity. You are expected to demonstrate the utmost respect and courtesy for your peers with differing arguments, viewpoints, and/or experiences. Sexist, racist, homophobic, or other hateful speech will not be tolerated.

Class Engagement: Plan to participate in each class meeting curious and ready to learn. If we don't take the time to prepare prior to the class meeting we affect our learning and the learning of our classmates. Be sure to complete the assigned readings prior to class so you can participate in the discussions. If you are a person that loves to participate, be sure that you are leaving space for your classmates that need more time to process before answering. If you are a person who needs more processing time, make a goal to share your ideas during our meetings so we can all benefit from your observations.

Mental Health

It is important to make your mental health a priority! We will do activities in class to support your mental health and wellness, and I also encourage you to engage in your own self-care habits outside of class. If you want more information or resources, please come see me! If you are struggling with your mental health, or you believe a classmate is, please talk to me so I can put you in touch with qualified and caring support to get you back on track and feeling better.

Suicide Prevention Lifeline: We can all help prevent suicide. The Lifeline provides 24/7, free and confidential support for people in distress, prevention and crisis resources for you or your loved ones, and best practices for professionals.

http://www.ulifeline.org/stay_well

National Suicide Prevention Lifeline 1-800-273-8255(TALK) or Text START to 741-741. *Student Success Resources* - It takes a village to progress in your knowledge. The below resources are a sampling of what Merrimack College provides to assist you in meeting your goals. If you have questions, please see me for additional information.

Academic Success Center: The Academic Success Center offers workshops, programs, tutoring, and individual or group meetings to all students. Topics include: academic expectations, dealing with test anxiety, effective reading, preparing for tests, study skills, and time management. Visit

<https://www.merrimack.edu/academics/academic-success-center/>

Resources on Campus

The Writing Center: Because everyone is a writer, the Merrimack College Writing Center provides free consultations for any student, in any major, in any class. Individual or small group consultations are generally done face-to-face in the Writing Center, McQuade Library 3rd Floor. Limited online consultations are also available. Visit www.merrimack.edu/writingcenter or visit MyMack for a

listing of hours and for registration and appointment instructions. Please note that while drop-ins are welcome, appointments take priority. For specific information about availability, schedule, and location of all tutoring available on campus, please go to <http://www.merrimack.edu/tutoring>.

The Tutoring & Math Center: The Tutoring & Math Center operates both face-to-face and on Blackboard. Students may meet with tutors in a socially-distant, college, state, and CDC approved one-to-one face-to-face session by appointment. For virtual, drop-in assistance, students may log into Blackboard where a peer tutor will assist them in real-time via a Collaborate session – no appointment needed. All students in STEM courses have been given access to the Tutoring & Math Center Blackboard page, titled "Tutoring & Math Center Online Tutoring". Visit <https://www.merrimack.edu/academics/academic-success-center/tutoring-and-math-center> or email MathCenter@Merrimack.edu for more information.

Please also include on your syllabi and/or homework (and take-home exams, if applicable) information regarding the extent to which students are allowed to seek help from the Tutoring & Math Center in completing their homework.

McQuade Library: For help citing sources consult the Writing Center or try a citation management tool such as Mendeley or Zotero. McQuade Library LibGuides can help: <http://libguides.merrimack.edu/mendeley> <http://libguides.merrimack.edu/zotero>

Tech Support: If you are having trouble logging in to your accounts, or with your iPad, please contact the help desk by emailing askit@merrimack.edu. Here are some basics to get you started: https://www.merrimack.edu/about/offices_services/information-technology-services/students/