

COMP 111.003 – Introduction to Computer Science

General Course Info

Term: Winter 2020
Department: CS
Course Number: 111
Section Number: 003

Time: 5a (MW 1:50pm-3:00pm, F 2:20pm-3:20pm)
Location: CMC 210
Website: <https://www.cs.carleton.edu/faculty/tamert/cs111-w20>
Piazza: <https://piazza.com/carleton/winter2020/cs11103>

Instructor Info

Name: Tanya Amert, Visiting Instructor
Office: CMC 318
Email: tamert@carleton.edu
Web: <https://www.cs.carleton.edu/faculty/tamert>
Office Hours: MW 3:30pm-4:30pm, T 1pm-3pm, Th 6pm-8pm, or by appt.

Prefect Info

Name: Kate Finstuen-Margo
Email: finstuenk@carleton.edu

Textbooks and Resources

Required Textbook:
For this course, we will use *Python Programming: an Introduction to Computer Science, 3rd Edition*, by John Zelle (ISBN: 978-1-59028-275-5).

All in-class materials and exercises will be available on the course website: <https://www.cs.carleton.edu/faculty/tamert/cs111-w20>. In addition, programming assignments will be submitted through Moodle.

We are using Piazza as an online forum. You can use Piazza to ask questions about any of the course material, but you must not post solutions to homework problems.

Course Description

This course will introduce you to computer programming and the design of algorithms. By writing programs to solve problems in areas such as image processing, text processing, and simple games, you will learn about recursive and iterative algorithms, complexity analysis, graphics, data representation, software engineering, and object-oriented design.

Target Audience

This course serves as a first course in computer science, and as such, no previous programming experience is necessary or assumed.

Students who have received credit for Computer Science 201 or above are not eligible to enroll in Computer Science 111.

Prerequisites

There are no prerequisites for this course.

Goals and Key Learning Objectives

Upon completing this course, students should be comfortable creating and using functions and objects in their programs, as well as with fundamental concepts such as decision and iteration structures, primitive data types, and object-oriented design. In addition, students should be familiar with algorithms for searching and sorting, analyzing runtime complexity, and be able to trace a recursive program.

Course Requirements

Most class periods will begin with a 5-minute mini-quiz designed to gauge pacing and general understanding of the material.

The homework assignments will be primarily programming assignments. Additionally, there will be a small project of students' own designs near the end of the term.

During the term, there will be four quizzes, each 30 minutes in duration. The final exam will consist of five parts, each meant to take 30 minutes; the first four will correspond to the in-class quizzes earlier in the term, and the fifth will cover the material since the fourth quiz. All but the fifth part of the final exam are optional – see “Grading Criteria” below for more details.

Key Dates

First day of class: Monday, January 6th

Last day of class: Wednesday, March 11th

No class: Monday, February 10th

Quiz #1: Friday, January 17th (first half of class)

Quiz #2: Friday, January 31st (first half of class)

Quiz #3: Friday, February 14th (first half of class)

Quiz #4: Friday, February 28th (first half of class)

Final exam: Saturday, March 14th, 3:30 p.m. – 6:00 p.m.

Attendance and Participation

Students are expected to attend all class periods. Participation will also be measured through the use of Piazza, both in asking and helping answer questions.

Course Policies

In class, you are expected to maintain proper etiquette. This includes arriving on time, not having conversations during lecture, and most importantly not having your laptop/phone/newspaper/etc. out during lecture except during exercise work times.

Students are allowed to work in pairs on homework assignments. As described in the “Honor Code” section below, students in a pair must list each other as collaborators, and not discuss their code with any other students.

Each quiz 30 minutes in duration, given during a class period. The course final will be 2.5 hours in duration, and will be given in compliance with Carleton College final exam regulations and according to the Carleton College Final Exam calendar.

Grading Criteria

Homework Assignments	32%
Project	8%
Mini-Quizzes (~23 total)	5%
Quizzes (5 total)	50%
Participation	5%

There will be eight programming assignments, as well as a final project of students’ own designs. Assignments will be graded both for correctness and style. This means having well-documented (through comments and/or good variable/function names) and easily readable code. Your bottom 3 mini-quiz scores will be dropped (4 if you visit the instructor’s office hours at least once).

Your grade for each of the first four quizzes is the maximum of your original quiz grade (from the in-class quiz) and the corresponding part of the final exam. The fifth quiz occurs only during the final exam, so your fifth quiz score comes only from that part of the final exam. Each quiz corresponds to 10% of the final grade.

Late Policy

Homework assignments should be submitted to Moodle by the time listed on the assignment. If your assignment is late, you must use a late day or receive no credit.

Each student starts the semester with three late days. These can be used on any homework assignment for any reason, no explanation necessary, and at most two can be used on any given assignment. Note that one late day counts as a calendar day, not as 2-3 days until the next class session.

If you have no more late days, late assignments will not be accepted unless there are extenuating circumstances that you have discussed (in person, or over email and received an acknowledging reply) before the due date.

There will be optional problems on some assignments that count towards gaining additional late days. At most four additional late days can be earned throughout the semester. If you earn these extra late days but do not use them, they will turn into 0.5% extra credit each at the end of the semester (the original three late days do not count for this).

Academic Integrity

For homework assignments, you are allowed to work with up to one other student. You may look at each other's code and help with debugging, but you are expected to type up all of your code yourself. You may discuss general approaches with other students (ex: "I used a for loop to iterate through the list."), but you should never look at the code of anyone but your partner. If you worked with someone else or discussed any part of the assignment, you must each list each other's names in your readme.txt file submitted with your code. See the assignment instructions for more details.

Quizzes and mini quizzes are closed-book, closed-note, and will be taken on paper. You are not allowed any cheat sheets for quizzes or mini quizzes.

If any student is suspected to have violated the academic integrity policy, a report will immediately be made to the Academic Standing Committee, as described at <https://apps.carleton.edu/campus/doc/integrity>. Ask the instructor if you are unsure about what constitutes acceptable collaboration.

Course Schedule (tentative, and subject to change)

Weeks 1-2	Basic data types in Python
Week 2	Quiz 1: Basics
Weeks 2-3	Graphics and objects
Weeks 3-4	Control flow
Week 4	Quiz 2: Control flow
Weeks 4-5	Software design
Weeks 5-6	Classes
Week 6	Quiz 3: Software design
Week 6	Data collections
Week 7	Image processing
Week 8	Quiz 4: Sifting through data
Weeks 8-9	Object-oriented software design
Week 9	Graphics and objects, revisited

Week 10 Classifying data
Week 10 Quiz 5 (part of final exam): Object-oriented software design + ML

Note that some topics may be skipped or replaced depending on time constraints. Homework assignments will typically be due every week, and quizzes will be every other Friday. Project details will be announced a few weeks into the term.

We will not meet for class on Monday February 10th due to Midterm Break.

Prefect Program

This course has a prefect, Kate Finstuen-Margo, whose email address is finstuenk@carleton.edu. The Prefect Program offers optional collaborative learning sessions for participating classes. Prefect sessions review course concepts and often focus on critical thinking and problem-solving exercises centered on the course material. Scheduled outside of class time, they are led by trained student leaders who have received the department's or professor's stamp of approval. All the sessions are free and open to all students enrolled in the class. Our course prefect will use email or Moodle to inform everyone in the class about upcoming sessions (where, when, topics, etc.).

Inclusion

I strive to create an inclusive and respectful classroom that values diversity. Our individual differences enrich and enhance our understanding of one another and of the world around us. This class welcomes the perspectives of all ethnicities, genders, religions, ages, sexual orientations, disabilities, socioeconomic backgrounds, regions, and nationalities.

Accommodations for Students with Disabilities

Carleton College is committed to providing equitable access to learning opportunities for all students. The Disability Services office (Henry House, 107 Union Street) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, autism spectrum disorders, chronic health, traumatic brain injury and concussions, vision, hearing, mobility, or speech impairments), please contact disability@carleton.edu or call Sam Thayer ('10), Accessibility Specialist (x4464) or Chris Dallager, Director of Disability Services (x5250) to arrange a confidential discussion regarding equitable access and reasonable accommodations.

Disclaimer

The instructor reserves the right to make changes to the syllabus, including homework and project due dates and quiz dates. These changes will be announced as early as possible.