

CMPU 101 §55
Computer Science I
Problem-Solving and Abstraction
Spring 2019

Monday & Wednesday, 9:00–10:15 a.m.

Friday, 1:00–3:00 p.m.

Sanders Physics 309

Prof. Jonathan Gordon

cs.vassar.edu/~cs101/55

OVERVIEW

Computer Science I introduces fundamental concepts of computer science that are central to all computational problems, regardless of machine, operating system, or programming language. Its major goal is to introduce students to the principles of systematic problem-solving through programming and the basic rules of computation. Course topics include procedural abstraction and algorithms, data abstraction, functional programming, recursion, list processing, higher-order functions, and design patterns. Concepts are reinforced through weekly labs and homework assignments that involve writing and testing computer programs in Racket (née Scheme), a simple yet powerful programming language.

The course does not assume any prior programming experience. It is therefore suitable for all students – majors and non-majors alike – who wish to explore the ideas of the discipline.

TEXTBOOK

There is no textbook for this course. Excerpts from multiple books will be assigned as readings and will be made available on the course website.

COMMUNICATION

The website for this class is <https://www.cs.vassar.edu/~cs101/55>. Materials to be posted there will include all handouts, lab descriptions, and programming assignments. Example solutions will be posted for all assignments and labs. Students are responsible for being aware of the information that is posted on the class website.

In addition to faculty office hours, student coaches will be available during scheduled labs and at other peak hours of laboratory use, such as evenings and weekends. The coaching schedule will be published online.

CLASS SESSIONS

The regular class sessions are intended to augment and support the material in your readings by providing an opportunity for in-depth discussion of topics, working through examples, and the chance for you to ask questions.

The material covered each week builds on what was covered in prior weeks. As such, it is essential that you attend every lecture and keep up with the reading assignments.

Lectures will begin and end on time, and students are expected to arrive before lectures begin. Students should not talk to each other during lecture. A student who wishes to ask a question should raise his/her hand and wait to be recognized. Students' cell phones should be turned off (or set to "do not disturb") during lectures.

LAB SESSIONS

The purpose of the labs is to give you some hands-on experience with programming, and to explain some of the principles from lecture by working through examples. Lab work is structured so that later problems build upon each other incrementally, and often bring in concepts from previous weeks.

The lab computers use the Linux operating system and the DrRacket software that we will be using throughout the semester. Lab work must be completed at the scheduled lab time; exceptions require the professor's permission.

If you get stuck, raise your hand to ask for help. When you have finished a lab, ask the professor or one of the coaches to verify your work, and they will record your grade on a scale from 0 (no work or no-show) to 3 (completed).

ASSIGNMENTS

There will typically be one assignment each week, and most assignments will consist of computer programming. The final assignment will be a larger piece of work, which will bring together all the topics we have covered in this course. You will have two weeks to complete it, and it will count for about double the score of the other assignments.

Unless explicitly authorized for a particular assignment, collaboration is *not* allowed on assignments. If you run into difficulty with an assignment, you should contact a student coach or the professor during their office hours. Some problems may be designated as "help free", meaning there will be no assistance until after the assignment has been turned in.

Programming assignments are due at the *start* of class on the due dates and are submitted electronically. (How to do this will be covered during the first lab.) You must also turn in a paper printout of your programming assignments.

Late assignments will be accepted with a 10% penalty, but only up until the start of the next class.

Students may carry out the programming assignments in the Asprey Laboratory (SP 307) or on their own computers. Students should implement their assignments using the DrRacket programming environment, which is installed on the machines in the Asprey Lab and is available for free download (racket-lang.org).

EXAMS

There will be two in-class exams and a regularly schedule final exam. All exams will be handwritten. The exams will be open-notes and cumulative, though they will emphasize the most recent material. If you are unable to attend class on the day of an exam, it is your responsibility to notify the instructor in advance to make other arrangements.

GRADING

Grades will be computed roughly in accordance with the following formula:

Programming Assignments	35%
Labs	10%
Quizzes	5%
First Midterm Exam	15%
Second Midterm Exam	15%
Final Exam	20%

ADVICE

This is designated as a quantitative course, satisfying one of Vassar's requirements for graduation. Just like any designated quantitative course, it will challenge you to think abstractly, analytically, and logically. It's my sincere hope that you enjoy this class, but the unavoidable truth is that learning computer science takes time, effort, and practice. So, here's some advice:

- 1 *Keep up with the reading and assignments.* The course starts out with basic concepts, but each week build on top of what was seen previously.
- 2 *Attend class regularly.* Missing one lecture may prevent you from fully understanding the next, which may prevent you from completing a lab or assignment, and so on.
- 3 *Ask questions.* Don't hesitate to ask questions in class, in lab, and during my office hours.
- 4 *Practice, practice, practice.*

ACADEMIC INTEGRITY

You may discuss general ideas with classmates, but you must do each programming assignment entirely by yourself. You may not discuss or share programs with other students. Vassar regulations require the professor to report suspected violations of academic integrity to the Dean of Studies. Read the pamphlet "Going to the Source" (<https://deanofthecollege.vassar.edu/documents/sources>). When in doubt, ask your professor or a coach before seeking any help from another source.

ACADEMIC ACCOMMODATIONS

Academic accommodations are available for students registered with the Office for Accessibility and Educational Opportunity (AEO). Students in need of disability (ADA/504) accommodations should schedule an appointment with me early in the semester to discuss any accommodations for this course that have been approved by the Office for Accessibility and Educational Opportunity, as indicated in your AEO accommodation letter.

TITLE IX

Vassar College is committed to providing a safe learning environment for all students that is free of all forms of discrimination and sexual harassment, including sexual assault, relation-

ship abuse, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. Vassar College has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

Please be aware all Vassar faculty members are “responsible employees,” which means that if you tell me about a situation involving sexual harassment, sexual assault, relationship abuse, or stalking, I must share that information with the Title IX Coordinator. Although I have to make that notification, the Title IX office will only provide outreach by email. You will control how your case will be handled – you don’t have to read or respond to the email, and it is completely up to you whether to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

If you wish to speak to someone privately, you can contact any of the following on-campus resources:

- Counseling Service (counselingservice.vassar.edu, 845-437-5700)
- Health Service (healthservice.vassar.edu, 845-437-5800)
- Nicole Wong, SAVP (Sexual Assault and Violence Prevention) director (savp.vassar.edu, 845-437-7863)
- SART (Sexual Assault Response Team) advocate, available 24/7 by calling the CRC at 845-437-7333 and asking for SART

The SAVP website (savp.vassar.edu) and the Title IX section of the EOAA website (eoaa.vassar.edu/title-ix) have more information, as well as links to both on- and off-campus resources.

ACKNOWLEDGMENTS

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