This syllabus is a plan, not a contract. This is an unusual semester, and I want us to work together to find the best way for you to learn.

CMPU 101 §3
Problem-Solving and Abstraction
Fall 2020

Tuesday 1:30–2:45 p.m. Sanders Physics 309 and Zoom
Thursday 1:30–2:45 p.m. Sanders Physics 309 and Zoom
Friday 1:00–3:00 p.m. Zoom

Prof. Jonathan Gordon
cs.vassar.edu/~cs101/3

Overview

This course introduces fundamental concepts of computer science. Its major goal is to introduce students to the principles of systematic problem-solving through programming and the basic rules of computation. We will explore the art and science of problem-solving using the computer as a tool. This course introduces a series of design recipes that help develop fundamental data abstraction and problem-solving skills. We will write programs in a series of student learning languages based on subsets of Racket, a simple, yet powerful, functional programming language.

Prerequisites

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

Continuing in Computer Science

The problem-solving techniques introduced in this course extend seamlessly to CMPU 102, where Java and object-oriented programming are introduced, and to CMPU 145, which continues the use of functional programming.

Class Format

This section of CMPU 101 uses a synchronous staggered hybrid format:

- The Tuesday and Thursday meetings will simultaneously take place face-to-face and live-streamed on Zoom.
- Students who are on-campus are divided into two groups.
- One group meets face-to-face on Tuesday while the other group participates remotely through the live stream.
• On Thursday, the groups switch who's in person and who's online

• On Fridays, the entire class meets together synchronously online for lab.

You are free to opt out of your group's face-to-face meeting and participate synchronously online.

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

In class, please ask questions, and answer questions! In computer science, we seldom get anything right on the first try. We see how an attempt turned out, and we try again. I want our classroom to reflect that approach as well, so please answer a question that's been posed, even if you're not sure of the answer.

The calendar with lecture notes, assigned readings and exercises, and exams is on the course website and will be updated throughout the semester.

Textbook

*How to Design Programs*, second edition
Felleisen, Findler, Flatt, and Krishnamurthi

The textbook is available for free online at htdp.org and is also available for sale at the Vassar bookstore.

Computing Environment

We will use DrRacket, a programming environment for the Racket programming language. Racket is a variant of Scheme, which is itself a descendant of Lisp, the second oldest high-level programming language. For this course we will use the student languages from the *How to Design Programs* textbook, and teachpacks for graphics and interactive animation that DrRacket provides.

DrRacket is installed on the computers in our classroom and labs. It can also be downloaded from racket-lang.org if you want to install it on your own computer. Programs written in DrRacket have the same behavior on all platforms (e.g., Linux, macOS, Windows). Therefore you do not need to worry what kind of machine you use when you run DrRacket programs.

Coursework and Grades

To develop and assess your understanding of the topics presented in this course, there will be weekly labs, regular homework assignments,
two midterm exams, and a final exam (during the final exam period). The elements of the course will be weighted approximately as follows:

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<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Labs</td>
<td>15%</td>
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<tr>
<td>Assignments</td>
<td>20%</td>
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<tr>
<td>Exam 1</td>
<td>20%</td>
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<td>Exam 2</td>
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<tr>
<td>Exam 3</td>
<td>25%</td>
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Final grades take into account each component. You must achieve a passing grade in all components to pass this course, and to receive an A, you must have high performance in all categories.

Labs

The purpose of the labs is to give you hands-on experience with the actual tools, and to clarify concepts with examples. Labs will be evaluated for completion.

Lab sessions are two hours long. Many labs can be completed in less time, and you can leave when your lab work has been checked by the instructor or a coach. However, everybody works at different speeds, and some labs may take longer than I anticipate. If you need a bit more time to finish the lab work, you should have what you've finished checked before the lab period ends, and you can then finish your lab work any time before the next class. You can have a coach check off your work live during coaching hours (recommended) or you can submit the files on Gradescope.

Lab work won't be accepted after the start of the next class because I'll be sharing example solutions at that time for everyone's benefit.

Assignments

Programming assignments will expand upon the concepts introduced in class and practiced in lab. You can expect a total of four or five programming assignments, of increasing size and complexity. The final assignment will be a larger piece of work, which will bring together many of the topics we have covered in this course. It will count for about double the score of the other assignments.

Assignments and due dates will be listed on the calendar on the course website. Programming assignments will be submitted on Gradescope and will be evaluated based on correctness and good programming style. Additional information on assignment grades will accompany the first assignment.

Exams

There are two exams during the semester as well as a final exam. The exams will be completed outside of class, either taken online or scanning an exam taken on paper.
Preparing this sheet of notes is an excellent way to study, forcing you to consider what's important that you will want to refer to. Additionally, we've found that the more notes a student consults during the exam, the worse they do. It's best to spend your time thinking about the exam problems, not searching through all the material from the course.

For each exam, you may refer to an 8.5×11-inch piece of paper, double-sided, with anything written (or typed) on it that you want.

Because of the inherently cumulative nature of this course, each exam will necessarily rely on content from previous exams. However, the emphasis of each exam will be on the material introduced since the previous exam.

Grading

We will be using Gradescope this term to provide feedback on your work. Homework and labs will be submitted through Gradescope, and homework and exam grades will be returned through Gradescope. As soon as grades are posted, you will be notified immediately so that you can log in and see your feedback.

We'll go over submitting on Gradescope during the first lab.

Late Work

For flexibility, you have three “late days” that you can use to extend the deadline of any homework assignment by 24 hours. You may use up to two late days per homework assignment. If you plan to use a late day, please email the instructor before the original deadline.

If you run out of late days, late assignments will incur a penalty of 20% for each day past the deadline. Late assignments will not be accepted once example solutions have been released or discussed in class.

If you know you won't be able to submit an assignment, talk to me. If you're experiencing a major problem – medical, psychological, family, etc. – that is interfering with your ability to complete your class work, you should talk with the Dean of Studies, your class advisor, or Health Services, who will recommend appropriate accommodations to all of your professors, who honestly want to help you.

Collaboration Policy

The goal of the course is to gain an understanding of computer science, not to compete with each other. Indeed, in CS as a field, collaboration is the norm. As such, you're encouraged to discuss class material with other CMPU 101 students when reading, studying, and thinking about the problems.

Unless otherwise stated, for labs you have the option to work with a classmate. If you do so, you are expected to design and implement the solutions together. You should submit a single lab with both names on it and will receive the same grade.

Submitting work you have not contributed to fairly or do not understand is academic dishonesty.
You may also consult with your classmates as you work on homework assignments, but you are not permitted to look at another student's code or to talk about assignments in terms of code or pseudocode. In addition, you must cite any books, articles, websites, lectures, etc. that have helped you with your work.

Academic Integrity

Please read the CS department's guide to academic integrity:

cs.vassar.edu/integrity.

In particular, note that:

1. You may not copy code written by anyone else (e.g., a classmate, a friend, an online source, a book). You are permitted to use the code provided by the instructor or included in the assigned readings!

2. Using code or other material from sources as “inspiration” and submitting highly derivative solutions is considered copying. (That is, you can’t “paraphrase” someone else's work!)

3. You may not post a public question that contains any part of your code.

4. You may consult online resources as part of your course work, but you may not copy code from online source. If you get an idea of how to solve a problem from an online source, include a citation near the top of your source code, e.g.,

```racket
;; Consulted online source for big-bang definitions:
;; https://racket-help.org/big-bang
```

You do not need to include a similar notation if you consulted with a classmate; we expect that – just don't share code!

If you haven't already done so, you should read “Going to the Source”, available from the Dean of the College website. Note that the guidelines that apply to writing in general apply equally to the writing of computer programs. Copying someone else's code without attribution is plagiarism. Give proper attribution for the help you receive.

Quoting from Chapter X, “In suspected cases of plagiarism, the instructor prepares a written statement of complaint to the Academic Panel.” Please don't put yourself or your professor in that position. When in doubt, stop and ask me first.

Communication and Getting Help

Our course uses Campuswire for online discussions. You can use it to ask questions about course concepts, assignments, and logistics. It is I'll send you an invitation to sign up, and there's also a link on the course website.
also used for discussions among students, including for any work to be done in groups.

The quickest way to get feedback and help will be via Campuswire. We expect you to read Campuswire every day or two for announcements and clarifications to assignments; you are responsible for all clarifications made at least 48 hours before an assignment is due.

Posts on Campuswire can be either public or private. Public posts are visible to everyone, while private posts are visible only to course staff. Any questions having to do with your particular solution to an assignment should be private; all other posts should be public. (If you have a question about something, it’s very likely that other students do, too!) The course staff reserves the right to make private posts public if the answer is of general interest.

Because Campuswire is an extension of our classroom discussion, we expect everyone to behave accordingly: No disrespect, rudeness, or abuse will be tolerated – towards fellow students or towards the course staff.

Instructor Availability

Office hours will be listed on the instructor’s website. All student meetings this semester will be conducted online unless you have a specific need that requires a physical meeting.

I typically only check email and other messages between 8 a.m. and 8 p.m. on weekdays. If you send a message that needs a response during those times, you can expect to get a response within six hours (often much sooner). Otherwise, you can expect one when I’m back online.

Student Coaches

In addition to faculty office hours, student coaches will be available during scheduled labs and at other times, typically including evenings and weekends. The coaching schedule will be published online.

Coaches aren’t here to give you answers, of course, but to be your fellow computer scientists thinking through a tough problem with you. Expect them to ask more questions than they answer.

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.
Diversity and Inclusion

In an ideal world, science would be objective. However, much of science is subjective and is historically built on a small subset of privileged voices. There may be both overt and covert biases in the material due to the lens with which it was written, even though the material is primarily of a scientific nature. Since integrating a diverse set of experiences is important for a more comprehensive understanding of science, please contact me if you have any suggestions to improve the quality of the course materials.

I would like to create a learning environment that supports diversity of thoughts, perspectives, and experiences, and honors your identities.

- If you have a name and/or set of pronouns that differ from those that appear in your official records, please let me know!

- If you feel that your performance in the class is being impacted by your experiences outside of class, please don’t hesitate to contact me. If you prefer to speak with someone outside of the course, you can contact your class advisor or the Dean of Studies.

- I (like many people) am still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that made you feel uncomfortable, please talk to me about it.

Pandemic Policies

This class will take place as we try to navigate a global pandemic. While we can’t predict even the near future, the following are guidelines and plans for how we can work together productively in this situation.

Taking care of yourself

Take care of your own physical and mental health during these difficult times. Make sure you are getting sufficient rest, staying connected to friends and family, and giving yourself time and space to do things you enjoy outside of your classwork. This website lists tips for good self-care in our situation.

Before coming to class, perform a self-evaluation and, if you feel even the slightest bit of sickness, stay home and participate remotely. You should be physically present in class only if you feel as healthy as normal.

Please know that at any time this semester, if you feel unable or unwilling to be present for a face-to-face meeting, you can opt out and participate remotely – no questions asked, no permission needed, no penalty incurred. Remember that face-to-face meetings are live-
streamed, and you can participate in the class remotely through Campuswire, so you will not fall behind if you have to participate in class from home. There will be no graded assessments completed or submitted in person, so you will never need to make up work from in class.

Keeping our class meetings safe

When you are present in a face-to-face meeting, please observe the following:

- **Wear a mask at all times.** Face coverings, such as masks, are required to be worn in the classroom. The evidence is clear that face coverings are a crucial part of keeping coronavirus at bay. Vassar’s policy on face coverings is posted on the Vassar Together website. Please note: Students who remove their masks during class, wear the mask incorrectly (for example, with the nose exposed), or refuse to wear a mask at all will be reminded of this policy once and will be asked to leave if non-compliance continues.

- **Observe proper social distancing.** The classroom has been specially arranged so that students are six feet apart from each other and from the professor at all times. This is sufficient for social distancing. We will also use technology to allow for more remote communication, for example using the chat rooms in Campuswire. Please do not encroach on the space of another person.

- **Practice appropriate personal hygiene.** Wash your hands regularly and use hand sanitizer when washing is not convenient. If you must cough or sneeze, do so facing away from other people. Although our current understanding of coronavirus indicates that infection occurs primarily person-to-person, not from surfaces, it’s best to avoid sharing physical objects with other students. You may wish to bring sanitizing wipes to wipe down your desk and the classroom keyboards and mice before and after class.

Contingency plans for the semester

We’ll begin the semester in “staggered hybrid” mode, but several things could happen that might alter this setup. Here are the initial plans for the most likely of those things.

- **If the entire college goes fully online:** All face-to-face meetings will be replaced by synchronous online meetings. No other changes will be made.

- **If the professor cannot be on campus due to self-quarantine:** In this case, we will follow the plan above until I am able to return to campus.

*These plans may be overridden by college-wide directives as the semester unfolds.*
• **If the professor cannot be on campus due to infection:** Other professors will be asked to give guest lectures via Zoom. Labs will take place asynchronously, and coaches will give feedback. Assignment deadlines, exams, and grading will be postponed until I am well enough to continue remotely, at which point we follow the plan above.

In any of these scenarios, there may be significant changes to the course calendar or to the syllabus. Check the course website and Campuswire for current information.

**Some encouragement**

Although these procedures and plans can be scary and demoralizing, I want you to know that Vassar is doing everything in its power to keep people safe from Covid-19. In my view, Vassar’s campus is at least as safe from Covid-19 as the average large supermarket, which many of us visit on a regular basis without much trepidation. Furthermore, I believe that if we observe reasonable precautions like the ones described here, then while the risk of Covid-19 is still present, there’s no reason to be afraid. We will still learn and grow intellectually – just as in “normal” times – if we stay focused and work together.

**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, relationship 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](http://counselingservice.vassar.edu), 845-437-5700)

• Health Service ([healthservice.vassar.edu](http://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

This course – and this syllabus – is based in large part on work by other instructors, especially Marc Smith. The policy on asking and answering questions and on communication on Campuswire is adapted from Laney Strange. The statement on diversity and inclusion is adapted from Monica Linden. The pandemic policies are adapted from Robert Talbert.