

Course Syllabus

Professor Sarah Morrison-Smith

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- Office: Science Center 2014
- Office hours: Tuesdays 10am-12pm, Thursdays 2-5pm

Course Logistics

- EdStem: <https://edstem.org/us/courses/50299/>
- Gradescope: <https://www.gradescope.com/courses/687164>, Entry code ZW433Z

Prerequisites

Prerequisites, 102 or 111 or 112; or, senior standing and permission of instructor.

Course Description

In this course, we will study the design and implementation of programming languages. We will survey the variety of programming models of computation including object-oriented, constraint based, functional, and script programming. Along the way, you will use representative programming languages from each of these programming models. In other words, I will expect you to learn and write programs in many languages including Bash, Ruby, Racket, Python, and Prolog.

EdStem

All communication for this course happens through the course EdStem server. It is your responsibility to check EdStem for updates and communication from me. You are encouraged to ask and answer each other's questions, following the guidelines under Academic Integrity & Collaboration. Any personal communication, or communication for which privacy is desired, should be done via email or in one-on-one meetings with me.

Course Materials

Textbooks and Software Required

There is one required reading and several optional readings for this course.

Required:

- *Concepts of Programming Languages*, 12th Edition, by Robert Sebesta (11th edition or global version is acceptable)

Optional (excerpts will be provided on EdStem):

- *Learning the Bash Shell*, 3rd Edition, by Cameron Newham and Bill Rosenblatt
- *Computer Science Programming Basics in Ruby*, by Ophir Frieder, Gideon Frieder, and David Grossman
- *Structure and Interpretation of Computer Programs*, 2nd Edition, by Harold Abelson and Gerald Jay Sussman with Julie Sussman
- *The Art of Prolog*, 2nd Edition, by Leon Sterling and Ehud Shapiro

You'll need access to a computing environment that supports programming in Prolog, Ruby, Python, Bash, and Racket. There are many choices. In this section of the syllabus, I'll highlight my favorites.

Language	MacOS	Windows	Linux
Bash	Terminal	Windows Subsystem for Linux	Terminal
Ruby	RubyMine or VS Code	RubyMine or VS Code	RubyMine or VS Code
Racket	Dr Racket	Dr Racket	Dr Racket
Prolog	SWI-Prolog	SWI-Prolog	SWI-Prolog

Our department System Administrator is Dave Deeley, sysadmins@hamilton.edu. Please consult Dave if you have any questions or concerns with software installation.

Grading

Your grade will be comprised of the following components and weights:

Grade Category	Percentage
Individual projects. <i>Programming projects in various languages, sometimes spanning multiple weeks with weekly checkpoints. I will release these at regular intervals on EdStem. They are meant to be done with the computer/debugging environment, carefully tested, and meticulously commented.</i>	25%
Term projects. <i>This is an individual project where you will be responsible for learning a new language in your own time. This will be broken up into several checkpoints throughout the semester.</i>	10%
Quizzes: <i>Weekly quizzes will occur on Fridays in class.</i>	30%
Weekly Labs: <i>These are in-class labs graded on attendance and effort.</i>	10%
Warmups: <i>These are in-class exercises that will be graded and contribute towards extra credit at the end of the semester.</i>	0%
Final exam: <i>Timed, 3-hour written exam given in person on Sunday May 12th from 7-10pm</i>	25%
Total	100%

All final course grades will be rounded to the nearest whole number. For example, a score of 92.4 rounds to 92, but 92.5 rounds to 93. There will be no grade bumping. There is no extra credit in this course. Your grade in this class is the reflection of mastery of course content, and consistent demonstration of your ability to meet or exceed the grading criteria and rubrics of individual assignments and exams. Effort will not be factored into your grade. This course will use the Gradescope for all assignment submissions and posting grades.

Course Policies

Late Assignments and Makeups

No late work will be accepted without prior permission. If you contact me at before the due date with appropriate requests for extension and/or makeup assignments, you will be automatically given an additional amount of time to make up late assignments equal to the time lost due to the unforeseen circumstance.

Incompletes

Incompletes will be granted for only the most extreme circumstances. To be considered for an incomplete you must 1) let me know at in advance that you are seeking an incomplete, and 2) provide documentation to support the request. This decision is also made in consultation with the Dean of Students.

Attendance

You are expected to attend every class. You may be excused only for college-sanctioned activities and you must let me know about such absences as soon as you are notified. If you are sick or will be absent for a significant period of time, please contact me to work out a way to catch up. If you miss class for a college-sanctioned activity, you may make up the participation points by contacting me via email.

Re-Grade Requests

If you believe I have made a genuine error when grading your assignment, please submit a grade review request through Gradescope with an explanation describing why the grade received is incorrect, with references to the posted rubric. Grade reviews must be requested within one week of a grade being posted. After this time, no grade will be revisited. In the event of a grade review, the entire assignment will be reviewed. It is possible to receive a lower grade on a reviewed assignment. Similarly, inquiries about missing grades must be made within one week of grades being posted.

Academic Integrity & Collaboration

All assignment code must be written by you. The only exception is for starter code provided by me. All such code should be documented with its origin and its usage and is considered separate from the main body of the work. Any such code will not be considered in grading code and design elements of the project and must be cited appropriately. You are allowed to consult with me, TAs, tutors, and online resources for high-level discussion such as “I iterated over the vertices and marked each one with their strongly connected component.” Sharing or receiving code, typing code into others’ editors, allowing someone to type into yours, and copying code from online resources is not

allowed. Write in your own words. **Unless explicitly specified in the directions for the assignment, the use of artificial intelligence resources such as OpenAI's ChatGPT, GitHub's Copilot, or any other AI code generation tools to complete assignments is considered cheating.** Furthermore, if you see a solution online, you should immediately tell me, and I will give you another problem to work on. If you are unsure about collaboration rules, ask me.

Citation

Always cite any external help in your projects to acknowledge their contribution, except class notes or professor discussions. This includes peers, TAs, tutors, and internet sources. Any non-self-written part must be cited. Code citations should appear in comments, documents, and when discussed, listing author and location. A mere acknowledgment isn't enough; citations must identify the source and help received. Here is an example:

```
# CITE: Stephen Greenfield
# URL: http://www.math.rutgers.edu/~greenfie/g2004/euclid.html
# HELP: Source of Euclid's method for determining GCD.
```

All images, facts, and other information that you did not wholly come up with on your own must be cited in presentations and documents. Acceptable citation styles include MLA, APA, Chicago, and IEEE.

Public Code Policy

You may not post code you write for assignments in this class publicly (e.g., GitHub, your blog, etc.), even after the semester ends, although you may provide your code privately to potential employers.

Consequences for Academic Dishonesty

Academic integrity is important, and I will not tolerate violations. Egregious violation of these rules (i.e., cheating on a quiz or exam, plagiarism that is beyond overlooking a citation for a line or two of code, etc.) will result in a final grade of 'F' for the class.

Seeking Help

Accommodations

If you believe you may need accommodation for a disability, contact me privately within the first two weeks of the semester to discuss your specific needs. If you have not already done so, please contact Allen Harrison, Assistant Dean of Students for International Students and Accessibility at 315-859-4021, or via email at aharrison@hamilton.edu. He is responsible for determining reasonable and appropriate accommodations for students with disabilities on a case-by-case basis.

Mental Health and Wellness

If you are feeling isolated, depressed, sad, anxious, angry, or overwhelmed, you aren't alone: we all struggle sometimes. Don't stay silent! Talk to a trusted confidant: a friend, a family member, a professor you trust. The counseling center offers completely confidential and highly professional services and can be contacted at 315-859-4340. If this seems like a difficult step, contact me. We can talk and call or walk to the counseling center together.

Course Outline

Tentative Schedule

Week	Dates	Topics	Due
0	01/17 01/19	Introduction & Syllabus Program Syntax	Wed: No lab this week (first day of classes) Fri: Quiz 0
1	01/22* 01/24 01/26**	Parsing * Optional installation clinic – 2-5pm ** Last day to add a course	Wed: In-Class Lab 1 Fri: Quiz 1 Assignment 0
2	01/29 01/31 02/02	Bash	Wed: In-Class Lab 2 Fri: Quiz 2 Term Project Checkpoint 0
3	02/05 02/06* 02/07 02/09	Bash * Special guest lecture outside of normal class time – 4pm	Tues: Admiral Michelle Howard Cybersecurity Talk notes Wed: In-Class Lab 3 Fri: Quiz 3 Assignment 1

4	02/12 02/14 02/16	Bash	Wed:	In-Class Lab 4
			Fri:	Quiz 4
				Assignment 2
5	02/19 02/21 02/23*	Ruby * Last day to drop without penalty	Wed:	In-Class Lab 5
			Fri:	Quiz 5
				Term Project Checkpoint 1
6	02/26 02/28 03/01	Ruby	Wed:	In-Class Lab 6
			Fri:	Quiz 6
				Assignment 3
7	03/04 03/06 03/08	Ruby	Wed:	In-Class Lab 7
			Fri:	Quiz 7
				Assignment 4
Spring Break				
8	03/25 03/27 03/29	Racket	Wed:	In-Class Lab 8
			Fri:	Quiz 8
				Assignment 5
9	04/01 04/03 04/05	Racket	Wed:	In-Class Lab 9
			Fri:	Quiz 9
				Assignment 6
10	04/08 04/10 04/12	Racket	Wed:	In-Class Lab 10
			Fri:	Quiz 10
				Assignment 7
11	04/15 04/17 04/19	Prolog	Wed:	In-Class Lab 11
			Fri:	Quiz 11
				Term Project Checkpoint 2
12	04/22 04/24 04/26	Prolog	Wed:	In-Class Lab 12
			Fri:	Quiz 12
				Assignment 8
13	04/29 05/01 05/03	Prolog	Wed:	In-Class Lab 13
			Fri:	Quiz 13
				Term Project Checkpoint 3
14	05/06*	Foreign language interface * Last day of classes		
15	05/12*	Final Exam: 7-10PM* * Note this is a SUNDAY		