Mathematical logic provides the foundation for a rich set of tools for reasoning about systems and discovering whether their behavior meets our expectations. In spite of how it is often presented, logic is not only good for describing the state of Socrates and rain, but also the state of buffers and caches and the other difficulties that everyday practicing computer scientists wrestle with.

In this course, you will learn to use modern, logic-based tools to describe and analyze program designs, algorithms, data-structures, and other artifacts—learning the logical frameworks we need as we go along.

**Prerequisites:** CSCI 016, CSCI 018, or CSCI 019. CSCI 022 or instructor permission.

**Required Text:** We will assign readings that are either publically available or available to students from Brown’s library online.

**Time Requirements:** Our class meets for 150 minutes per week. You can expect roughly an additional 10–12 hours per week on assignments and projects.

**Assignments and Grading**

There will be no exams. Your course grade will depend purely on projects, labs, and other assignments. The general breakdown is:

- 35%: Exercises (of varying weights)
- 20%: Midterm project
- 25%: Final project
- 10%: Required Labs (of equal weight)
- 5%: Case-study reviews
- 5%: Participation

Because we update the course material every year, we sometimes find that assignments are harder (or easier!) than we expected. For this reason, *Tim only fixes letter-grade cutoffs at the end of the semester.* Before submitting final grades, Tim takes each student’s overall performance trajectory into account.

Exercises, labs, and case-study reviews will be graded on a {check-plus, check, check-minus, zero} scale. A check means that you did fine on that assignment. A check-plus denotes exceptional performance. A check-minus means that there’s significant room for improvement. Zeroes are given only for assignments that are missing or do not meet minimum functionality requirements.

**Exercises** Exercises will come in two flavors: assignments using tools we explore in class and programming problems. Each exercise will be due at 11:59pm on Thursday nights and go out after class the preceding Friday. Students will receive three late days for use on exercises, each of which grants a 24-hour extension. Further late assignments will receive no credit.

**Case-Study Reviews:** The course will do two case-study reviews: one early in the semester and one later. Students will pick partners two weeks before each is due. Teams will submit a short writeups (one page only!) for each on **March 14th** and **April 25th**, to be followed by in-class discussion. Be prepared to explain and constructively criticize the case-studies in your writeup and in class.

**Midterm and Final Project** The course has two projects due **March 21st** and **May 5th**. Students are required to pick project partners well before the deadlines. Design checks with the course staff will occur at intervals before each due date.

Each group will present their final project by appointment during **May 6th–May 10th**.

**Extensions** Extensions will be granted on a case-by-case basis in the event of illness (with a note from health services) or emergency. Please note that only the instructor can grant an extension.

More details on each assignment, project, etc. will be provided closer to the appropriate dates.

**Policies and Schedule** See the course webpage: [http://cs.brown.edu/courses/cs195y/2019/](http://cs.brown.edu/courses/cs195y/2019/)