

## CSCI 2200: Foundations of Computer Science – Spring 2017

**Textbook:** Kenneth H. Rosen, *Discrete Mathematics and Its Applications*, 7th ed., McGraw Hill, 2012

### Course Description

This course introduces important mathematical and theoretical tools for computer science, including topics from logic, number theory, set theory, combinatorics, and probability theory. The course then proceeds to automata theory, the Turing Machine model of computation, and notions of computational complexity. The course will emphasize formal reasoning and proof techniques.

Upon successful completion of this course, each student is able to:

- formulate mathematical proofs using logic
- apply mathematical tools such as induction and recursion
- recall key definitions from set theory
- formulate combinatorial arguments
- distinguish between various computational models
- think critically on the difficulties of key questions in foundations of computer science
- recall key facts regarding finite automata and Turing machines.

**Pre-requisites:** Intro to Calculus (MATH-1010 or MATH-1500) and Data Structures (CSCI-1200)

### Schedule

An up-to-date schedule will be maintained on the course web site

### Homework

There will be eight homework assignments. The lowest homework grade will be dropped.

We will use Gradescope to collect and grade homeworks. You are responsible for uploading your homework into Gradescope by 11:59pm on the due date. Gradescope will not accept submissions after this time. You may turn your homework in up to 24 hours late, for 50% max credit, by emailing it to Xinyue Yan ([yanx3@rpi.edu](mailto:yanx3@rpi.edu)). No homework will be accepted after that time without an excused absence from the [Student Experience office](#).

Homework assignments must be typed, with one problem per page. You must upload a PDF into Gradescope. Homeworks that are not typed and submitted in PDF format will not be graded.

### Recitation

In weekly recitation meetings, the TAs and Undergrad Mentors will go over solutions to problem sets, homework assignments, and past exam problems. You should make your best effort to solve recitation problems before recitation. Attendance at recitation is not required, but this is the only place solutions will be made available.

### Grading

- 20% Homework
- 25% Exam 1 - Wednesday, February 22, 2017 (Wednesday test block)
- 25% Exam 2 - Wednesday, April 5, 2017 (Wednesday test block)
- 30% Final Exam - Date TBD

To pass this class, the average of your exams must be 60 or better, specifically  $(0.25 \cdot \text{exam1} + 0.25 \cdot \text{exam2} + 0.3 \cdot \text{final}) / 0.8 \geq 60$ .

**There will be NO make-up exams (unless the absence is excused by the [Student Experience office](#)).**

Grades will be made available to students throughout the semester on Gradescope. Grades for all assignments will be determined by the professor and the TAs. You may appeal a homework or exam grade by first contacting the responsible TA. If you are not satisfied with the outcome of this appeal, you may then appeal to the professor. Grades must be appealed within 7 days of the assignment or exam being returned in class.

The following chart will be used to convert the year-end average to a letter grade (percentages will be rounded to the nearest integer).

|               |      |       |       |       |       |       |       |       |       |       |      |
|---------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| Percentage:   | ≥ 93 | 90-92 | 87-89 | 83-86 | 80-82 | 77-79 | 73-76 | 70-72 | 67-69 | 60-66 | < 60 |
| Letter Grade: | A    | A-    | B+    | B     | B-    | C+    | C     | C-    | D+    | D     | F    |

Exams and homeworks will not be curved. The final grade may be curved but only to raise the course grades.

### **Students with Special Needs**

Federal law requires all colleges and universities to provide specified types of assistance to students with disabilities. If you have such special assistance, please obtain an authorizing memo from Disability Services for Students by contacting the Dean of Students in the Dean of Students Office (x6266). Information about a student's special needs will be treated as confidential. Please submit a copy of your authorizing memo to your professor well in advance of any affected exam or assignment. Failure to do so may result in a lack of special accommodations.

### **Academic Integrity**

Every student must formulate and write up his or her homework assignments independently. You are not allowed to show your homework to other students before it is graded. You are responsible for protecting your own homework from being copied. If multiple students turn in problem solutions that are identical, this is cheating, and all students involved will be held accountable.

No collaboration is allowed during exams.

Violation of these policies will be considered a breach of academic integrity. The minimum penalty for any violation is a grade of F. In addition, the student may be subject to other penalties outlined in [The Rensselaer Handbook of Student Rights and Responsibilities](#).