PURPOSE OF THIS COURSE

Catalog Description:
This course introduces important mathematical and theoretical tools for computer science, including topics from set theory, combinatorics, and probability theory, and 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.

In this course, you will hone your creative problem-solving skills and attention to detail; therefore, take the time to carefully think about a problem and tinker with it before fully solving it!
LEARNING OBJECTIVES

Define discrete mathematical objects and perform mathematical proofs using logic
Apply mathematical tools such as induction and recursion
Recall key definitions relating to discrete mathematical objects
Formulate combinatorial arguments
Define and compute the probability of an event
Develop formal models of computation and reason about what is computable within those models
Recall key facts regarding finite automata and Turing machines

COURSE LMS

All course materials will be available via Submitty:
https://submitty.cs.rpi.edu/courses/f23/csci2200
  * Log in using your RCS ID (e.g., “goldsd3”)

We will use Submitty’s Discussion Forum for course announcements and for asking questions
  * Please post questions there; also answer questions…

The course schedule will be posted in Submitty (but will likely change)
Check your RPI email at least once per day

**Turn on all email notifications in Submitty**
COURSE TAS, COURSE ASSISTANTS, AND MENTORS

Graduate TAs:
• Anirban Acharya
• Habeeb Idris
• Nafis Neehal
• Akshat Runwal
• Andrew Wilkerson
• Peiyuan Zhou
• Michael Zuo

Course Assistant (CA):
• Fatih Orhan

Undergraduate mentors:
• Toba Akinyemi
• Ilan Beyen
• Wilde Chu
• Tyler Du
• Megan Huang
• Jaeseok Kang
• Junseob Kim
• Yuk Ting Kong
• Amol Kumar
• Aadi Lahiri
• Ken Li
• Andre Lungu
• Michael Lyga
• Justin Ottesen
• Suhas Palwai
• Jeremy Pankow
• Leann Quilin
• Ruijia Peng
• Sophia Shen
• Adam Tuhacek
• Shankar Veludandi
• Sixue Xing
• Ethan Zhang
• Max Zhang
• Yuanyi Zhang

Our TA and mentor office hours (OH) schedule will be posted in Submitty soon...
Do not email our TAs or mentors...
...instead, attend OH and post questions on the Discussion Forum
OH will primarily be in-person with a few online-only sessions
Always check the posted schedule and watch for announcements in case OH change
CONTENT DELIVERY

Lectures and recitations will be in-person

If you have an excused absence or have been approved to be online/remote, lecture recordings will be made available to you.

All content covered in lecture will be posted in Submitty, including lecture slides, in-class notes, etc.

During live lecture, please feel free to ask questions (though mostly try to stay on topic)

Also during lecture, expect to work on actual problems!

ATTENDANCE AND EXCUSED ABSENCES

Attendance during lecture is strongly encouraged.

Attendance is required at recitations to receive credit for Problem Sets.

Attendance is required for our Wednesday 6:00-7:50PM testblocks on exam days.

Please turn off cellphones and other non-classroom electronic devices to avoid distractions during any class time, recitations, office hours, etc.

IMPORTANT: For all prescheduled and unforeseen absences for which you would like to obtain an extension on a deadline, go to the following URL:

http://studentlife.rpi.edu/student-success/excused-absence

Please avoid asking for an extension, extra time, etc. without first requesting an official excused absence via the described policy.
**REQUIRED TEXTBOOK**

Discrete Mathematics and Computing  
by Magdon-Ismail  
ISBN 9780578567877  
RPI Bookstore URL:  
https://tinyurl.com/f23-focs-textbook

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**REQUIRED SOFTWARE?**

For homeworks (and sometimes problem sets), you are strongly encouraged to use LaTeX to properly format your work. Tutorial URLs and a template will be available in Submitty.

\[ S(n) = \sum_{i=1}^{n} \sum_{j=1}^{i} 1 = \sum_{i=1}^{n} \frac{i}{f(i)=i} = \sum_{i=1}^{n} i = \frac{1}{2} n(n+1) \]

This is not required for assignments but is strongly encouraged.
HOMEWORKS AND PROBLEM SETS

There will be **five** homework assignments
- Homworks will primarily be assigned out of the textbook and collected via Submitty
- Due dates are various Thursdays (by 11:59PM)
- Homework assignments will typically be made available at least one week before the given due date
- You may use up to two late days on each homework assignment
- You may work on homework assignments in groups of up to four students

There will be **nine** group problem sets (recitations)
- Problem sets will be checked off and solutions reviewed in recitation
- Due dates are the Wednesday recitations *that you are registered for*
- Late days do not apply to problem sets
- Problem sets will typically be made available on or before the Monday before the given due date
- You are encouraged to work in groups of up to four students

EXAMS

There will be **two** equally weighted exams
- Exams will be in-person in room(s) TBA
- Exams will be in our Wednesday 6:00-7:50PM testblock on October 4 and November 8
- A make-up exam will only be given with an official excused absence

There will be **one** comprehensive final exam
- The final exam will be in-person during the final exam period (Dec 14-20)
- Date, time, and location TBA
- **Do not schedule your end-of-semester departure until the final exam schedule is published**

If you have exam accommodations (e.g., for extra time), please email your PDF accommodations letter **this week** to goldsd3@rpi.edu
GRADING CRITERIA AND LATE DAYS

Grading breakdown is as shown here:
(Also see next slide...)

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeworks (5)</td>
<td>30%</td>
</tr>
<tr>
<td>Problem Sets (9)</td>
<td>9%</td>
</tr>
<tr>
<td>Exams (2)</td>
<td>36%</td>
</tr>
<tr>
<td>Comprehensive Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

Submitty late days are available only for homeworks (at most **two per homework**)

Late days are intended to cover minor illnesses, hardware malfunctions, WiFi issues, conflicts with other assignments, and other minor (or absurd) mishaps

Each of you have initially been given **six** late days for the semester

For group work, if submitted late, each group member must use a late day

To use a late day, simply submit the assignment as per usual via Submitty

GRADING POLICIES

You may appeal homework and/or exam grade in Submitty by submitting a grade inquiry within **seven** days of grades being made available

* Explain why you think a grading error was made
* Please do not request a regrade only to argue over how much partial credit was awarded!
* (The seven-day window does not apply to our final exam)

Final course grades are based on the following ranges:

- 93-100 A;
- 90-92 A-
- 87-89 B+
- 83-86 B
- 80-82 B-
- 77-79 C+
- 73-76 C
- 70-72 C-
- 67-69 D+
- 60-66 D

* No curving will occur on any specific assignments
* The grade cutoffs will be reviewed after all assignments and the final exam are completely graded; grade cutoffs may then be lowered
DISABILITY SERVICES FOR STUDENTS

From [http://studenthealth.rpi.edu/disabilityservices](http://studenthealth.rpi.edu/disabilityservices):

“The Office of Disability Services for Students (DSS) assists Rensselaer students with disabilities in gaining equal access to academic programs, extracurricular activities, and physical facilities on campus. DSS is the designated office at Rensselaer that obtains and files disability-related documentation, assesses for eligibility of services, and determines reasonable accommodations in consultation with students.”

Contact: dss@rpi.edu or 518-276-8197

Please take care of your accommodations and email to goldsd3@rpi.edu no later than Friday, September 8

(You must renew your accommodations each academic year)

INCLUSIVITY

I am committed to ensuring full participation of all students in this course

I will strive to provide an environment that is equitable and conducive to achievement and learning for all students

I ask and expect that we all are respectful of one another’s diverse backgrounds and of all class members, regardless of those personal attributes that make each of us unique

I ask and expect that we all use respectful and inclusive language in our written and oral communication (e.g., during class and office hours, on the Discussion Forum, etc.)

If you have individual learning needs and/or want to make me aware of an issue, always feel free to email me directly
ACADEMIC INTEGRITY

Rensselaer Handbook of Student Rights and Responsibilities:

“Intellectual integrity and credibility are the foundation of all academic work. A violation of the Academic Integrity policy is, by definition, considered a flagrant offense to the educational process. It is taken seriously by students, faculty, and Rensselaer and will be addressed in an effective manner.”

“If found responsible for committing academic dishonesty, a student may be subject to one or both types of penalties: an academic (grade) penalty administered by the professor and/or disciplinary action through the Rensselaer judicial process described in this handbook.”

https://info.rpi.edu/dean-students/student-rights-responsibilities-and-judicial-affairs

ACADEMIC INTEGRITY POLICY

No collaboration is allowed for exams

Homeworks in this course must be the sole work of each individual student;
if working in a group, such work must be the sole work of only the group members

Collaboration is allowed on problem sets but copying answers is not allowed

You must write your own solutions; use external online resources extremely sparingly

If found in violation of the academic dishonesty policy:

* You will receive a grade of zero on the given assignment
* For a second offense, you will receive a non-droppable F in the course
* Each incident will be reported to the Dean of Students or Graduate Dean, as applicable, as well as your Department Head
* Cheating may cause you to be ineligible to mentor for the department, participate in various departmental organizations and honor societies, etc.
QUESTIONS?