Syllabus

CSci 2011: Discrete Structures of Computer Science

Instructor

- Instructor: Rui Kuang (Associate Professor, CS&E Dept.)
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Time and Location

Lectures:
Lecture (001) Grade Rosters | Bookstore | Library
M,W,F 09:05 AM - 09:55 AM | Keller Hall 3-210 | 0 / 240 | Class List | Moodle Course | Moodle Home

Recitations:
Discussion (002) Grade Rosters | Bookstore | Library
T 08:00 AM - 08:50 AM | Keller Hall 2-260 | 0 / 40 | Class List | Moodle Course | Moodle Home
Discussion (003) Grade Rosters | Bookstore | Library
T 09:05 AM - 09:55 AM | Bruininks Hall 530B | 0 / 40 | Class List | Moodle Course | Moodle Home
Discussion (004) Grade Rosters | Bookstore | Library
T 10:10 AM - 11:00 AM | Akerman Hall 225 | 0 / 40 | Class List | Moodle Course | Moodle Home
Discussion (005) Grade Rosters | Bookstore | Library
T 11:15 AM - 12:05 PM | Molecular Cellular Biol 2-122 | 0 / 40 | Class List | Moodle Course | Moodle Home

Text Book


Prerequisite

Math 1271/1371 Calculus I

Course Description
In this course, we will study the concepts and techniques in discrete mathematics that are central in the applications in computer science and engineering. Discrete mathematics is one of the most important foundations of a majority of computer science and engineering courses such as artificial intelligence, algorithms & data structure, programming languages, formal language and automata, cryptography, etc.. This course is required for admission to the CSci major and is a prerequisite for many more advanced CSci classes. We will cover propositional and predicate logic, proof methods, sets, functions, sequences, summation techniques, integer and matrix algorithms, asymptotic analysis and big-O notation, recursion and induction, counting methods, recurrences, discrete probabilities, relations, and graphs. The expectation is that after taking the course students will understand how to think mathematically and logically, and use mathematical reasoning and other techniques to solve a variety real world problems. Below is the list of the chapters in the textbook that will be covered:

- Ch. 1: Logic and Proofs
- Ch. 2: Sets, Functions, Sequences, Sums
- Ch. 3: Algorithms
- Ch. 4: Number Theory and Cryptography
- Ch. 5: Induction and Recursion
- Ch. 6: Counting
- Ch. 8: Advanced Counting
- Ch. 9: Relations
- Ch. 10: Graphs

**Grading**

This is a required 4-credit course. There will be three lectures (MWF) and one recitation (TuThu) per week. We will have a weekly assignment after the class on each Wednesday and a quiz at the beginning of the class on each Friday. Each assignment will be due before the class on the next Wednesday. The evaluation will comprise contributions from homeworks, quizzes and the final exam as follows,

- In-class quiz (40%): Bi-weekly in-class and closed-book 25-minute quiz; one-page cheat sheet (letter-size) allowed.
- Homework (30%): Weekly homework.
- Final exam (30%): In-class and closed-book 50-minute exam; one-page cheat sheet (letter-size) allowed.
The final grading is based on the absolute score, and percentages are not rounded. Letter grades will be given in the following scheme,

- **A**: $\geq 93\%$
- **A-**: $\geq 90\%$
- **B+**: $\geq 85\%$
- **B**: $\geq 80\%$
- **B-**: $\geq 75\%$
- **C+**: $\geq 70\%$
- **C**: $\geq 65\%$
- **C-**: $= S \geq 60\%$
- **D+**: $\geq 55\%$
- **D**: $\geq 50\%$
- **F**: $< 50\%$

**Class Policies** (read carefully)

- **Hardworking policy**: Mastery of the mathematical skills taught in the class will benefit you in other advanced computer science classes. Homework problems are just guidelines for the study. It is not sufficient for students to focus only on the homework problems. To survive the quizzes and the final exam, students are expected to spend at least 10 hours reading relevant sections and solving additional problems in the textbook each week.

- **Homework submission policy**: Each homework assignment must be and can only be submitted to the instructor in hardcopy at the beginning of the class on the due date. Late submissions or submissions via email or under the Instructor's/TAs' doors will not be accepted and will receive no credit. Assignments must be legible and pages should be stapled; any violation of this rule may cost additional points in the grading. Please also keep a copy of your assignment before you submit it as a proof of your submission.

- **Quizzes and final exam**: The quizzes and exam must be taken as scheduled in the moodle. No make-up quizzes are possible under any circumstance. Only in the event of a medical emergency that involves you or an immediate family member, a make-up exam will be considered, and proof of this will be required.

- **Questions about grading**: Questions about grading should be addressed to the TAs within ten days from the date the assignment or quiz is returned; No requests will be considered after the 10-day grace period.

- **Incomplete grade**: An "Incomplete" grade is generally not given. Exceptions can be considered only (and only) if you are doing well in the course and have completed more than 50% of the coursework, but are unable to complete the course due to a medical emergency that involves you or an immediate family member; proof of this will be required.

- **Academic integrity policy**: Students are encouraged to have discussions in the class forum, but all students must work independently on their assignments and exams. Any student cheat in exams or homeworks will receive a F as a class grade and the incident will be reported to the University office. More formation on academic misconduct is available at Note on Academic Conduct for New Students and The Office for Student Academic Integrity.