

## **CSE 15: Discrete Mathematics (TR 9-10:15AM, in CLSRM 116)**

**Credits:** 4

**Instructor:** Mukesh Singhal, *Professor* of CSE

**E-mail:** [msinghal@ucmerced.edu](mailto:msinghal@ucmerced.edu).

**Office Hours:** TR 10:30-11:30AM or by appointment (send an e-mail)

**Office Location:** SE2, Room 207.

### **Course Description**

The following topics will be covered in roughly the given order.

1. Propositional logic
2. Predicate calculus
3. Rules of inference
4. Proof techniques
5. Sets and set operations
6. Functions
7. Sequence and summations
8. Algorithms and Algorithms complexity
9. Growth of functions
10. Integers and divisions
11. Prime numbers
12. Mathematical induction and strong induction
13. Recursive definitions and structural induction
14. Recursive algorithms
15. Permutations and combinations
16. Binomial coefficients
17. Relations and their properties

### **Prerequisites**

- ▶ Basic knowledge of calculus (MATH 21 and MATH 22).
- ▶ Basic knowledge of computer science.

### **Examinations, etc.**

- ▶ 2 Mid-term exams: Oct 9 (T) and Nov 13 (T)
- ▶ Final exam (in the classroom, 3-6PM, Dec 11, Tuesday)
- ▶ About 11 homework assignments
- ▶ 4 quizzes (announced)

### **Grading**

- |                                     |     |
|-------------------------------------|-----|
| ▶ Homeworks:                        | 15% |
| ▶ 2 Mid-terms:                      | 30% |
| ▶ Final exam (comprehensive):       | 35% |
| ▶ Quizzes:                          | 15% |
| ▶ Class participation (attendance): | 5%  |

- ▶ Letter Grades:
  - 90% of points at least an A- (90<= A- <=94)
  - 80% at least a B- (83<= B <=86)
  - 70% at least a C (73<= C <=76)

## Academic Honesty

Students are expected to abide by the UC Merced campus-wide Academic Honesty Policy which can be found at <http://studentlife.ucmerced.edu/what-we-do/student-judicial-affairs/academicy-honesty-policy>. Academic misconduct is a serious offense. Violation of these policies may result in a grade of “F” or 0 points for the assignment or exam, or for more serious violations, a grade of “F” in the course, at the discretion of the instructor.

Examples of Academic Dishonesty:

- ▶ Communicating information to another student during examination.
- ▶ Knowingly allowing another student to copy one’s work.
- ▶ Offering another person’s work as one’s own.

General guidelines for academic honesty:

- ▶ Don’t copy someone else’s assignment/exam
- ▶ Don’t give/share your assignment away
- ▶ Don’t outsource your assignments
- ▶ Don’t use electronic devices in exams
- ▶ Turn off speakers/cellphone during class
- ▶ Giving help in finding errors and in understanding homework assignments is acceptable.
- ▶ However, you should not show/share with any student any portion of your work (e.g., homework solutions, midterm/quiz/final exam)

## Textbook

Kenneth H. Rosen, *Discrete Mathematics and Its Applications*, McGraw Hill – 7<sup>th</sup> edition.

## General Policies:

- ▶ Attendance is required (5% of overall grade, zero point after 4 unexcused misses)
- ▶ Homework Assignments will be posted on Catcourses and need to be submitted there.
- ▶ No late submission is allowed after 1 day beyond the due date.
- ▶ All email inquiries received before 5pm during school days will be replied within 48 hours
  - Guidelines below for proper email communications
    - <https://medium.com/@lportwoodstacer/how-to-email-your-professor-without-being-annoying-af-cf64ae0e4087>

**TAs for the course:** Mina Naghshnejad **and** Nasit Sony