SYLLABUS FOR CSE 115 / ENGR 160: DISCRETE MATHEMATICS

Spring 2016

CATALOGUE DESCRIPTION

This course covers the basic concepts of discrete mathematics used in computer science and other disciplines that involve formal reasoning. The topics include logic, proof, counting, discrete probability, relations, graphs, trees, and Boolean algebra.

TEXTBOOK AND MATERIALS

Discrete Mathematics and Its Applications by Kenneth H. Rosen (Seventh Edition)
All lecture slides will be made available through CatCourses

LECTURES

MW: 2:30 PM – 3:45 PM, CLSRM 113

LABS

T: 7:30 PM – 10:20 PM, SCIENG 138
F: 7:30 AM – 10:20 AM, SCIENG 100

OFFICE HOURS AND CONTACT INFORMATION

Instructor:	Santosh Chandrasekhar (please call me Santosh or Tosh)
Email:	schandrasekhar@ucmerced.edu
Office:	S&E II, 213D
Office Hours:	TR 3:00 PM – 4:00 PM (or by appointment)
TA:	Narjes Tahaei (ntahaei@ucmerced.edu)
TA Hours:	Same as lab hours

COURSE OBJECTIVES AND LEARNING OUTCOMES

Students will learn the fundamental concepts and techniques used widely in computer science and related disciplines.

Students will learn a set of mathematical facts and how to apply them. Most importantly, students will learn how to think logically and mathematically. To achieve these goals. this course covers mathematical reasoning and how problems are solved in different ways.

This course will cover five major themes:

1. Mathematical reasoning: Student will learn to read, comprehend and construct mathematical arguments. As a first step in this process, students will learn mathematical logic and proof techniques.
2. Combinatorial Analysis: Students will learn to perform combinatorial analysis to solve counting problems and analyze algorithms.
3. Discrete Structures: Students will learn several abstract mathematical structures used to represent discrete objects and their relationships, which include sets, permutations, relations, graphs, and trees.
4. Algorithmic Thinking: Students will learn to specify an algorithm, verify that it works properly, and the analyze its performance based on computer memory and time requirements.
5. Applications: Students will learn about the applications of discrete mathematics to computer science and data networking, and other areas, like chemistry, biology, linguistics, geography, business, and the Internet.

Topics

- Propositional and predicate logic
- Inference and proof techniques
- Sets
- Functions
- Sequences and series
- Recursion
- Counting
- Permutations and combinations
- Recurrence
- Probability
- Relations
- Graphs
- Boolean algebra

Midterm and Final Exam Schedule

This schedule is subject to change, but is tentatively set as follows:

Midterm 1:	March 2 2016, W 2:30 PM – 3:45 PM, In class
Midterm 2:	April 13 2016, W 2:30 PM – 3:45 PM, In class
Finals:	May 11 2016, W 8:00 AM – 11:00 AM, KOLLIG 217

Grading

Class participation:	5%
Homework (11):	25%
Quizzes (3):	15%
Midterms (2):	30%
Final:	25%

Prerequisites

Upper class standing. Basic knowledge of calculus covered in MATH 21 and MATH 22

Course Policies

- Attendance is required.
- Homework assignments are posted on CatCourses on Wednesdays, and are typically due in class by the following Wednesday
- No late submission is allowed 24 hrs past the due date.
- Giving each other help in finding errors and in understanding the assignment is perfectly acceptable.
- You may allow other students to see small portions of your work, but you may not allow them to copy directly (or give them copies of your assignment).

Academic Dishonesty Statement

a) Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy. Any work submitted by a student in this course for academic credit will be the student's own work.

b) You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give "consulting" help to or receive "consulting" help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an email, an email attachment file, a diskette, or a hard copy. Should copying occur, both the student who copied work from another student and the student

who gave material to be copied will both automatically receive a zero for the assignment. Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.

c) During examinations, you must do your own work. Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.

DISABILITY STATEMENT

Accommodations for Students with Disabilities: The University of California, Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. I am available to discuss appropriate academic accommodations that may be required for student with disabilities. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate accommodations.