

CMPE 16

Applied Discrete Mathematics

Summer 2015 (June 22 – August 14)

Description: Introduction to applications of discrete mathematical systems. Topics include: logic, propositions, proofs using propositional equivalences; sets and set operations; predicates and quantifiers; rules of inference and mathematical proof methods; functions and relations, sequences and summations; divisibility, modular arithmetic, prime numbers and Euclid's algorithm; mathematical induction; recursive definitions and recurrence relations, solving recurrence relations; counting arguments, pigeonhole principle, permutations and combinations; discrete probability; Boolean algebra and circuits; modular arithmetic.

Time and Place: MWF 10:00-11:45am Thimann Lecture 001
Class Webpage: <https://classes.soe.ucsc.edu/cmpe016/Summer15/>

Instructor: Patrick Tantalo <http://users.soe.ucsc.edu/~ptantalo/>

Email: ptantalo@soe.ucsc.edu

Office: E2 257

Office Hours: TTh 2:00-4:00, W 3:30-4:30, or by appointment

Phone: 831-459-3898

Teaching Assistant:

James Mathewson (jmathew@ucsc.edu)

LSS Tutor:

Bryan Tsai (btsai@ucsc.edu)

Required Text:

Discrete Mathematics and its Applications by Kenneth H. Rosen, 7th edition, McGraw-Hill 2012 (ISBN 9780073383095). The Bay Tree Bookstore has a custom edition that includes only the sections we will be using in this course (ISBN 9781308025254). We will cover sections 1.1-1.7, 2.1-2.5, 4.1-4.3, 5.1-5.3, 6.1-6.6, 7.1-7.4, 8.1-8.3, 8.5, 8.6, 12.1-12.3. It is possible to use an earlier edition, when doing so however, it is entirely the students' responsibility to compensate for changes in section, page and problem numbers. Follow this link to see a mapping of the 7th edition section numbers to those of the 6th edition: <https://classes.soe.ucsc.edu/cmpe016/Summer15/RosenSections.pdf>.

Optional Online Texts:

Book of Proof by Richard Hammack (<http://www.people.vcu.edu/~rhammack/BookOfProof/>)

Topics in Discrete Mathematics by A. Pixley (<http://www.e-booksdirectory.com/details.php?ebook=8149>)

Discrete Structures by Vladlen Koltun (<http://web.stanford.edu/class/cs103x/cs103x-notes.pdf>)

Coursework and Evaluation:

- **Weekly Homework:** taken from the exercises at the end of each section of the Rosen text.
- **Weekly Quizzes:** to be held during last 20 minutes of class. The first will be on Wednesday July 1, and subsequent quizzes will be held on Fridays, through Friday August 7.
- **Final Exam:** Friday August 14, 10:00 am - 12:30 pm

Coursework will be weighted as follows:

Homework	10%
Quizzes	50%
Final Exam	40%

Grading Scale:

A+	97%-100%
A	93%-96%
A-	90%-92%
B+	87%-89%
B	83%-86%
B-	80%-82%
C+	76%-79%
C	70%-75%
D	60%-69%
F	0%-59%

Letter grade boundaries may be lowered at my discretion in order to eliminate some borderline cases.

Accommodations for Students with Disabilities

If you qualify for classroom accommodations because of a disability, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me during my office hours or by appointment, preferably within the first week of the Summer Session. Contact DRC by phone at 831-459-2089 or drc@ucsc.edu if you have a disability and need class room accommodations but are not yet a DRC student.

Academic Honesty:

The Baskin School of Engineering has a zero tolerance policy for any incident of academic dishonesty. If cheating occurs, consequences may range from getting zero on a particular assignment to failing the course. In addition every case of academic dishonesty is referred to the students' college Provost who sets in motion an official disciplinary process. Cheating in any part of the course may lead to failing the course, suspension or dismissal from the Baskin School of Engineering, or from UCSC. What is cheating? In short, it is presenting someone else's work as your own. Examples would include copying another student's written homework assignment, or allowing your own work to be copied. You may discuss homework problems with fellow students, but your collaboration must be at the level of *ideas* only. Legitimate collaboration ends when you "lend", "borrow", or "trade" *written solutions* to problems, or in *any way* share in the act of *writing* your answers. If you do collaborate (legitimately) or receive help from anyone, you must credit them by placing their name(s) at the top of your paper. Please go to http://www.ue.ucsc.edu/academic_integrity to see the full text of the University's policy on Academic Integrity.