

## CSE 16

### Applied Discrete Mathematics

Summer 2023 (8-week session: June 26 - August 18)

**Description:** Introduction to applications of discrete mathematical systems. Topics include sets, functions, relations, graphs, predicate calculus, mathematical proof methods (induction, contraposition, contradiction), counting methods (permutations, combinations), and recurrences. Examples are drawn from computer science and computer engineering. Knowledge of computer programming is useful before taking this course. Students who do not have prior programming experience are strongly recommended to take CSE 20 or CSE 30 before taking this course.

**Prerequisites:** MATH 19A or MATH 19B or MATH 11B or AM 11B or AM 15B or ECON 11B.

**Lecture:** WThF 11:00am - 12:35pm Jack Baskin Auditorium 101

**Class Webpage:** <https://people.ucsc.edu/~ptantalo/cse16/Summer23/>

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

**Email:** [ptantalo@soe.ucsc.edu](mailto:ptantalo@soe.ucsc.edu)

**Office Hours:** Thursdays 2:00pm-5:00pm

**Dates:** Thursday 6/29 to Thursday 8/17

**Location:** Engineering 2 239A

#### Tutors:

Vincent Tan ([vtan6@ucsc.edu](mailto:vtan6@ucsc.edu))

Kajal Patil ([kapatil@ucsc.edu](mailto:kapatil@ucsc.edu))

#### LSS Small Group Tutor:

Melany Del Cid ([mdelcidc@ucsc.edu](mailto:mdelcidc@ucsc.edu))

#### Required Text:

*Discrete Mathematics and its Applications*

by Kenneth H. Rosen, 7<sup>th</sup> edition, McGraw-Hill 2011 (ISBN 978-0073383095)

#### Supplementary Texts:

*Book of Proof*

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

*Applied Discrete Structures*

by Alan Doerr and Kenneth Levasseur (<https://faculty.uml.edu/klevasseur/ads2/>)

*Discrete Mathematics: an Open Introduction*

by Oscar Levin (<http://discretetext.oscarlevin.com/home.php>)

#### Coursework:

35% Homework Assignments (7): Due Thursdays 7/6, 7/13, 7/20, 7/27, 8/3, 8/10, 8/17

50% Quizzes (5): Fridays 7/7, 7/14, 7/21, ---, 8/4, 8/11

15% Final Exam: Friday, August 18 11:00am - 12:35pm

All scores are rounded to the nearest 10<sup>th</sup> of a percent. They will not be rounded further. No scores are curved. The following letter grade boundaries will be used to determine your grade in the class.

**Grading scale:**

A+	98.0% - 100%
A	93.0% - 97.9%
A-	90.0% - 92.9%
B+	88.0% - 89.9%
B	83.0% - 87.9%
B-	80.0% - 82.9%
C+	78.0% - 79.9%
C	70.0% - 77.9%
C-	68.0% - 69.9%
D+	65.0% - 67.9%
D	61.0% - 64.9%
D-	59.0% - 60.9%
F	0% - 58.9%

**Accommodations for Students with Disabilities**

UC Santa Cruz is committed to creating an academic environment that supports its diverse student body. If you are a student with a disability who requires accommodations to achieve equal access in this course, please submit your Accommodation Authorization Letter from the Disability Resource Center (DRC) to me by email, preferably within the first two weeks of the quarter. I would be happy to meet with you in office hours to discuss how we can ensure your full participation in the course. I encourage all students who may benefit from learning more about DRC services to contact DRC by phone at 831-459-2089 or by email at [drc@ucsc.edu](mailto:drc@ucsc.edu). See also <https://drc.ucsc.edu/>.

**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. This would include collaborating with any person while writing your solutions to homework assignments or quizzes. You may discuss homework problems with fellow students and tutors, 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 solutions*. 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. Go to <https://ue.ucsc.edu/academic-misconduct.html> to see the University's policy on Academic Misconduct.

**Some Important Summer Session Deadlines:**

- Add/Swap - Thursday, June 29
- Drop - Monday, July 10 (tuition reversed)
- Request "W" Grade - Sunday, July 30 (no tuition reversal)
- Change Grade Option - Sunday, August 13

For all dates and deadlines, see the summer academic calendar at:

<https://summer.ucsc.edu/studentlife/index.html>