California State University, Los Angeles
Computer Science Department
CS 2148 Discrete Structures
(Fall 2021)

COURSE INFORMATION

Instructor Information
Instructor: Yuqing Zhu
Office Location: E&T A317
Telephone: (323) 343-4572
Email: yuqing.zhu at calstatela dot edu
Office hours: Mo\We 9:30AM-11:00AM; by appointment
Class Days/Time: MWF 11:00AM-12:07AM Lecture
Classroom: CSNS
Prerequisites: CS2012, Math 2120

Course Description
An introduction to discrete mathematics with applications to Computer Science; fundamentals of logic and set theory, counting techniques, relations, induction and recursion; graphs and trees; probability theory

Following chapters will be covered: 1.1, 1.2, 1.3, 1.4 and 2.1, 2.2, 2.3 and 3.1, 3.2, 3.3, 3.4 and 4.1, 4.2, 4.3, 4.4, 4.5, 4.7 and 5.1, 5.2, 5.6, 5.7 and 6.1 and 7.1, 7.2 and 8.1, 8.2, 8.3, and 9.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9 and 10.1, 10.4, 10.5

Course Objectives/Outcomes
The Student Learning Outcomes that are addressed by the course are:
   SLO #1. Students will be able to apply concepts and techniques from computing and
         mathematics to both theoretical and practical problems.
   SLO #3. Students will have a strong foundation in the design, analysis, and application of
         many types of algorithms.
   SLO #5. Students will have the training to analyze problems and identify and define the
         computing requirements appropriate to their solutions.

REQUIRED COURSE MATERIALS

Textbook
   Discrete Mathematics with applications (5th Edition, Brooks/Cole)
   By: Susanna S. Epp

COURSE POLICIES

Late submissions are accepted and incompletes are given only under reasonable circumstances. Your Zoom classroom participation and attendance will count towards your final grade. See the grading policy below. Your classroom participation are your discussions with your peers and presentations for the classroom activities.

Course Structure

This course is to be conducted entirely on virtual lectures via Zoom. You will participate in the course using a CSNS learning management system.

Computer Requirements

You are required to submit your assignments (programs or documents) via CSNS learning management system.

ASSIGNMENTS AND GRADING POLICY

There will be some exercise class meetings. Students will be given the problems ahead of the class meeting and upload the solutions to CSNS. The students will be grouped and work these questions together, and then the professor will randomly check one student in each group for a problem. When a student solves the problem, all group members get the full credit. When a student cannot solve the problem, other members from the group can ask the professor to check his/her solution. If this student makes it correct, all group members can still get the full credit.

Grading Criteria

Points Possible

Assignment	Percentage
Classroom Exercise	60%
Midterm Exam	20%
Final Exam	20%
Total:	**100%**

Grading Scale

Letter Grade	Percentage
A	90% and above
B	75% and below 90 %
C	60% and below 75 %
D	50% and below 60%
F	Below 50%

Grades

Grades for each assignment will be emailed via CSNS as soon as grading is finished. Any grading issues must be communicated through email with the instructor. Please do not post any grading concerns in a discussion forum.

COURSE COMMUNICATION

Interaction with Instructor

The Instructor will make every effort to communicate frequently with students through announcements and postings within the CSNS site. Post any questions or comments you have about the course content and/or requirements in the CSNS course forum. Questions of a more personal nature can be sent to the Instructor via email.

HELPFUL STUDENT RESOURCES

Technical Resources

Information on CSULA technical support resources for students: [Technical Support](#)

Student Support Services

Information on CSULA student support resources for students: [Student Services](#)

Academic Support Services

Information on CSULA academic support resources for students: [Academic Support](#)

COURSE & UNIVERSITY POLICIES

Student Handbook

Information on student rights and responsibilities, academic honesty, standards of conduct, etc., can be found in Schedule of Classes for the current quarter visit the Cal State LA [Schedule of Classes Information](#) under Policies and Procedures.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drops, academic renewal, etc. Students should be aware of the current deadlines and penalties for adding and dropping classes by visiting the [GET home page](#). (Registrar news and information)

Americans with Disabilities Act (ADA)

Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation. For more information visit the [Office for Students with Disabilities](#) home page.

Academic Honesty/Student Conduct

All work you submit must be your own scholarly and creative efforts. Any act of using ideas, words, or work of another person or persons as if they were one's own is considered as cheating. Cheating will not be tolerated. Cheating on any assignment or exam will be taken seriously. All parties involved will receive a grade of F for the course and be reported to the University Official. Check Appendix E - Student Conduct / Student Conduct Procedures to see student code of conduct in Cal State LA.

Course Outline/Schedule of Assignments

Schedule
This schedule is subject to change. Any changes will be notified in the class room and via email and CSNS. Up-to-date schedule is maintained on CSNS.

Week	Topic	Assignments/Activities:
1	Speaking Mathmatically • Variables	
2	Speaking Mathmatically • Mathematical Statements • Sets • Relations and Functions	
3	Exercise The logic of Comppund Statement • Logic Form and logic equivalence	
4	The logic of Compound Statements • Statements • Compound Statements • Logical Equivalence	
5	Exercise The logic of Compound Statements • Conditional Statements • Valid and Invalid Arguments	
6	The logic of Quantified Statements • Predicates and Quantified Statements I	
7	The logic of Quantified Statements • Predicates and Quantified Statements II • Statements with Multiple Quantifiers	
8	Exercise	Midterm
9	Sequences • Summation and Production • Change of Varaibles	
10	Methematical Induction Exercise	
11	Recursive Sequence Exercise	
12	Counting and Probability • Introduction • Possibility Trees and the Multiplication Rule	
13	Counting and Probability	

Week	Topic	Assignments/Activities:
	• The Addition Rule • The Pigeonhole Principle • Combinations Exercise	
14	Counting and Probability • Conditional Probability • Bayes' Theorem	
15	Exercise Review of Topics for the final exam (Q&A)	
Final		**Prepare for Class**: You are required to review lecture slides, your midterm exams, and sample questions for the final exam.