

**CSCI 190 Discrete Mathematics Applied to Computer Science (40414)**  
**Math and Computer Science Department**  
**Spring 2022**  
**(2/22 to 6/12)**  
**Course Syllabus**

**Instructor: Prof. Gilbert Young**  
**Internet**  
**Class Hours: Online Synchronous (Mo 4:30-6:35PM)**  
**Online Asynchronous (on Canvas)**

---

### **Course Description**

Provides students with the mathematical background necessary in Computer Science: set theory, logic, modular arithmetic, combinatorics, finite probability and graphs. Topics include propositional and predicate calculus, recursion, binary search trees and counting techniques. Prerequisite: MATH 71 or equivalent. 4 units.

---

### **Student Learning Outcomes (SLO)**

1. Students will be able to use truth table for propositional calculus.
  2. Students will be able to use math induction and recursive definitions and algorithms.
  3. Students will be able to understand the terminology of finite graphs and trees and use the basic algorithms for traversal, shortest path, graph coloring.
  4. Students will be able to use basic counting techniques, combinatorics concepts and binomial coefficients.
- 

### **Course Measurable Objectives (CMO)**

1. Utilize the appropriate mathematical tool in algorithm design
  2. Define problems in mathematical terms using the language of sets, logic, arithmetic, combinatorics
  3. Compose proofs using truth tables or predicate calculus
  4. Develop algorithms using recursion
  5. Utilize modular arithmetic and integer arithmetic in problem solving with computers
  6. Demonstrate elementary counting techniques
  7. Solve problems using mathematical induction
  8. Utilize the language of graphs in problem solving and algorithm design
  9. Classify problems according to mathematical aspect that is relevant to it
  10. Utilize discrete probability for practical problems.
- 

### **Office Hours and Email Address**

Office Hours:	Mo 8:20-10:20PM (Virtual-synchronous by email)
Office Location:	61-1650
Office Phone:	(909) 274-5315
Course Link:	<a href="https://mtsac.instructure.com">https://mtsac.instructure.com</a> (via Canvas)
Email:	<a href="mailto:gyoung16@mtsac.edu">gyoung16@mtsac.edu</a>

*(Always contact instructor by email, and email received by 5pm of each day will typically be replied by 9am of the following school calendar day)*

---

## Textbooks and Materials

- K. Rosen, *Discrete Mathematics and Its Applications*, McGraw Hill, 7/e, 2012. ISBN: 0073383090.
  - Textbook and Calculator
- 

## Grading

Grading will be based on homework assignments and exams. The final grade is generally based on a straight scale:

A  $\geq$  90%, 80%  $\leq$  B < 90%, 70%  $\leq$  C < 80%, 60%  $\leq$  D < 70%, F < 60%.

Percent	Items
15%	Homework (3)
24%	Exam#1
24%	Exam#2
37%	Final Exam – comprehensive

All assignments must be turned in at the beginning of the class session on the due date. No late assignments (no exceptions). You will typically get your assignments graded within one week. All exams will cover the homework assignments, textbook reading assignments, and class activities. Tests can only be made up with instructor's prior approval or special circumstance that can be substantiated. Some potential extra credit points can be earned from class activities and excellent work.

Final Exam: The final exam will occur at the end of the course and will be cumulative (meaning it will cover everything we do in this class). If your final exam score is higher than your lowest exam score (Exam#1/Exam#2), then your final exam score will replace your lowest exam score.

---

## Cheating/Plagiarism

Cheating and plagiarism will not be tolerated in any shape or form in this class. Unless you are prepared to do your own work, DO NOT take this class. Zero will be given to an assignment or exam if happened. In addition, you may be subject to Mt. San Antonio College's student discipline process. This policy is applied to both the copier and/or the provider so protect your work. You cannot work together on any assignments unless directed by your instructor.

Academic dishonesty includes but is not limited to cheating on a test and sharing a solution. When in doubt, ask your instructor. In addition, refer to the school catalog for additional information.

---

## Miscellaneous

Last day to add class is **04-MAR-2022**.

Last day to drop without a "W" is **06-MAR-2022**.

Last day to drop with a "W" is **29-APR-2022**.

You could be dropped from the class for lack of attendance, but it is mainly your responsibility to drop/withdraw from the class or you will receive a grade.

Do not eat or drink in the classroom. If you have any special accommodation needs, please let your instructor know as soon as possible. Please advise your instructor of any special requirements within the first week. The instructor reserves the right to revise this syllabus.

---

## Holiday:

May 30<sup>th</sup> – Memorial Day • No Classes

## CSCI 190 (40414) Mo 4:30-6:35PM 2022 Spring Tentative Schedule (2/22 – 6/12)

This is just a tentative schedule and is subject to change. Lectures and reading assignments will cover the materials from the required text and it is your responsibility to read the assigned materials before coming to class. Many students have a better understanding of the materials when they read those topics before the lecture.

WEEK	DATE (Mo)	Synchronous @Zoom Zoom ID: <b>919 4447 0286</b> Passcode: <b>Sweet16</b> LECTURE ACTIVITIES	TEXT- BOOK	DATE (Week)	Asynchronous @Canvas (Recorded Lectures)  LECTURE ACTIVITIES	TEXT- BOOK
1				02/22 - 02/27	The Foundations: Logic and Proofs	Ch. 1
2	02/28	Introduction, Syllabus Sets, Functions, Sequences, Sum & Matrices	Ch. 2	02/28 - 03/06	The Foundations: Logic and Proofs	Ch. 1
3	03/07	Sets, Functions, Sequences, Sum & Matrices	Ch. 2	03/07 - 03/13	The Foundations: Logic and Proofs	Ch. 1
4	03/14	Sets, Functions, Sequences, Sum & Matrices	Ch. 2	03/14 - 03/20	Number Theory & Cryptography	Ch. 4
5	03/21	Algorithms	Ch. 3	03/21 - 03/27	Induction & Recursion	Ch. 5
6	03/28	Algorithms Q&A HW#1	Ch. 3	03/28 - 04/03	Counting	Ch. 6
7	04/04	HW#1 Due Review for Exam 1		04/04 - 04/10	Discrete Probability	Ch. 7
8	04/11	Exam 1 (Ch. 1-4)		04/11 - 04/17	Discrete Probability	Ch. 7
9	04/18	Advanced Counting Techniques	Ch. 8	04/18 - 04/24	Relations	Ch. 9
10	04/25	Advanced Counting Techniques Q&A HW#1	Ch. 8	04/25 - 05/01	Relations	Ch. 10
11	05/02	HW#2 Due Review for Exam 2		05/02 - 05/08	Trees	Ch. 11
12	05/09	Exam 2 (Ch. 5-8)		05/09 - 05/15	Trees	Ch. 11
13	05/16	Boolean Algebra Q&A HW#3	Ch. 12	05/16 - 05/22	Boolean Algebra	Ch. 12
14	05/23	HW#3 Due Review for Final		05/23 - 05/29	Review for All HWs	
15	05/30	No Class (Holiday)		05/30 - 06/05	Preparation for Final Exam	
16 Final Week	06/06	Final Exam (Comprehensive Ch. 1-12) @ 4:30pm –7:00pm				