

# Math Methods

## (COSC 030) Summer 2021

### PROFESSOR:

Mahendran Velauthapillai, Ph.D.  
Department of Computer Science  
331 St.Mary's Building  
mahe@cs.georgetown.edu

Phone: 202 687-5936 (Office)

### OFFICE HOURS:

M-R: 2.00 - 3.00 PM or by appointment.

---

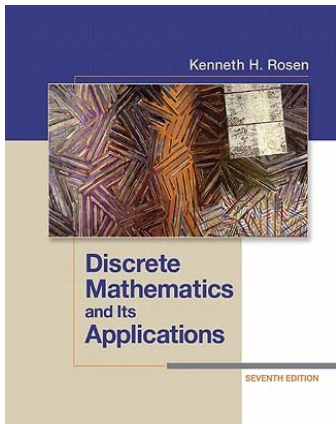
### TEACHING ASSISTANTS:

Name	Office Hours	Location	Email
------	--------------	----------	-------

### To be announced

---

### TEXT:

	Discrete Mathematics and its Applications	Kenneth H. Rosen (7th Ed) (required)
	Publisher	McGraw Hill
	ISBN:	978-0-07-338309-5

### SYNOPSIS:

This course, designed to be taken concurrently with COSC 052, covers mathematical tools and principles that are valuable to the computer scientist. Topics are generally in the domain of discrete, rather than continuous, mathematics, and include, propositional and predicate logic; mathematical proofs, including induction; counting and basic probability

theory; logarithmic and exponential functions; elementary graph theory; and "Big-O" notation and asymptotics.

---

**Notes:**

Notes will be posted here after each class.

---

**COURSE REQUIREMENTS:**

Home Work: 60% of your final grade  
Mid-Term 1: 15% of your final grade  
Finals: 25% of your final grade

---

**IMPORTANT DATES:**

Mid-Term 1: June 24 (R)  
Finals: July 8 (R)

---

**COURSE SCHEDULE:**

Lec	Topic	Reading
1	Logic and Proofs	Chap 1
2	Sets and Functions	Chap 2
3	Algorithms	Chap 3
4	Number Theory	Chap 4
5	Induction and Recursion	Chap 5
6	Induction and Recursion	Chap 5
7	Counting	Chap 6
8	Counting	Chap 6
9	Probability	Chap 7
10	Recurrence Relations	Chap 8
11	Recurrence Relations	Chap 8
12	Relations	Chap 9
13	Graphs	Chap 10
14	Trees	Chap 11

15	Boolean Algebra	Chap 12
16	Boolean Algebra	Chap 12
17	Modeling and Computation	Chap 13
18	Modeling and Computation	Chap 13

---

**HOME WORK:**

Home Work	Given	Due	Pts	Problems	Sol
1	6-7	6-8	20	hw1	sol
2	6-8	6-9	20	hw2	sol
3	6-9	6-10	20	hw3	sol
4	6-10	6-14	20	hw4	sol
5	6-14	6-15	20	hw5	sol
6	6-15	6-16	20	hw6	sol
7	6-16	6-17	20	hw7	sol
8	6-17	6-21	20	hw8	sol
9	6-21	6-22	20	hw9	sol
10	6-22	6-23	20	hw10	sol
11	6-28	6-29	20	hw11	sol
12	6-29	6-30	20	hw12	sol
13	6-30	7-01	20	hw13	sol
14	7-01	7-05	20	hw14	sol
15	7-05	7-06	20	hw15	sol
16	7-06	7-07	20	hw16	sol

---

**COURSE POLICY:**

1. All *Home works* should be turned in at the beginning of the class. Keep the graded home works until the semester is over.
2. Late Home work will NOT be accepted. If you cannot make it to class,

its your responsibility to turn it in prior to the due date.

3. Makeups and extensions will be given only under extreme circumstances (Eg: medical reasons).

**COURSE ETHICS:**

You can discuss the questions with your classmates, but do not copy the solutions.