

MATH 416/CSC 416 (INTRODUCTION TO COMBINATORICS) SPRING 2025

Course Schedule: This is the most up-to-date schedule for lecture topics (revised January 18, 2025). This schedule (except for test dates) is subject to change as the course progresses. For your reference, the [original schedule](#) (posted on the first day of class) is available on the [course website](#). Homework assignments are due in class on the days indicated in the “Due” column. For example, Assignment #1 is due in class on January 14.

Lecture	Day	Date	Text	Topic	Due
1	Mon	Jan. 6	1.1, 1.2	Fundamental counting principle/Pascal’s triangle	
2	Wed	Jan. 8	1.2	Pascal’s triangle	
3	Mon	Jan. 13	1.3	Elementary Probability	#1
4	Wed	Jan. 15	1.5	Combinatorial identities	
	Mon	Jan. 20		NO CLASS (MLK Jr. Day)	
5	Wed	Jan. 22	1.6	Choosing (ordered? with replacement?) & Compositions	
6	Mon	Jan. 27	1.7	The Binomial and Multinomial Theorems	#2
7	Wed	Jan. 29		Homework discussion	
8	Mon	Feb. 3	1.7, 1.8	Binomial/Multinomial (continued) & Integer partitions	#3
9	Wed	Feb. 5	1.8, 1.9	Integer partitions (continued) & Symmetric polynomials	
10	Mon	Feb. 10	2.1	Combinatorics of finite functions	#4
11	Wed	Feb. 12	2.1	Combinatorics of finite functions (continued)	
12	Mon	Feb. 17	2.2	Combinatorics of finite functions (continued)	#5
13	Wed	Feb. 19	2.2	Combinatorics of finite functions (continued)	
14	Mon	Feb. 24	2.3	Catch-up/review & Permutations	#6
15	Wed	Feb. 26	2.3	Derangements & Inclusion/Exclusion	
	Mon	Mar. 3		MIDTERM EXAM, during class in the usual room	
16	Wed	Mar. 5	2.4	Inclusion/Exclusion (continued) & Disjoint cycle notation	
	Mon	Mar. 10		NO CLASS (Spring Break)	
	Wed	Mar. 12		NO CLASS (Spring Break)	
17	Mon	Mar. 17	2.5	Stirling numbers of the first kind	#7
18	Wed	Mar. 19	4.2	Ordinary generating functions	
19	Mon	Mar. 24	4.2	Ordinary generating functions (continued)	#8
20	Wed	Mar. 26	4.3	Applications of Generating functions	
21	Mon	Mar. 31	4.3	Applications of Generating functions (continued)	#9
22	Wed	Apr. 2	4.3, 5.1	Appl. of Gen. functions (continued) & Graph theory	
23	Mon	Apr. 7	5.1, 5.2	Pigeonhole principle & Ramsey theory	#10
24	Wed	Apr. 9	5.2	Ramsey theory (continued)	
25	Mon	Apr. 14	5.3	Chromatic polynomials	#11
26	Wed	Apr. 16	5.3	Chromatic polynomials (continued)	
27	Mon	Apr. 21		TBA	#12
	Wed	Apr. 23		NO CLASS (Reading Day)	
	Friday	Apr. 25		FINAL EXAM, 8:30–11:00 a.m., in the usual room	