

MATH 5835 - Introduction to Combinatorics and Graph Theory

Summer 2026 Syllabus, Section A01, CRN 30966,

Credit hours: 3

Instructor

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Professional Qualifications:

PhD, Pure Mathematics

Professor

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Course Description

5835. Introduction to Combinatorics and Graph Theory. The pigeonhole principle; permutations, combinations, the binomial theorem; the inclusion-exclusion principle; recurrence relations; graphs and digraphs, paths and cycles, trees, bipartite graphs and matchings. Prereq.: C or better in either MATH 3715 or CSCI 3710 and C or better in MATH 3720. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Required	Applied Combinatorics, 6th Edition	Tucker, Alan	

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Schedule of Topics and Assignments

Week of	Reading(s)	Proposed Topic	Due/To Prepare for Class
6/29	Sections 1.1-1.5	Introductory Graph Theory	Exercises Reading Questions
7/6	Sections 2.1-2.5	Circuits and Graph Coloring	Exercises Reading Questions
7/13	Sections 3.1-3.3	Trees	Exercises Reading Questions Midterm Exam
7/20	Sections 5.1-5.6	Counting	Exercises Reading Questions
7/27	Sections 6.1-6.2, 7.1, 7.3	Generating Functions/Recursion	Exercises Reading Questions
8/3	Sections 8.1-8.2	Inclusion-Exclusion	Exercises Reading Questions
8/10	Section A4	Advanced Topics	Reading Questions Final Exam

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.