

# MATH 7012 Syllabus

Enumerative Combinatorics, Section A, 3 credit hours

Fall 2026

## Instructor Information

Instructor: Dr. Josephine Yu

Email: [jyu@math.gatech.edu](mailto:jyu@math.gatech.edu)

## General Course Information

### Description

Fundamental methods of enumerative and algebraic combinatorics, including the Twelve-fold way, generating functions (ordinary, exponential, Lagrange inversion), rational generating functions, partially ordered sets (incidence algebra, Möbius inversion).

### Course Learning Outcomes

Students will be able to use enumerative and algebraic techniques to solve counting problems and to understand discrete structures.

### Prerequisites

MATH 4032 or a comparable upper undergraduate level combinatorics course.

### Required Course Materials

None. We will use electronic resources that are freely available to Georgia Tech students.

### Grading Policy

Grades will be based on homework (50%) and project (50%).

### Assignments

- 4-6 homework assignments, 50% of the grade
- class project, 50% of the grade
- etc.

### Description of Graded Components

There will be regular homework assignments, roughly one every 2-3 weeks. The project involves writing a 8-15 page term paper on a focused topic, giving a short presentation, and writing two reviews for classmates's papers.

# **Course Policies**

## **Attendance and Participation**

Students are expected to regularly attend classes and actively participate in discussions.

## **Academic Integrity**

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

## **Accommodations for Students with Disabilities**

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

## **Student-Faculty Expectations Agreement**

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.