

## **ISyE 6761 Syllabus**

Stochastic Processes 1, A, 3 Credits

Fall 2026

### **Instructor Information**

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**Instructor: Hayriye Ayhan**

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### **General Course Information**

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#### **Description**

Discrete time Markov chains, Poisson processes, and renewal processes. Transient and limiting behavior. Average cost and utility measures of systems. Algorithms for computing performance measures. Modeling of inventories, and flows in manufacturing and computer networks. Crosslisted with Math 6761.

#### **Course Learning Outcomes**

The goal of this course is to familiarize students with fundamental stochastic processes, including Poisson processes, discrete-time Markov chains, and renewal processes. While the course does not take a measure-theoretical approach, the material will be presented with a strong emphasis on mathematical rigor and clarity. We will cover

- Probability Review
- Poisson Processes
- Renewal Processes
- Discrete Time Markov Chains

#### **Required Course Materials**

There is no required textbook, but I will follow “Stochastic Processes”, by Sheldon Ross somewhat closely.

## Grading Policy:

<i>Graded Component</i>	<i>Weight</i>
Midterm Exam 1	28%
Midterm Exam 2	28%
Final Exam	34%
Homeworks	10%

## Description of Graded Components

All exams are in class. Exams are closed notes and books. Calculators will be allowed.

## Course Policies

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### Attendance and/or Participation

Attendance is not mandatory but strongly encouraged. The students who attend the class regularly perform much better than their peers.

### 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 an exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

### Core IMPACTS

[Core IMPACTS](#) is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated [career competencies](#). [This resource](#) developed by the Center for Excellence in Teaching and Learning and Online Education at

Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

### **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.

### **Pre- &/or Co-Requisites**

The students should have some basic knowledge of probability and stochastic processes.

### **Collaboration, Group Work, and Use of Generative AI**

You are allowed to work in groups on all homework and out-of-class assignments, but any work you turn in must be written in your own hand. In-class tests and exams are to be your own work. All in-class tests and exams will be closed book and notes.

### **Extensions, Late Assignments, & Re-Scheduled/Missed Exams**

Late homework will be penalized accordingly. There are no make up exams. The percentage of your final exam will be increased accordingly.