

MATH 7244 Syllabus

Stochastic Processes and Stochastic Calculus I , Section A, 3 credit hours

Fall 2026

Instructor Information

Instructor: Christian Houdré

Email: houdre@math.gatech.edu

General Course Information

Description

Starting with Brownian motion, this course provides an introduction to stochastic calculus and stochastic differential equations through a development of continuous-time martingales and Markov processes. Math 7244 is the first installment in a year-long sequence.

Math 6241-6242 or equivalent courses are highly recommended prerequisites for this course.

Course Learning Outcomes

- Learning outcome 1 Learn about Brownian motion.
- Learning outcome 2 Learn about continuous martingales.
- Learning outcome 3 Get some intuition, mathematical tools, and skills about Stochastic Calculus.

By enrolling in this course, students will gain experience in advanced topics in Probability Theory of use in various components of pure or applicable mathematics.

Required Course Materials

Required textbook: The latest edition of "Brownian Motion, Martingales, and Stochastic Calculus" by J.-F. LeGall.

Grading Policy

Homework 20% + 2 Tests@ 20% + Final 40% = 100 % **Cutoffs:** [0, 60) : F; [60, 70) : D; [70, 80) : C; [80 – 90) : B; [90, 100] : A.

Assignments

- Assignment 1, Approximately 4 percentage/points towards grade
- Assignment 2, Approximately 4 percentage/points towards grade
- Assignment 3, Approximately 4 percentage/points towards grade
- Assignment 4, Approximately 4 percentage/points towards grade
- Assignment 5, Approximately 4 percentage/points towards grade

Description of Graded Components

Homework 20% + 2 Tests@ 20% + Final 40% = 100 %

Course Policies

Attendance and Participation

Attendance is not compulsory, but certainly recommended. Both tests and the final exam will be administered in class, closed books, and no notes.

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 accommodation 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, acknowledgment, 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.