MATH 3670 Syllabus

Statistics and applications, Section A, 3 credits
Summer 2026

Instructor Information

Instructor	**Email address:**
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General Course Information

Description

Course Number and Title: MATH 3670, Probability and Statistics

Prerequisites: MATH 2401, MATH 2411, MATH 2551, MATH 2561, MATH 2550, or MATH 2605

A fast-paced introductory course on basic concepts and techniques in probability and statistics. Topics include: basic definitions, counting techniques, conditional probability, expected value, continuous random variables, multivariate distributions, central limit theorem, maximum likelihood, optimal and unbiased estimators, confidence intervals, and hypothesis testing.

Course Learning Outcomes

- Students will apply counting techniques and the axioms of probability to compute probabilities of events.
- Students will use conditional probability and Bayes' theorem to solve applied problems.
- Students will analyze discrete and continuous random variables through their distributions, expected values, and variances.
- Students will work with multivariate distributions and understand the concept of independence.
- Students will apply the Central Limit Theorem to problems involving sums and averages of random variables.
- Students will construct point estimates using maximum likelihood and method of moments, and assess estimator properties.
- Students will construct and interpret confidence intervals for population parameters.
- Students will perform hypothesis tests and interpret results in context.

Required Course Materials

Textbook: Ross, *Introduction to Probability and Statistics for Engineers and Scientists,* 6th ed., Elsevier. ISBN: 9780128243466. Available free online to Georgia Tech students via ScienceDirect using GT login credentials.

Grading Policy

The final grade will be determined using one of the following schemes, one with an optional exam

Without final exam

Quizzes: (counting all)	30%
Midterm Exams (higher score):	38%
Midterm Exams (lower score):	32%
Homework:	up to 5% extra credit

With final exam

Quizzes: (lowest dropped)	20%
Midterm Exams (higher score):	28%
Midterm Exams (lower score):	22%
Final Exam:	30%
Homework:	up to 5% extra credit

Letter grades: A: 90–100, B: 80–89, C: 70–79, D: 60–69, F: 0–59.

An Incomplete ('I') is assigned only when a student was making satisfactory progress but was unable to complete the course for non-academic reasons beyond their control and deemed acceptable by the instructor.

Description of Graded Components

HOMEWORK: Homework assignments earn extra credit on top of the grading scheme above. Each assignment can earn up to 1 extra credit point, for up to 5 points total. The lowest 2 are dropped. Assignments are posted on Canvas and submitted electronically by 11:59 pm on the due date. Late homework will not be accepted for any reason. Collaboration is encouraged; list all collaborators on your submission.

QUIZZES: Six weekly quizzes will be given during lecture.

MIDTERM EXAMS: There will be two in-person midterm exams given during the lecture period.

FINAL EXAM: The final exam is comprehensive and is optional for scheme 1. More details can be found on Canvas.

Please note: items on the syllabus are subject to change. Any changes will be communicated in class and on Canvas.

Course Policies

Attendance and Participation

Students who miss class are responsible for all material, assignments, and announcements made during missed lectures.

Examinations and quizzes will be administered in-person and on-campus only. Exam make-ups will only be provided for excused absences (Georgia Tech-sponsored events or documented illness); contact the instructor at least 48 hours before the exam with relevant documentation. Travel is not an acceptable reason to miss an exam.

Regrades

Regrade requests must be submitted in writing within 72 hours after graded work is returned. Note that your entire assessment — not a single problem — will be subject to regrade, and the resulting score may increase or decrease.

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 at www.honor.gatech.edu.

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 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 needs and obtain an accommodations letter. Please also email me as soon as possible 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. I encourage you to remain committed to the ideals of Georgia Tech while in this class.