ISYE 2027 Syllabus

Probability with Applications, Section ASY, 3 Credits

Spring 2026

Instructor Information

Instructor: Damon Williams

Email: damon.williams@gatech.edu

Phone: 404-323-9969

Teaching Assistants:

Annalise Tackney

Email: atackney3@gatech.edu

Ellen Ku

Email: eku8@gatech.edu

Recitations:

Tuesday and Thursday 5:00-5:50pm

Groseclose 119

Office Hours: (Note: Your TAs will not hold separate office hours, as they will be leading recitations twice a week. You are welcome to attend the in-person sections TAs' office hours for any content-related questions. For questions about quizzes, grading, or exams, please email your assigned TAs directly.)

Kevin Wright

Office Hours: Tuesday 9:30-11:30, Thursday 9:30-11:30

Teni Ojosipe

Office Hours: Monday 10:45-12:45, Wednesday 10:45-12:45

Matias Torres

Office Hours: Friday 11:00-1:00, Sunday 4:00-6:00

(all Office Hours located in ISYE Main Studio)

General Course Information

Description

The objective of this course is to introduce the students to topics including conditional probability, density and distribution functions from engineering, expectation, conditional expectation, laws of large numbers, central limit theorem, and introduction to Poisson Processes.

Course Learning Outcomes

Statistical Knowledge:

By the end of this course, students will be able to …

A. Define and compute probabilities, measures of location and spread, and distribution functions for functions of random variables.
B. Compare and contrast the basic probability distributions.
C. Use and justify the Central Limit Theorem to approximate probabilities related to sums of independent, identically distributed random variables.

D. Analyze and discuss how randomness affects a system's behavior and performance
E. Model and analyze probability problems at the level of the news-vendor problem.

Engineering Practice:

By the end of the course, students will be better prepared to practice engineering by

F. improving their engineering judgment;
G. improving their communication skills; and
H. improving their teamwork skills.

Life-long Learning:

By the end of the course, students will be better prepared for life-long learning by

I. increasing their critical stance;
J. improving their research skills; and
K. strengthening their internal authority.

Required Course Materials

Textbook (Optional):

All notes that you need are provided online via Canvas. The textbooks below are for supplementary reading material.

Statistics and Probability for Engineers, 7th Edition, Douglas C. Montgomery & George C. Runger, Wiley.

A First Course in Probability, 8th Edition, Sheldon Ross.

Course website:

Canvas: https://canvas.gatech.edu

Lectures & Exams

This course is asynchronous. All lectures will be provided in the form of eLectures within Canvas rather than live class meetings. Please refer to the Course Schedule to see which module and lecture videos you are expected to watch for the day.

All exams for this course will be administered in person. Please refer to the Course Schedule for the specific exam dates. **Exams will be from 3:30 to 4:45pm in Groseclose 402.**

Grading Policy

- Fun Quizzes: **20%**
- Midterm Exam Reflections (3): **5%**
- Exam 1: **15%**
- Exam 2: **15%**
- Exam 3: **15%**
- Final Exam: **30%**

Students are responsible for all announcements made in class and for all changes in the schedule that are posted on the class website.

All grades will be posted to Canvas. Please check it often to ensure your grades are correct.

Course grades will be determined by the following straight scale:

A $x \geq 89.45$

B $79.45 \leq x \leq 89.44$

C $69.45 \leq x \leq 79.44$

D $59.45 \leq x \leq 69.44$

F $59.44 \geq x$

Final Exam Replacement

If a student's final exam score is greater than the average of their Exam 1, Exam 2, and Exam 3 score, then their final exam score will replace their scores on Exam 1, Exam 2, and Exam 3.

Final Exam Exemption

After all grades are completed, a student may exempt the final exam and accept the below course grade as their course grade is x

A $x \geq 94.45$

B $x \geq 86.45$

C $x \geq 75.45$

Assignments

Fun Quizzes: Short two or three question quizzes given online via Canvas. Quizzes will be due each week on Tuesdays and Thursdays. Each quiz is designed to assess the material covered in the previous day's eLecture. Be sure to stay up to date with the course schedule to ensure you have reviewed the relevant material before each quiz. *No makeup quizzes will be given.*

Homework: Homework will be posted on Canvas. *Homework is neither collected nor graded.* Some homework questions may be used on quizzes.

Exams: All exams will be in-person. See online course schedule for details. Make up exams will only be given for official Georgia Tech accepted reasons. All make up exams must be scheduled with the Instructor at least one week prior to the exam.

Midterm Exam Reflections: This tool is intended for your post-exam reflection. Reviewing your midterm exams and understanding the concepts that were missed are essential in preparing for a cumulative final exam.

Course Policies

Re-grade Policy

If you believe that there has been an error in the grading of your quiz or exam, you have one week from the day it was returned to the class to submit it for a re-grade. (Note: one week is counted from the day the quiz/exam became available to the class; you do not get an extension if you choose to pick it up late.) When you resubmit the assignment, it must be accompanied by a written explanation of the suspected grading mistake *stapled to the original assignment*. Re-grades involve re-grading the entire assignment or exam; so, you may, in fact, get a lower grade than your original grade.

Attendance and/or Participation

Attendance in this course is not formally required but strongly encouraged. Students will complete a quiz during each class, and these quizzes constitute a significant portion of the final grade. Because quizzes are administered in class, they cannot be made up if missed, regardless of the reason for absence.

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.

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

You must know calculus at the level of Calculus II (Math 1502). You must also have completed or be currently enrolled in Calculus III (Math 2551).

Email

All emails to the instructor and/or Teaching Assistants must have [ISyE 2027] in the subject line. Failure to place this in the subject line could cause your email not to be read.

Honor Code

All students are expected to be familiar with the Honor Code (www.honor.gatech.edu) and are bound by its requirements. You must observe the Honor Code with respect to examinations, assignments, and all other aspects of this course.

In particular:

Quizzes: Quizzes are individual assignments. You may not consult or collaborate with anyone (human) or anything (AI, ChatGPT, Claude, Gemini, etc, computer, cell phone, notes, etc.) while taking a quiz.

Exams: All exams will be closed book. You will be allowed to bring a calculator to perform simple arithmetic operations and a pencil.

Campus Resources for Students

All Campus Resources are provided in the GT Student Resource Tab on the Canvas Page

Undergraduate Student Academic Success Resources:

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being (student-resource-guide (gatech.edu)