

# ISYE 3770: Statistics and Applications

Spring 2024

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<b>Instructor:</b> Jie Wang	<b>Time:</b> TR 03:30 PM – 04:45 PM
<b>Email:</b> <a href="mailto:jwang3163@gatech.edu">jwang3163@gatech.edu</a>	<b>Place:</b> Kendeda Room 152.

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**Course Pages:** <https://gatech.instructure.com/courses/370378>

**Office Hours:** Wednesday 03:30 PM - 04:45 PM. Friday 02:00 PM - 04:45 PM. You can either drop by in person or meet online using Zoom.

- In person location: ISYE Main 447;
- Zoom link for office hour: <https://gatech.zoom.us/my/jwang3163>

**TA Information and Office Hours:** Alonso Bustindui ([abustindui3@gatech.edu](mailto:abustindui3@gatech.edu))  
Wednesday 12:30 PM - 1:30 PM at ISyE Studio 108 in the ISyE Main building

**Textbook:** Applied Statistics and Probability for Engineers, 7th Edition

**Course Description:** Introduction to probability, probability distributions, point estimation, confidence intervals, hypothesis testing, linear regression, and analysis of variance. Crosslisted with MATH 3770 and CEE 3770. Also, credit is not award for both ISYE 3770 and MATH 3670.

**Prerequisites:** An undergraduate-level understanding of multivariate calculus.

## Grading Policy:

Homework (30%)	N/A
Midterm 1 (17.5%)	Tuesday, Feb 27, 2024, 03:30 PM - 04:45 PM
Midterm 2 (17.5%)	Thursday, March 28, 2024, 03:30 PM - 04:45 PM
Final (35%)	Tuesday, April 30, 2024, 02:40 PM - 05:30 PM

## Midterm and Final Exam Policy:

- The midterm and final exams will be closed book, but it is allowed to bring a one-page cheating sheet. The usage of a laptop, cell phone, or any smart device is not authorized during midterm and final exams. It is not permitted to collaborate or share information during exams. The usage of a calculator will not be allowed.
- Any request regarding exams must be made within one or two weeks of getting the exams back. There will be no make-up exams for any reason. If you have an acceptable reason (e.g., illness with doctor statement of your inability to take the exam) for missing an exam, the weight associated with the exam will be transferred to the Final Exam.

**Homework:** Homework assignments will be posted approximately once for every 2 week. The due date is from Tuesday to the next Tuesday. Student collaboration is authorized and encouraged, but submitted homework must be worked out and written up on your own.

Homework should be submitted electronically on Canvas as a single pdf file. Late homework should also be submitted electronically on Canvas. If Canvas happens not to accept late submissions, please email your homework solution directly to me ([jwang3163@gatech.edu](mailto:jwang3163@gatech.edu)).

**Homework Grading Policy:** Late homework submission within 24 hours of the deadline incurs a 25% grade deduction, while late submission between 24 and 48 hours incurs a 50% deduction. Any work turned in more than two days past the deadline will not earn credit.

**Tentative Topical Outline:**

Topics	Reading of Textbook	Weeks (Approx.)
Probability Introduction	Ch. 2	1
Random Variables	Ch. 2-3	1
Discrete Distributions	Ch. 3	1
Continuous Distributions	Ch. 4	2
Joint Probability Distributions	Ch. 5	1
Descriptive Statistics	Ch. 6	1
Sampling Distributions	Ch. 7	1
Point Estimation	Ch. 7	1
Confidence Intervals	Ch. 8	1
Hypothesis Testing	Ch. 9-10	1
Linear Regression	Ch. 11	1

**Outcomes and their relationships to ISyE Program Outcomes:**

- Ability to collect, organize, summarize, and present data graphically.
- Demonstrate ability to use formal mathematical argument with basic probability concepts, including conditional probability distributions.
- Understand how to characterize and assess probability in its role in experiments.
- Use statistical tests and confidence intervals to assess mathematical uncertainty in statistical decisions.

- Select proper statistical techniques for statistical decision-making based on the types of data available.
- Use statistical software and toolbox to conduct data analysis and interpret output.
- Draw some statistical conclusions from experiments and observational studies.

**Honor Code:** Students are, of course, expected to abide by the [Georgia Tech Honor Code](#). Instances of academic misconduct will be viewed very seriously and reported to the Office of Students Integrity. There will be a zero-tolerance policy when it comes to cheating.