

ISyE 3232 Syllabus

Stochastic and Manufacturing Systems, RES, 3 Credits

Summer 2026

Instructor Information

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General Course Information

Description

Manufacturing & service systems typically have random components to their behavior such as the demand for products and services. We will learn quantitative methods which are useful in analyzing, designing, and operating stochastic systems particularly manufacturing and service systems. Much of our attention will be focused on understanding, managing, and reducing variability for inventory, production and service systems.

Course Learning Outcomes

The goal of this course is to provide an overview of methods and modeling techniques used to design, analyze, and manage a manufacturing or service system with uncertainty.

- Describe the role of uncertainty in manufacturing and service systems
- Analyze and manage uncertainty in systems dealing with perishable items
- Quantify the waiting time, length of the queue, and utilization in queueing systems
- Analyze and manage uncertainty in systems using predictions of potential future outcomes
- Effectively work as a member of a team to analyze the role of uncertainty in a system and communicate the findings

Required Course Materials

- Goldratt, Eliyahu M., and Jeff Cox. "*The Goal*". Any edition will work

- You will also play the web-based Littlefield game for which you will purchase an access code. Details will be provided.

Grading Policy:

<i>Graded Component</i>	<i>Weight</i>
Midterm Exam 1	28%
Midterm Exam 2	28%
Final Exam	34%
Homework assignment and project	10%

Description of Graded Components

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

Course Policies

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 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

ISyE 2027

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.