

ISyE 3039 Syllabus

Methods for Quality Improvement, Section A, 3 Credits
Fall, 2026

Instructor Information

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General Course Information

Description

Topics include quality system requirements, designed experiments, process capability analysis, measurement capability analysis, specification/tolerances, and statistical process control.

Course Learning Outcomes

By the end of the semester, you will be able to:

- Perform preliminary data analysis and suggest improvement plans
- Develop control charts for monitoring continuous and discrete quality characteristics
- Assess statistical process capability
- Assess product specifications and tolerances
- Implement CUSUM and EWMA charts
- Design and analysis of factorial experiments
- Design and implement acceptance sampling plans

Required Course Materials

“Introduction to Statistical Quality Control”, 8th edition, Douglas C. Montgomery, Wiley, ISBN: 978-1-118-98915-9 (*Note: It is fine if you have an early edition of this book. The key contents are the same. No need to purchase the 8th edition if you have an early edition of this book.*)

Grading Policy:

Pop up Quiz (in class), 10%; Homework (as assigned), 15%; Exam 1, 25%; Exam 2, 25%; Term Project, 25%

A>90; B>80; C>70; D>60

Assignments

Pop up Quiz	(in class)	10%
Homework	(as assigned)	15%
Exam 1	(Oct. 13, 2026, Tuesday)	25%
Exam 2	(Dec 1, 2026, Tuesday)	25%
Term Project	(report due: Dec 4; presentations: Dec 3 & Dec. 8, 2026)	25%

Description of Graded Components

1. Homework

- There are about 6 biweekly homework assignments in total. The homework should be submitted on time at the due date. NO late submission is acceptable. One homework with the lowest score will be dropped.
- You are encouraged to discuss homework problems with your fellow students. But your final answers should be based on your own understanding. Copying others' work is NOT acceptable and violates the **honor code**. Each student should submit her/his homework individually.
- Homework should be submitted through Canvas. We accept one single PDF file of solutions. Please (1) show your calculation procedure step by step (only the final result is NOT acceptable); (2) do not submit .doc, .xls or .jpg or other formats. However, you can attach screenshots of your codes or any necessary figures in the PDF file; (3) circle or highlight your final solution for each question.
- It is not necessary to type the solutions; you can even submit the scanned version of your handwritten copy. It just needs to be neat and organized. For scanning documents, we recommend the following apps for handwritten homework: Download "Adobe Scan Digital Pdf Scanner" or "DocuScan - PDF Document Cam Scanner & Scan Converter App" on your phone or tablet to scan and upload your handwritten work. The app can scan multiple pages and save it as pdf for you automatically. You will then need to send that pdf document to your laptop and upload it through Canvas.
- The solution key will be provided after the deadline on Canvas.
- We will use Canvas for class discussion. The system is highly catered to get help fast and efficiently from classmates, the TA, and the instructor. Rather than emailing questions to the teaching staff, we encourage you to post your questions related to the homework content on Canvas.

2. Pop-up Quiz

- There are a few in-class quizzes given to assess your understanding of basic concepts and methods.
- Attendance of classes is required unless with prior approval of absence with justified reasons. The quiz also serves as attendance checking. Thus, no make-up quizzes will be offered.
- A student will not lose quiz points if the student informed the instructor for missing a class with justified reasons BEFORE the class (quiz).

3. Exam

- Two exams are given in class on the dates listed in this syllabus. Each exam is 1 hour and 15 minutes total. Exam I covers the first half of teaching material, and Exam II covers the 2nd half of teaching material (e.g. not accumulative in the 2nd exam).
- The exam will be closed book and closed notes. Students are allowed to have one double-sided sheet note for exam I, and two double-sided sheets of equations for exam II. A calculator is needed for each exam.
- No make-up exams will be given unless prior arrangement is made with the instructor (with written documentation BEFORE the exam, e.g., a note from Dean's office).

4. Project

- Final project instead of final exam.
- Detailed information about the group project can be found on Canvas. Here are some important dates:

- Determine Group Members: Friday **September 25, 2026** at 11:59 pm ET
- Abstract: Friday **Oct. 30, 2026** at 11:59 pm ET
- Report due: Friday **Dec 4, 2026** at 11:59 pm ET
- Presentations: **Dec 3 & Dec.8, 2026**
- Please select a representative of your group. **ONLY** the representative needs to submit the above four materials to on Canvas corresponding to the timeline. (NO bonus for the representative)

5. Regrade Requests

- **Regrade requests** for assignments must be submitted **within 5 working days** after you receive the grade/feedback. Only **written** complaints (Email “**Regrade Request ISYE 3039**” to both Instructor and TA) will be accepted.
- **Mode of regrade request:** If there is a regrade request, we will have written exchange first. If necessary, in person discussion will be followed, determined by the grader.
- **Looking to improve your grade:** If you are working hard in this course but feel that your assignment grades don't reflect your work, please come to see the TA and Instructor first. If you cannot make office hours, please email the TA to make an appointment for another time. You may be spending a lot of time on the wrong things and redirecting your efforts may really pay off.

6. Further notes on Grading/Assignments

- There will be homework assignments approximately every other week.
- There will also be a **project** that is a **multi-week endeavor** – please make sure that you will complete part of the project each week, so you do not fall behind and need to rush at the end.
- There will be no extra assignments to bump up your grade.
- There will be two exams. All exams are in class, and there will be no make-up exams. Only absences approved by the Division of Student Life, or Dean of Students, or official approval from the registrar are valid excuses for missing an exam and you will be given a make-up exam.

Academic Honor Code: It is your responsibility to get familiar with the Georgia Tech Honor Code and you are bound by its requirements.

Course Policies

Attendance

Attendance of classes is required unless with prior approval of absence with justified reasons. The quiz also serves as attendance checking. A sign-up sheet may be used to check the attendance, which serves as a quiz in final grading.

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 2028 "Basic Statistical Methodes"

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 quizzes and exams are to be your own work. All in-class exams will be closed book and notes, but allowed with equation summary sheets (one-page for exam 1 and two-page for exam 2).

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

No late homework will be allowed without prior approval. Make-up exams are given for illness, approved Institute activities or religious observances.