

[MATH 6514 Syllabus] Syllabus

[Industrial Mathematics, 3 credits]

[Fall 2026]

## Instructor Information

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**Instructor:** Rachel Kuske

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## General Course Information

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### Description

[Applied mathematics techniques to model and solve real-world problems. Topics include dynamical and stochastic modeling differential equations and scientific computation..]

### Course Learning Outcomes

Students will be able to demonstrate a mathematical understanding of key concepts in mathematical models, analysis and computation in the following areas, and to apply these concepts on concrete questions in applied areas. They will learn appropriate mathematical notation, be able to translate applied questions into this mathematical notation, and use mathematical and computational methods to provide quantitative and qualitative answers.

Topics covered:

- Dynamical modeling
- Probability and stochastic models
- Optimization
- Use of these approaches in modeling and computation

### Required Course Materials

Mathematical Modeling, Mark Meerschaert, 4<sup>th</sup> Edition. Available online through GT Library.

### Grading Policy:

Your final grade will be assigned as a letter grade according to the following scale:

A 90-100%

B 80-89%

C 70-79%

D 60-69%

F 0-59%

According to GT policy, grades at Georgia Tech are interpreted as follows:

A Excellent (4 quality points per credit hour)

B Good (3 quality points per credit hour)

C Satisfactory (2 quality points per credit hour)

D Passing (1 quality point per credit hour)

F Failure (0 quality points per credit hour)

### Description of Graded Components

Description of Graded Components: all collected through Gradescope, with the exception of Final Project Presentations and Practice Problems

<b>Component</b>	<b>Format</b>	<b>Percentage of Total Grade</b>	<b>Comments</b>
<b>Homework</b>	Each homework will consist of two parts: Part A: individual homework submitted, Part B: Corrections to individual homework following group work (up to 1 week after Part A)	40%	Due dates provided as assignments are given, roughly every 2-3 weeks
<b>Midterm Team project:</b>	Choice of topic of midterm project: mid September Midterm Presentations: late September  Midterm Project Report (written) due 1 week after presentation	20%	Guidelines provided in early September
<b>Proposals for final project:</b>	Due late October	5%	Guidelines provided in early October
<b>Final team project presentation</b>	Presentations in class during last 1-2 weeks of classes	10%	Guidelines provided in late October

<b>Final team project report:</b>	Due early December: Date TBA	15%	Guidelines provided in early November

## Course Policies

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### Attendance and/or Participation

Attendance required for the entire class for midterm and final project presentations. See timeline above.

### 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.

### 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.

