

ECE 2026 Syllabus

Introduction to Signal Processing, ECE 2026 Section A, 3 Credits

Summer 2026

Instructor Information

Instructor: John Barry

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General Course Information

Description

Introduction to signal processing for discrete-time systems. Sinusoids and Phasors. Sampling theorem. Filtering. Frequency response. Discrete-Time Fourier Transform. Discrete Fourier Transform. Z Transform. Laboratory emphasizes computer-based signal processing.

Course Learning Outcomes

- Use the Fourier transform to represent signals in terms of their frequency content, and to understand system behavior in the frequency domain
- Express signal processing systems in mathematical form and in a computer programming language like MATLAB
- Understand how sampling and digital filtering impacts analog signals

Required Course Materials

- DSP First, 2nd Edition by McClellan, Schafer & Yoder, Prentice-Hall, 2015, ISBN 0136019250. Available at Georgia Tech bookstore.
- MATLAB student version,
<https://www.mathworks.com/products/matlab/student.html>

Grading Policy:

Grades assigned according to the standard scale (A>90; B>80; C>70; D>60), based on a total score with the following weights:

Recitation	5%
Homework	20%
Labs	10%
Quiz 1	20%
Quiz 2	20%
Final Exam	25%

Description of Graded Components

Students will scan each homework and upload a PDF to canvas before each homework deadline. The quizzes and final exam are in class, closed book and notes except for handwritten equation sheets.

Course Policies

Attendance and/or Participation

Attendance is strongly encouraged for any students in Atlanta, but attendance is not required to accommodate asynchronous remote students. Lectures will be recorded and made available on canvas.

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 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

(MATH 1502 or MATH 1512) and CS 1371 (programming experience is essential)

Collaboration, Group Work, and Use of Generative AI

Collaboration is highly encouraged for homeworks, and AI can be helpful, but any work you turn in must be written in your own hand. Do not use AI to do your homework for you. Quizzes and exams must be your own work. All in-class quizzes and exams will be closed-book and closed-notes except for handwritten equation sheets.

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

No late assignments accepted because solutions will be posted immediately after the deadline passes. The lowest homework score will be dropped. Make-up exams or other accommodations are given for illness, approved Institute activities or religious observances.