

ECE 3084 – Signals and Systems

Course Syllabus

ECE 3084: Signals and Systems

Credits: 3

Fall 2026

Instructor Information

Instructor: Yorai Wardi

Office: 429 TSRB

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Office Hours:

- Mondays, 1:00 pm – 2:00 pm
- Wednesdays, 11:00 am – 12:00 pm

Graduate Teaching Assistant: TBD

TA Office Hours: TBD

Lecture Time: Monday and Wednesday, 9:30 am – 10:45 am

Lecture Location: Klaus Advanced Computing Building, Room 2443

Course Description

This course covers the analysis of signals and systems, including periodic signals, the Dirac delta function, linear, time-invariant systems and their realizations through convolution. Topics include the Fourier transform for periodic and non-periodic signals and their decompositions into circular motions at their constituent frequencies, and the Laplace transform and its use in control-systems design.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Perform convolutions of signals and use them to characterize linear, time-invariant systems.
2. Derive the Fourier transform of signals, including those arising in telecommunications applications.
3. Derive the Fourier transform of periodic signals.
4. Prove the Nyquist sampling theorem and use it to reconstruct continuous-time signals from their respective equally-spaced samples.
5. Derive the Laplace transform of one-sided signals and use it to characterize and design control systems.
6. Understand the stability of closed-loop control systems.
7. Design control systems for stability and tracking performance.

Required Course Materials

- **Laboratory Materials:**

TESSAL laboratory equipment (one set per laboratory team).

Grading Policy and Weighting

Grades will be determined using the following components:

- Midterm Exam 1 (September 16): 20%
- Midterm Exam 2 (October 20): 20%
- Homework Assignments (cumulative): 5%
- TESSAL Laboratory Experiments (cumulative): 5%
- Final Exam (December 10, 8:00–10:50 am): 50%

Final Grade Determination

Final grades will be calculated using two methods:

1. **Absolute scale:**
 - a. 85–100 = A
 - b. 75–84 = B
 - c. 65–74 = C
 - d. etc.
2. **Relative performance scale:**

TBD

The final course letter grade will be the **higher of the two results**.

Attendance Policy

Attendance is not mandatory; however, regular attendance is strongly recommended. Students are responsible for all material covered in lectures, including announcements, examples, and clarifications.

Additional Criteria for Successful Completion of the Course

To successfully complete the course, students must:

- Complete all exams, homework assignments, and laboratory experiments.
- Submit required work by posted deadlines.
- Demonstrate individual mastery of course content on exams.
- Follow all course policies related to submissions, collaboration, and academic integrity.

Academic Integrity

All exams in this course will be closed-book, closed-notes, with no internet access. Students are encouraged to study together and may collaborate in small teams on homework; however, all submitted homework solutions must be written and submitted individually. Exams must be completed independently with no assistance from others. Laboratory experiments will be submitted by teams of two students (with one team possibly consisting of three students).

Violations of academic integrity policies will be handled in accordance with the [Georgia Tech Honor Code \(link\)](#)

Student Conduct (Student-Faculty Expectations Agreement)

Students are expected to maintain a professional and respectful learning environment. The Student-Faculty Expectations Agreement outlines mutual responsibilities and expectations and is available in the Georgia Tech Course Catalog. Respect for others, academic honesty, and constructive participation are essential to the success of the course.

Disability Services Statement

Georgia Tech's policies regarding disability accommodations are administered by the **Office of Disability Services (ODS)**. Students with disabilities or other conditions requiring accommodations are encouraged

to contact ODS at <http://disabilityservices.gatech.edu> and to provide the instructor with an accommodations letter as early as possible.