Syllabus

Signals and Systems, EE 348 A

Schaefer School of Engineering and Science, Department of Electrical and Computer Engineering

Fall 2021

Instructor:	Elnaz Banan Sadeghian
Canvas Course Address:	**https://sit.instructure.com/courses/50489 (https://sit.instructure.com/courses/50489)**
Course Schedule:	Tuesdays and Thursdays 11:00 am - 12:15 pm
Contact Info:	Elnaz.Banan.Sadeghian@stevens.edu
Office Hours:	Tuesday(s) 12:15 pm - 2:00 pm
Prerequisite(s):	EE 245 and EE 250
Textbook:	**Signals and Systems (2nd edition)**, by Oppenheim, Willsky, and Nawab, Prentice Hall, 1996, ISBN 9780138147570.

COURSE DESCRIPTION

Properties of signals and systems, convolution and its application to system response, Fourier series representation of periodic signals, Fourier transforms and continuous spectra. Many of these topics involve discrete as well as continuous systems.

STUDENT LEARNING OUTCOMES

After successful completion of this course, students will learn

- fundamental concepts and methods related to signals and systems including
  - Signal Energy and Power,
  - Periodic Signals,
  - Transformations of The Independent Variable,
  - Continuous-Time Complex Exponentials (Sinusoidal Signals),
  - Discrete-Time Complex Exponentials (Sinusoidal Signals),

- Key Basic Signals,
- System's Properties,
- LTI Systems (CT and DT):
  - Convolution Integral
  - Convolution Sum
  - LTI Systems' Properties,
- Fourier Series Representation of CT Periodic Signals and their Properties,
- Fourier Series Representation of DT Periodic Signals and their Properties,

and

- to apply the above techniques in solving engineering problems, and
- to identify LTI and non LTI systems, and be able to compute the signal output of a LTI system.

COURSE FORMAT AND STRUCTURE

This course will be delivered in accordance with campus guidelines for in-person instruction. To access the course, please visit **stevens.edu/canvas (http://stevens.edu/canvas)**. For more information about course access or support, contact the Technology Resource and Assistance Center (TRAC) by calling 201-216-5500.

INSTRUCTOR'S ONLINE HOURS

I will be available via email and will respond within a week of receiving your emails.

When sending an email, please place in the subject line the course number/section and the topic of the email (i.e. EE-348 – HW 2 Question 3).

TENTATIVE COURSE SCHEDULE

Class Date	Topic(s)	Reading Assignment	Assignment
Aug. 31	Course Overview and Introduction	Ch 1 until Sect. 1.2	None
Sept. 2	A few classes of signals and their properties	Ch. 1 until 1.3	None
Sept. 7	Complex Exponentials	Ch. 1 till 1.3.3	None
Sept. 9	Complex Exponentials	Ch. 1 till 1.5	None
Sept. 14	Basic Systems and Properties	Ch. 1 till 1.6.6	None

Sept. 16	Convolution Sum	Ch. 2 till page 78	None
Sept. 21	Convolution Sum	Ch. 2 till page 89	None
Sept. 23	Convolution Integral	Ch. 2 till page 97	None
Sept. 28	Convolution (practice examples)	Ch. 2 till page 97	None
Sept. 30	LTI System Properties	Ch. 2 till page 113	HW 1
Oct. 5	LTI System Properties	Ch. 2 page 116	None
Oct. 7	LTI System Properties and Fourier Series	Ch. 3 page 186	None
Oct. 14	TBA	TBA	TBA
Oct. 19	TBA	TBA	TBA
Oct. 21	TBA	TBA	TBA
Oct. 26	TBA	TBA	TBA
Oct. 28	TBA	TBA	TBA
Nov. 2	TBA	TBA	TBA
Nov. 4	TBA	TBA	TBA
Nov. 9	TBA	TBA	TBA

Nov. 11	TBA	TBA	TBA
Nov. 16	TBA	TBA	TBA
Nov. 18	TBA	TBA	TBA
Nov. 23	TBA	TBA	TBA
Nov. 30	TBA	TBA	TBA
Dec. 2	TBA	TBA	TBA
Dec. 7	TBA	TBA	TBA
Dec. 9	TBA	TBA	TBA

COURSE REQUIREMENTS

Attendance is necessary to your learning and success in this course.

Homework is to be submitted in-person in the class and **before** the class starts on the due date. The due dates are one week after the assignments are given. Late homework will not be accepted without prior consent of the instructor.

A homework should have your complete name and Student ID.

Quizzes will be announced in advance.

Exams will be one midterm exam and one final exam. They will be based on the materials covered in the class, the reading assignments given at the end of each class, and the homework. Missed exams are equivalent to grades of zero. The exact dates will be announced in advance.

GRADING PROCEDURES

Grades will be based on:

Homework	5%

Quizzes + Midterm	35%
Final Exam	60%

EXAM CONDITIONS

As the instructor, I reserve the right to modify any conditions set forth below by printing revised Exam Conditions on the quiz or exam. The following procedures apply to quizzes and exams for this course:

1. All exams and quizzes are closed book and notes. No calculator, cell phones, or other electronic devices are allowed to be used towards the questions.
2. Students are not allowed to work with or talk to other students during quizzes and/or exams.

Academic Integrity

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution. More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at **http://web.stevens.edu/honor/** **(http://web.stevens.edu/honor/)**

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

"I pledge my honor that I have abided by the Stevens Honor System."

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at **www.stevens.edu/honor** **(http://www.stevens.edu/honor)** .

LEARNING ACCOMMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

For more information about Disability Services and the process to receive accommodations, visit **https://www.stevens.edu/office-disability-services** **(https://www.stevens.edu/office-disability-services)** . If you

have any questions please contact: Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at pgehman@stevens.edu (mailto:pgehman@stevens.edu) or by phone 201-216-3748.

DISABILITY SERVICES CONFIDENTIALITY POLICY

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

INCLUSIVITY

Name and Pronoun Usage

As this course includes group work and class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

Inclusion Statement

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.

MENTAL HEALTH RESOURCES

Part of being successful in the classroom involves a focus on your whole self, including your mental health. While you are at Stevens, there are many resources to promote and support mental health. The Office of Counseling and Psychological Services (CAPS) offers free and confidential services to all enrolled students who are struggling to cope with personal issues (e.g., difficulty adjusting to college or trouble managing stress) or psychological difficulties (e.g., anxiety and depression). CAPS is open daily from 9:00 am – 5:00 pm M-F. Evening hours are available by appointment in the Fall / Spring semesters and up-to-date information regarding the availability of evening appointments can be found by visiting www.stevens.edu/CAPS (http://www.stevens.edu/CAPS). To schedule an appointment, call 201-216-5177.

Due to the pandemic, in-person appointments may be limited until further notice. Up-to-date information about the availability of in-person services can be found at www.stevens.edu/CAPS (http://www.stevens.edu/CAPS). Teletherapy (therapy via secure video platform) is available to registered students physically located in the states of New York or New Jersey. Students located outside of NY / NJ are encouraged to pursue local treatment through their

personal health insurance. To learn more about the process of finding a therapist please visit the CAPS webpage on **Seeking Help Off-Campus** **(https://www.stevens.edu/directory/counseling-and-psychological-services/seeking-help-campus)** .

EMERGENCY INFORMATION

In the event of an urgent or emergent concern about the safety of yourself or someone else in the Stevens community, please immediately call the Stevens Campus Police at 201-216-5105 or on their emergency line at 201-216-3911. These phone lines are staffed 24/7, year round. For students who do not reside near the campus and require emergency support, please contact your local emergency response providers at 911 or via your local police precinct. Other 24/7 national resources for students dealing with mental health crises include the National Suicide Prevention Lifeline (1-800-273-8255) and the Crisis Text Line (text “Home” to 741-741). If you are concerned about the wellbeing of another Stevens student, and the matter is *not* urgent or time sensitive, please email the CARE Team at **care@stevens.edu** **(mailto:care@stevens.edu)** . A member of the CARE Team will respond to your concern as soon as possible.