

ECE 3793 – Signals and Systems – Spring 2026

Course Information

Time:	Monday, Wednesday, and Friday 12:00 – 12:50 PM
Location:	Dale Hall Room 218
Instructor:	Dr. Russell H. Kenney Email: kenney@ou.edu
Office:	DEH 345 (during office hours), RIL 112 (other times)
Instructor Office Hours:	3:30 – 5:00 PM Tuesdays 10:00 – 11:30 AM Wednesdays
TAs:	Alexa Adkisson (alex.t.adkisson@ou.edu) Alanna Tran (hong.an.tran@ou.edu)
TA Office Hours:	3:30 – 5:00 PM Mondays (DEH 345) 2:00 – 3:30 PM Thursdays (DEH 345) 1:30 – 3:00 PM Fridays (DEH 345)
Prerequisites:	Digital Signals and Filters (ECE 2713), Circuits I (ECE 2723), Diff. Eq. (MATH 3113 or equiv.), Linear Algebra (MATH 3333, co-req.)
Course Website:	https://canvas.ou.edu/

Course Description

Basic concepts in the modeling and analysis of engineering systems and fundamental topics in communications, control, and signal processing. Includes classification of systems; signals & systems characterization in time and frequency domains, Fourier and Laplace transforms; introduction to discrete-time systems and digital signal processing.

The successful student will be able to understand and compute input-output relationships for linear systems, in both the time and frequency domains. The student should gain intuitive understanding of time-domain vs. frequency-domain behaviors and should be able to analyze and design simple systems. Both continuous- and discrete-time systems will be covered, but with slightly more emphasis on continuous-time systems as discrete-time systems are covered in more depth in Digital Signal Processing (ECE 4213).

Learning Objectives

At the completion of this course, a successful student will be capable of the following:

- Plotting and manipulating important signal types and describing them using fundamental signal descriptors
- Identifying systems based on linearity, time-invariance, and causality, and computing system outputs based on these characteristics
- Computing convolution outputs in continuous and discrete domains
- Computing signal representations in signal/time domain and frequency domain for periodic/apperiodic and continuous/discrete signals as appropriate using both the transform definitions and using transform pairs and properties
- Computing system characteristics of transfer functions and impulse responses from system descriptions such as LCCDEs and identifying descriptors of systems such as causality and stability based on the system characteristics
- Writing MATLAB code for performing basic signal processing tasks

Textbook

A. V. Oppenheim and A. S. Willsky with S. H. Nawab, Signals & Systems, 2nd Ed., Prentice Hall, 1997.

This textbook will serve as a reference throughout the semester, and homework problems will be assigned from the book. I will write out the homework problems on each homework so the book will not be required to complete homework assignments.

Office Hours

Instructor office hours will be held on Tuesdays from 3:30 – 5:00 PM and on Wednesdays from 10:00 – 11:30 AM. These will be held in the DEH 345 team room. I will also have office hours by appointment, and in general office hour meetings outside the above times will be held at the Radar Innovations Lab (RIL) on the south research campus in RIL 112.

TA office hours will be held on Mondays from 3:30 – 5:00 PM, on Thursdays from 2:00 – 3:30 PM, and on Fridays from 1:30 – 3:00 PM. These will be held in DEH 345.

Homework

Homework will be assigned periodically throughout the semester, and will generally be due 1 week after being assigned. Homework will be due at 11:59 on the due date – however, I will typically not post the homework solutions until the following morning, so as long as homework is submitted to Canvas before the solutions are posted, it will still be graded for full credit. Any homework received after the solutions are posted will receive a zero. In order to receive full credit, you must show your work on the problems. Answers to homework problems with no associated work demonstrating your approach to solving the problem will not receive credit.

Because I do not plan to accept late homework (apart from homeworks submitted after the deadline but before solutions are posted), I will drop your lowest homework grade. Furthermore, near the end of the semester, I will provide an optional final exam review assignment, which you may complete to replace your second-lowest homework grade.

Exams

There will be 3 midterm exams this semester in addition to the final exam. The exam dates in the course schedule are flexible based on how quickly we are able to progress through the course material; actual exam dates will be announced at least one week ahead of time. If you will be unable to attend on the exam date for a legitimate, unavoidable reason, please let me know as soon as possible (no later than 48 hours before the exam). In the event of an excused absence or a documented emergency (e.g. medical, family, etc.), your missed midterm grade will be the average of the other two midterm grades. In any other circumstance, a missed exam will receive a score of zero. Exam grades may be curved at the discretion of the instructor.

In general, calculators will not be allowed on exams. I will provide a formula sheet containing all the relevant formulas and properties for the exams.

Final Exam

The final exam will be held on Wednesday, May 13th, from 1:30 – 3:30 PM in Dale 218.

Class Participation

Periodically during lectures, we will use Top Hat for in-class participation. The idea will be to ask some basic questions related to recent material to gauge your understanding, give you an opportunity to evaluate your own understanding, and discuss misunderstandings with other students. The questions will be completion graded, so correctness will not be a factor in your grade.

Projects

This course is particularly heavy on theory and rigorous mathematics, and in many ways the material is very abstract and can be difficult to conceptualize well. In order to draw concrete links between the theory learned in class and its application in real engineering problems, several projects will be assigned throughout the semester. These projects will involve visualizing concepts from class and applying it to some real-world applications. Primarily, these projects will be completed using MATLAB programming. The projects will be assigned at least 2 weeks before they are due. I encourage you to begin working on the projects as soon as they are assigned so that you can come to office hours sooner rather than later to clarify any confusion and get help if you are struggling with the programming.

For the programming projects, you may work with ONE partner or complete the projects alone. If you are working with a partner, each partner must submit a copy of the report with each partner's name listed on the front page of the project document.

Grading

The grade distribution for the course will be as follows:

Participation	5%
Homework	10%
Projects	15%
Midterm Exam #1	15%
Midterm Exam #2	15%
Midterm Exam #3	15%
Final Exam	25%

The participation grade will be 100% completion graded.

There may be a small curve to the final grade at the end of the class at the instructor's discretion. This curve will never hurt your final letter grade relative to the traditional 10-point grading scale (e.g., if you receive an 81% in the class, you are guaranteed at least a B as your final grade).

Reasonable Accommodation Policy

The University of Oklahoma (OU) is committed to the goal of achieving equal educational opportunity and full educational participation for students with disabilities. If you have already established reasonable accommodations with the Accessibility and Disability Resource Center (ADRC), please [submit your semester accommodation request through the ADRC](#) as soon as possible and contact me privately, so that we have adequate time to arrange your approved academic accommodations.

If you have not yet established services through ADRC, but have a documented disability and require accommodations, please complete [ADRC's pre-registration form](#) to begin the registration process. ADRC facilitates the interactive process that establishes reasonable accommodations for students at OU. For more information on ADRC registration procedures, please review their [Register with the ADRC](#) web page. You may also contact them at (405) 325-3852 or adrc@ou.edu, or visit www.ou.edu/adrc for more information.

Note: disabilities may include, but are not limited to, mental health, chronic health, physical, vision, hearing, learning and attention disabilities, pregnancy-related. ADRC can also support students experiencing temporary medical conditions.

Academic Integrity

I encourage you to work in study groups on the homework, as I believe that doing so can be very beneficial for learning so long as everyone participates. Furthermore, it is acceptable to discuss the projects amongst other groups. However, there is a difference between working and discussing together and simply copying answers or code from another person's work – all work submitted for a grade must be your own.

The Provost's web pages include information on expectations for academic integrity. Please review the material at http://integrity.ou.edu/students_guide.html. It is the aim of the faculty of the University of Oklahoma to foster a spirit of complete honesty and a high standard of integrity as well as academic excellence. Any attempt by students to present as their own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.

Generative AI Policy

I believe that AI can be a useful tool in many ways, increasing productivity and making it easier to find and communicate information. However, AI is also often used to circumvent the learning process, and in many cases used to write computer programs and code. A significant component of this class will be programming in MATLAB, and I believe that there is significant educational value in writing all code yourself without the help of an AI, since writing the code yourself requires an understanding of the concepts being applied. Therefore, the use of generative AI tools (including but not limited to ChatGPT, Gemini, Claude, etc.) is prohibited for programming and report writing in this class. If you wish, you may use grammar/spell-checking AI such as Grammarly to help proofread your written work, such as project reports, but the use should be limited to proofreading rather than actual writing. Your work will be graded based on technical correctness and not on writing style or grammatical correctness, so you should not feel as if an AI is needed to write effectively for the sake of your grade. If you have any questions about this policy or what counts as Generative AI, please talk with me.

Consequences for Violating the Generative AI Usage Policy: Any usage of Generative AI in this course, apart from grammar/spell-checking, may be considered a violation of the academic integrity policy for this course and could result in a zero for an assignment or a failing grade in the course.

My Usage of Generative AI: Just as I am asking you not to use Generative AI, I will not use Generative AI to aid in my teaching, grading, or in my communication with you.

Religious Observances

It is the policy of the University to excuse absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty. It is the responsibility of the student to make alternate arrangements with the instructor as soon as possible during the semester.

Title IX Resources and Reporting Requirements

The University of Oklahoma faculty are committed to creating a safe learning environment for all members of our community, free from gender and sex-based discrimination, including sexual harassment, domestic and dating violence, sexual assault, and stalking, in accordance with Title IX. There are resources available to those impacted, including: speaking with someone confidentially about your options, medical attention, counseling, reporting, academic support, and safety plans. If you have (or someone you know has) experienced any form of sex or gender-based discrimination or violence and wish to speak with someone confidentially, please contact [OU Advocates](#) (available 24/7 at 405-615-0013) or [University Counseling Center](#) (M-F 8 a.m. to 5 p.m. at 405-325-2911).

Because the University of Oklahoma is committed to the safety of you and other students, and because of our Title IX obligations, I, as well as other faculty, Graduate Assistants, and Teaching Assistants, are mandatory reporters. This means that we are obligated to report gender-based violence that has been disclosed to us to

the Institutional Equity Office. This means that we are obligated to report gender-based violence that has been disclosed to us to the Institutional Equity Office. This includes disclosures that occur in: class discussion, writing assignments, discussion boards, emails and during Student/Office Hours. You may also choose to report directly to the Institutional Equity Office. After a report is filed, the Title IX Coordinator will reach out to provide resources, support, and information and the reported information will remain private. For more information regarding the University's Title IX Grievance procedures, reporting, or support measures, please visit [Institutional Equity Office](#) at 405-325-3546.

Adjustments for Pregnancy/Childbirth Related Issues

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me and/or the Accessibility and Disability Resource Center at 405-325-3852 as soon as possible. Also, see the Institutional Equity Office [FAQ on Pregnant and Parenting Students' Rights](#) for answers to commonly asked questions.

Final Exam Preparation Period

Pre-finals week will be defined as the seven calendar days before the first day of finals. Faculty may cover new course material throughout this week. For specific provisions of the policy please refer to OU's [Final Exam Preparation Period policy](#).

Emergency Protocol

During an emergency, there are official university [procedures](#) that will maximize your safety.

Severe Weather: If you receive an OU Alert to seek refuge or hear a tornado siren that signals severe weather.

1. Look for severe weather refuge location maps located inside most OU buildings near the entrances
2. Seek refuge inside a building. Do not leave one building to seek shelter in another building that you deem safer. If outside, get into the nearest building.
3. Go to the building's severe weather refuge location. If you do not know where that is, go to the lowest level possible and seek refuge in an innermost room. Avoid outside doors and windows.
4. Get in, Get Down, Cover Up
5. Wait for official notice to resume normal activities.

Additional [Weather Safety Information](#) is available through the Department of Campus Safety.

The University of Oklahoma Active Threat Guidance

The University of Oklahoma embraces a Run, Hide, Fight strategy for active threats on campus. This strategy is well known, widely accepted, and proven to save lives. To receive emergency campus alerts, be sure to update your contact information and preferences in the account settings section at [one.ou.edu](#).

RUN: Running away from the threat is usually the best option. If it is safe to run, run as far away from the threat as possible. Call 911 when you are in a safe location and let them know from which OU campus you're calling from and location of active threat.

HIDE: If running is not practical, the next best option is to hide. Lock and barricade all doors; turn off all lights; turn down your phone's volume; search for improvised weapons; hide behind solid objects and walls; and hide yourself completely and stay quiet. Remain in place until law enforcement arrives. Be patient and remain hidden.

FIGHT: If you are unable to run or hide, the last best option is to fight. Have one or more improvised weapons

with you and be prepared to attack. Attack them when they are least expecting it and hit them where it hurts most: the face (specifically eyes, nose, and ears), the throat, the diaphragm (solar plexus), and the groin.

Please save OUPD's contact information in your phone.

NORMAN campus: For non-emergencies call (405) 325-1717. For emergencies call (405) 325-1911 or dial 911.

TULSA campus: For non-emergencies call (918) 660-3900. For emergencies call (918) 660-3333 or dial 911.

Fire Alarm/General Emergency

If you receive an OU Alert that there is danger inside or near the building, or the fire alarm inside the building activates: 1. LEAVE the building. Do not use the elevators. 2. KNOW at least two building exits 3. ASSIST those that may need help. 4. PROCEED to the emergency assembly area. 5. ONCE safely outside, NOTIFY first responders of anyone that may still be inside building due to mobility issues. 6. WAIT for official notice before attempting to re-enter the building.

[OU Fire Safety on Campus](#)

Mental Health Support Services

Support is available for any student experiencing mental health issues that are impacting their academic success. Students can either be seen at the University Counseling Center (UCC) located on the second floor of Goddard Health Center or receive 24/7/365 crisis support from a licensed mental health provider through [TELUS Health](#). To schedule an appointment or receive more information about mental health resources at OU please call the UCC at 405-325-2911 or visit the [University Counseling Center](#). The UCC is located at 620 Elm Ave., Room 201, Norman, OK 73019.