

SYLLABUS: ET680 Communications and Fields, 4 Credits

Fall 2024, Lecture: Monday & Wednesday 6:10pm-7:30pm P101, Lab: Monday 7:40-9:30pm P114

COURSE DESCRIPTION: This course will deal with the topics of Fourier series analysis, Fourier Transform and its properties, Fast Fourier Transform algorithm, Amplitude Modulation theory, Phase Modulation, Frequency Modulation, Pulse Modulation and the transition from Analog to Digital Communications and Baseband Data Transmission. Lab. Prereq: Calculus I and Calculus II (both differential and integral calculus) or equivalent.

REQUIRED TEXT:

Introduction to Analog & Digital Communications, Second Edition
Simon Haykin and Michael Moher
ISBN-13 978-0-471-43222-7
ISBN-10 0-471-43222-9

[Amazon Link](#)

OPTIONAL TEXT: NOTE: This text is meant to provide additional teaching material and not required for the course. You are not required to use this text for any assignments, labs, quizzes, or tests.

Fundamentals of Analog and Digital Communication Systems, First Edition
Sunil Bhooshan
Hardcover ISBN-13 978-981-16-4276-0
Softcover ISBN-13 978-981-16-4279-1
eBook ISBN-13 978-981-16-4277-7

[Springer Link](#), [Amazon Link](#)

SOFTWARE: MATLAB available for UNH students to download and installed in P114

INSTRUCTOR: Erich Whitney, Adjunct Professor
Contact: Erich.Whitney@unh.edu.

OFFICE HOURS:

Instructor is available before or after class. If you need additional assistance, please reach out via email. Zoom meetings can be scheduled if needed. If you have questions during the semester, please feel free to ask the instructor. If you are having trouble, please let the instructor know as soon as possible.

LECTURE:

Bring textbook to class. Take notes. A 2" 3-ring binder is recommended for your course material.

A detailed course schedule will be published on Canvas that will outline the topics to be covered throughout the semester. The general flow of the class will be on Mondays there will be lecture material that will lead into the lab topic followed by the lab session after lecture. Wednesdays will be

a lecture to review and reinforce the findings from the lab, and may be followed by an in-class quiz that will serve as a knowledge-check to provide feedback.

Class Recording Policy

Class lectures and activities will/may be recorded to make this course more accessible, and recordings may be made available to students presently enrolled in the class to assist in reviewing material and preparing for assessments. Recordings are to be used for educational use/purposes only. Students may **not** record class activities (including screenshots showing instructors and students) without express permission from their instructor. If permission is granted, student-initiated recordings may only be used for educational purposes in this class and only during the period in which the student is enrolled in the class; authorized student-initiated recordings may **not** be posted or shared in any fashion outside of the class.

LAB:

Labs will take place in P114 Monday evenings after the lecture. Lab notebooks are strongly encouraged. Bring a USB thumb drive to the lab with you to save the data you will need for your lab reports. In the lab, you will work in teams, however, each student MUST submit their own lab report. Lab teams can (and should) share any data they collect for the report. This is a good opportunity to work together and cross-check the work to make sure the results make sense.

ASSIGNMENTS:

Assignments will be posted in Canvas along with the date they are due. It is strongly recommended that you look at the assignments before class and ask questions. Many of the labs have pre-lab work that must be done before your assigned lab time. The instructor will give in-class knowledge-checks (quizzes) to encourage study and participation. Homework assignments are given to provide practice problems designed to re-enforce key learning concepts.

EXAMS:

There are two exams planned for this course, a mid-term and a final. The mid-term will likely be scheduled during a Wednesday lecture time and will be designed to be completed during class time. Exams are closed-book, closed-notes. Any supplemental information required to work the problems will be provided. The purpose of these exams is to assess what you have learned and whether you can apply the concepts, not whether you can memorize formulas, recite problem sets, or harvest patterns from a textbook.

EXPECTATIONS:

The combination of reading, homework, and lab reports should require a **minimum** of 8-10 hours per week outside of class and lab time to keep up with the material. The lectures are given under the assumption you have already familiarized yourself with the reading assignments for that material.

Credit Hour Policy

This syllabus reflects the federal definition of a credit hour, which entails a minimum 3 hours of engaged time per week per credit over a 15-week semester. Examples of engaged time include class time, assignments, examinations, laboratories, participation in course-related experiences (attending a talk or performance, speakers and events, fieldwork, etc.), conferences, and office

hours. Student work reflects intended learning outcomes and is verified through evidence of student achievement. For more information, please see: [Pp111 Policy On Credits-And-Degrees.pdf](http://Pp111%20Policy%20On%20Credits-And-Degrees.pdf) (neche.org)

GRADING:

Lab Reports	40%
Homework	20%
In-Class Quizzes	10%
Mid-Term Exam	15%
Final Exam	15%

LATE ASSIGNMENT POLICY:

All homework and lab assignments shall be submitted online in Canvas. The Canvas submission time shall determine whether the assignment was turned in on time or not.

HOMEWORK:

Homework turned in late will not receive credit. Credit is given if the homework is turned in on time. After the due date, the solutions will be posted on Canvas for self-assessment. The instructor will review the homework submissions to determine if the student is having difficulty completing the assignment. If after review, there are missing solutions or inadequate effort, then the grade will be adjusted accordingly.

LAB REPORTS:

Lab reports turned in late will lose 10 points per week. All lab reports MUST be typed and prepared in a manner reflecting a formal technical report. A suggested template will be provided as a guide.

ATTENDANCE

Class attendance is important for your learning. You are responsible for all course assignments and meeting all deadlines unless exceptions are agreed upon with the instructor ahead of time. Attendance in this course is **required**. The following are not considered excused absences: recreational activities, working on other classes, etc. If you need to miss class for a planned activity, let the instructor know ahead of time. See the [Attendance and Class Requirements](#) policy in the undergraduate catalog.

In the event that a student needs accommodation for a religious or cultural holiday/observance, that student is encouraged to make that request as early in the semester as possible.

Curtailed Operations

If the university curtails operations due to weather, we will not hold in-person activities for our safety and the safety of others. As soon as possible, I will post an announcement on Canvas about due dates, any make-up work, and (*if applicable*) any online options that may make sense depending on where we are in the course. Please make sure you have access to the UNH Alert RAVE system. If needed, sign up for RAVE Alerts [here](#).

Temporary Academic Supports for Extended Absences with Letter

If you are dealing with an unexpected, extenuating circumstance that will keep you out of class or affect your performance for more than a day or two, reach out to Lisa Enright, Assistant Dean of Student Success, at lisa.enright@unh.edu to request a letter be sent to all your faculty.

If you are required to miss significant class time, you will be provided temporary academic supports so that you can continue to make satisfactory progress in this course. Please contact your course instructor to discuss the specific types of supports that will be implemented during your absence. Possible options you may be provided in this class include:

- Class notes from a peer
- Virtual office hours
- Lecture slides
- Materials on Canvas

ACADEMIC INTEGRITY

Artificial Intelligence

Unless otherwise specified, the use of Automated Writing Tools, including chatGPT and similar artificial intelligence (AI) tools, is strictly prohibited in this course, even when properly attributed. The use of automated writing tools is considered plagiarism (as defined by UNH's [Academic Integrity Policy](#)) and will be handled in accordance with existing policy.

<https://catalog.unh.edu/srrr/university-policies-regulations/academic-honesty/>

PLAGIARISM (FROM SRRR)

Use or submission of intellectual property, ideas, evidence produced by another person, including computer generated text or work outsourced to third-parties, in whole or in part as one's own in any academic assessment without providing proper citation or attribution. In some cases, reusing one's own previous work without acknowledging or citing the original work can constitute self-plagiarism.

STUDENT SERVICES

Student Accessibility Services (SAS)

According to the Americans with Disabilities Act (as amended, 2008), each student with a disability has the right to request services from UNH to accommodate his/her/their disability. If you are a student with a documented disability or believe you may have a disability that requires accommodations, please contact Student Accessibility Services (SAS) located on the Manchester campus in the Student Services Suite (Office 405A).

Accommodation letters are created by SAS with the student. Please follow-up with your instructor as soon as possible to ensure timely implementation of the identified accommodations in the letter. Faculty have an obligation to respond once they receive official notice of accommodations from SAS but are under no obligation to provide retroactive accommodations.

For more information refer to www.unh.edu/sas or contact SAS at 603.862.2607, 711 (Relay NH) or sas.office@unh.edu.

Confidentiality and Mandatory Reporting of Sexual Violence or Harassment

The University of New Hampshire at Manchester and its community are committed to assuring a safe and productive educational environment for all students. Title IX makes it clear that violence, harassment, and discrimination based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, and ability.

If you or someone you know has experienced sexual or relationship violence, and/or stalking and harassment, you can find the appropriate resources below:

Reporting On Campus:

- Title IX Deputy Intake Coordinator: Lisa Enright 603-641-4336. Lisa's office is located on the fourth floor in Room 439.
- UNH Manchester Security: 603-641-4124 or located in the second floor foyer

Reporting Off Campus:

- Manchester Police Department - 603-668-8711, 405 Valley St. Manchester, NH

- or your local police department

For emergencies dial 911.

Confidential Support Resources:

- YWCA, NH – 603-668-2299(24hour), 72 Concord St. Manchester, NH
- Sexual Harassment and Rape Prevention Program (SHARPP): 603-862-7233(24hour), 8 Ballard Street, Wolff House, Durham NH 03824
- The Mental Health Center of Greater Manchester: See contact information and hours above
- 24 Hour NH Sexual Violence Hotline: 1-800-277-5570
- 24 Hour NH Domestic Violence Hotline: 1-866-644-3574

Center for Academic Resources

CFAR

Center for Academic Resources (CFAR) is where students go to improve their study skills, time management, and understanding of UNH's academic culture. Our [professional educational counselors](#) and [peer academic mentors](#) work within students' course materials to demonstrate best practices for learning concepts and preparing for exams. Find an appointment with an academic mentor of your choice on the CFAR calendar at <https://unh.mywconline.com>. To talk with a [professional educational counselor](#), email us at unh.cfar@unh.edu; use Chat Live on our website at <https://www.unh.edu/cfar>; or stop by **Smith Hall Second floor, Monday-Friday from 8:00-4:30**. The CFAR website also has a large selection of [study tips and tools](#) and [STEM videos](#).

Knack

Knack is a Peer-to-Peer tutoring platform that is available to all enrolled students for all undergraduate courses in Durham at no cost to students. Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. UNH has partnered with Knack to provide students with access to verified tutors who have successfully completed this course. To view available tutors, visit unh.joinknack.com and sign in with your student account.

Early Alerts Report

The University is invested in your academic success. If a faculty member is concerned about your academic behavior or performance, they may submit an academic alert -- particularly around Week 5 (Sept. 22-Oct 1). Academic alerts are not punitive. The goal is to provide you with support and resources to support your success. They act as an important check-in point and, if you receive an academic alert, you will receive an email to your UNH email address. It is strongly recommended that you meet with a professional advisor and connect with your instructor to discuss the reason for the alert.

Financial Literacy Resources

All students benefit from understanding their mindset about money, how to build and use a personal budget, as well as understanding interest rates, loans, insurance, investing, and more. UNH has wonderful free resources for students in [Library Resource Guides](#), and every student (and faculty!) can access [CA\\$H COURSE](#) by creating a free account. Find more information on the [Financial Wellness](#) site of Health & Wellness.

Mental Health and Wellness

Emotional or mental health distress

In partnership with The Mental Health Center of Greater Manchester, UNH Manchester offers consultation visits on a walk-in basis and through telehealth appointments. Services include:

- Free confidential screening & consultation with a licensed mental health therapist.
- Referrals to mental health or substance misuse treatment. And assistance in understanding how to afford additional treatment (with or without insurance!) or find free services.

You may email: unhm.wellness@unh.edu to make an appointment to meet with a counselor by clicking [here](#) or by using the QR codes below.

For in person appointments please scan this code



For remote appointments please scan this code



If you would like to connect to counseling services directly, you may do so by contacting The Greater Manchester Mental Health Center at (603) 668 - 4111.

UNH Manchester Engineering Technology TAC of ABET Student Outcomes Criteria #3

- Criterion 3 (a – k) For baccalaureate degree programs, these student outcomes must include, but are not limited to, the following learned capabilities:
- a. an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
 - b. an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
 - c. an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
 - d. an ability to design systems, components, or processes for broadly defined engineering technology problems appropriate to program educational objectives;
 - e. an ability to function on multidisciplinary teams;
 - f. an ability to identify, analyze, and solve broadly-defined engineering technology problems;
 - g. an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
 - h. an ability to analyze and evaluate engineering technology problems and solutions to determine if they meet the intended needs;
 - i. an ability to use the professional engineering literature to research and resolve engineering technology problems;
 - j. an ability to engage in lifelong learning;
 - k. a commitment to quality, timeliness, and continuous improvement.