**ECE 2050 Autumn 2023**

Professor: Bradley D. Clymer clymer.1@osu.edu

Fac. Office: 383 Caldwell Laboratory

Fac. Off. Hrs: MWF 2:00–3:30 pm and Th 10:30am–12:30pm in office or send me an email to clymer.1@osu.edu. Check my calendar on my website for availability: https://www2.ece.ohio-state.edu/ clymer/

Fac. Phone: 292-3477 (email works better for contacting me)

Lab TA: Isaac Zachmann (email: zachmann.4@osu.edu )

Text: (recommended) *Digital Signal Processing*, 4th Edition, Proakis & Manolakis, Prentice-Hall, Upper Saddle River, NJ (1996). ISBN: 0-13-187374-1 (any edition is fine)

Prerequisites: 2000 or 2060, or 2061 and 2067; Math 2568 (concur)

Video Problem Sessions: Recorded video problem sessions are posted with *links on Carmen* for students to watch Prof. Clymer work problems similar to those in the homework sets. These have been useful study tools for students in past offerings of ECE 2050.

Academic Misconduct: **Using or uploading ECE 2050 course material on non-OSU websites is considered academic misconduct and will be prosecuted as such.**

Matlab: All Ohio State Engineering students are eligible for license to use on personal device while enrolled at OSU. Matlab will be required for some homework, and students need to have access to a working version installed on equipment available while completing homework and/or exams. Instructions for downloading and installation can be found at https://ocio.osu.edu/software.

Homework: Homework will be assigned on Fridays to be due at **5:00 pm** the following Friday, except the weeks of Autumn Break when it is due on Wednesday and the week of the Veterans' Day holiday when it is due on Thursday. *NO LATE HOMEWORK WILL BE GRADED.* Homework must be *uploaded as a single PDF document on Carmen* **before** the 5:00 pm ET deadline. It is OK to use iPads (or other computer tools) and writing applications like Notability to do the homework assignments and then save these as a PDF.

I encourage students to work together on homeworks (but not exams...). **Every student must turn in your own homework.** I prefer that each student attempt each homework problem, but if you are stuck, ask a friend for help and compare answers. In many cases, there is more than one method of solution for problems. Any valid solution is correct. **Show as much work as possible.** I am much more interested in understanding your methods of solution than checking to see if a final numerical answer is correct. The more work that you show, the more I can determine whether mistakes are simple algebra errors or errors in concepts. Algebra is not the subject of this course, so simple algebra mistakes are usually forgiven unless they completely obscure the point of the problem.

Only a subset of the assigned problems will be graded, but solutions to all problems will be provided on Carmen. **Each student will be allowed to drop the lowest homework score for the semester.** Note that this policy is to accommodate unexpected circumstances like illness, forgetfulness, deaths in the family, etc., so if these things happen for one of the HW assignments, that will likely be the HW set that you drop.

Labs: Labs begin during the week of September 25. **Check Carmen for a separate announcement on Lab Policies from Prof. Chapman.**

Carmen: Carmen will be used extensively. Of particular interest for the course is the *discussion bulletin board* where students can post questions to be answered by Prof. Clymer or other students and announcements will be made in the Discussion area regarding the course. **It is the responsibility of every student in the course to periodically check the discussion bulletin board for the course to ensure that you do not miss important announcements.**

Lecture Movies: The lectures for this course are being recorded and converted to MP4 streaming web movies. These movies will be available from the course Carmen site. The content of these movies is considered the intellectual property of Prof. Clymer and reproduction of the movies or use of their content by persons not affiliated with OSU is prohibited except with written permission of Prof. Clymer.

Exams: Exams are held in the lecture classroom and written on paper. Midterms are during the lecture time slot and the Final exam is according to the Registrar's exam schedule. **All exams will be closed book,** but students can prepare a single sheet of 8.5×11 inch notes (both sides) to use during the exams. **Students cannot share resources (including calculators) with other students in the class, so you need to get or borrow a calculator if you intend to use it during the exam. Students found sharing resources during exams will be reported for Academic Misconduct.** *Students are required to sign an affidavit on the exam testifying that there was no assistance given, received or observed. Any student observing another student being given assistance or taking assistance of any type (except questions asked to the instructor) during the examination is obligated to report the incident to the instructor.* **During the exam, no devices are permitted that facilitate communication with another party (e.g. cell phones, and other wireless electronic communication devices including laptop computers). Students may not leave the examination room without permission of the instructor (who will be sitting in the room) and while out of the examination room, no student may discuss any part of the examination with another party (except the instructor) either in person or through an electronic communications means.** Excused absence from an exam (and rescheduling exams) requires a very high level of emergency which is determined by Prof. Clymer. For example, medical excuses with documentation of the student seeing a medical practitioner in person (not a web doctor) or a COVID quarantine email from OSU.

Exams will tend to be long and designed to show me how much you understand the principles of the material covered in the course. Write down as much as possible. If you don't know an answer, make an educated guess and defend it...most of the scientific discoveries to date were not known beforehand (by definition) and the discoverers became rather famous for making an educated guess, then defending it by analysis and experiments. Show as much work as possible so that I can give partial credit. The right answer without the method is of little meaning to me. The wrong answer without a method gets no credit.

Special Exams: Students with special exam requirements approved by the Office of Disability Services must notify Prof. Clymer by the **third Friday of the semester (September 9).** Note that even if you do not yet have approved ODS exam status, but an application is currently under review, you must contact Prof. Clymer before this deadline or when you apply for your ODS status if you apply after this deadline.

Grading: The grade you receive in this course is not based on the grade of other students in the class. It is based on your ability to show me that you understand the material and can use the principles you have learned to think in a creative and critical manner. I have several means for gathering information on your level of understanding: homeworks, exams and discussion inside and outside of class and the laboratory reports. The percentage of each of these used to determine the final grade for each student is shown below. In addition, if I see that a student's performance on exams and quizzes is not in line with my perception of his/her level of understanding, I will adjust the grade accordingly. The grading methods are meant to give a quantitative measure of each student's performance, however, often quantitative measurements neglect immeasurable qualities.

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| 15 % | Homework |
| 20 % | Midterm Exam 1 |
| 20 % | Midterm Exam 2 |
| 30 % | Final Exam |
| 15 % | Labs |