

George Mason University
Electrical and Computer Engineering Department
ECE 220: Signals and Systems I
Information Sheet
Spring 2008

Instructor: Professor Kathleen Wage
Sci and Tech II, Room 243
703-993-1579
kwage@gmu.edu

Class: Mon./Wed. 3:00-4:15pm
East Building, Room 201
Office hours: Monday 1:30pm-2:30pm
Tuesday 5:00pm-6:00pm
Wednesday 11:00am-12:00pm
other times by appointment

Prerequisites: Grade of C or better in ECE 201 or permission of instructor

Corequisites: MATH 203 and MATH 214

Required Texts:

1. *Signals and Systems, 2nd Edition* by A. O. Oppenheim and A. S. Willsky with S. H. Nawab, Prentice Hall, 1997 (same book used for ECE 320)
2. *Fundamentals of Electric Circuits, 3rd Edition* by C. K. Alexander and M. N. O. Sadiku, McGraw-Hill, 2007 (same book used for ECE 280)

Course Webpage: <http://ece.gmu.edu/~kwage/courses/ece220/spr08>

Course Objectives

- Introduce students to the basic types of signals and systems encountered in engineering and to important properties of these systems.
- Introduce students to methods of characterizing and analyzing continuous-time signals and systems in the time and frequency domains.

The workload for this course consists of the following: two class meetings, one recitation, and one laboratory session per week. Class time is divided between short lecture segments on key concepts and in-class group exercises. Students are expected to do the assigned reading prior to coming to class so that they are adequately prepared to participate in the interactive problem-solving sessions. The course grade is based on performance on the readiness assessment tests, in-class problems, weekly homework assignments, laboratory projects, two in-class examinations, and a comprehensive final examination. The remainder of this handout describes the course requirements in more detail.

Prerequisites and Corequisites

The prerequisite for this course is a C or better in ECE 201. In addition, two math courses (MATH 203 and MATH 214) are corequisites. You are assumed to be familiar with the Matlab software package, which you used in ECE 201.

Class Meetings

Class will meet Mondays and Wednesdays in East Building, Room 201 from 3:00pm to 4:15pm. It is assumed that you will attend all of the classes, though attendance will not be formally recorded. If missing a class is absolutely unavoidable, you should check with your classmates to obtain the notes for that day and check the website to obtain any handouts. If homework is due, you are responsible for turning it in prior to class time.

Class meetings will combine short lectures on key points in the material with collaborative problem solving sessions. I feel that the time spent on the problems is much more educational than watching me lecture for the entire period. The work you do in these group sessions will be evaluated in several ways, and will be worth 5% of your course grade. The shortened lecture puts a responsibility on you to be prepared for class by completing the reading the night before. In my experience, students who come prepared to this type of class find that they understand more about the material and homework problems than if they had attended a traditional lecture. Students who are not prepared are more lost and confused than they are in traditional classes. Homeworks and exams may include topics that are in the reading but not covered in lecture, so again, it is important to keep up with the reading to do well in the course.

Preparation for Class

You are required to come to class prepared. As you progress in your career as an engineer, it is essential that you acquire the skill of reading a book to learn necessary information about a technical problem. In your professional life, you will have to solve many problems that are not taught in classes here, and engineering textbooks or journals will be your only resource. This course will provide an opportunity for you to develop your technical reading skills. Note that the syllabus has a complete list of reading assignments for the semester. To encourage adequate preparation for class, you are required to keep a notebook containing notes that you take on the reading assignments and any other questions that you have about the course material. Your **ECE 220 notebook** should be a loose-leaf binder. The notes for each day should begin on a new page. Some study questions will be posted on the course webpage for each chapter of the book. Your notes should contain answers to these study questions.

To motivate you to prepare for lecture, the first activity in each class will be a Readiness Assessment Test (RAT). Your grade on these RATs will be 5% of your final grade for the class. The RAT will either consist of turning in the appropriate page (or pages) from your notebook or of taking a short quiz on the reading assignment. You won't know until you come to class which type of RAT will be given.

Recitations

There will be one 50-minute recitation per week led by a teaching assistant. The recitation session will include additional examples designed to enhance your understanding of the material covered in lecture.

Laboratory

There will be a series of six or seven Matlab assignments to be completed in the laboratory. The laboratory assignments are a required component of the course. **Failure to complete all the lab assignments will result in a failing grade for the course.** Like the homework, Matlab projects must be handed in at the beginning of the class in which they are due.

Homework

There will be regular homework assignments (problem sets). These will be distributed via the course website (<http://ece.gmu.edu/~kwage/ece220/spr08>). You are expected to do ALL the assigned problems. In making up the exams and in assigning a final grade, I will assume that you have worked ALL the problems. Most exams will include one problem very similar to one of the homework problems. Thus, there will be a very immediate benefit to doing the homework completely and diligently. Each homework will also include the reading to prepare for the following week's classes. Again, you are required to do this reading before the class meets. **Homeworks must be handed in at the beginning of the class on the day they are due. Late homeworks will not be accepted, as this would prevent prompt posting of the solutions.** Note that at the end of the term, I will drop the lowest homework grade from your overall homework score. Additional guidelines for the homework are posted on the website.

Office Hours

Office hours are a time for you to get help with homework, help in understanding the assigned reading, or

answers to any other questions about ECE 220 material or the ECE program. Please take advantage of office hours! See the webpage for a listing of staff office hours.

Exams

There will be two in-class exams during the semester and one final exam during exam week.

Exam 1:	Monday, February 25	3:00-4:15pm
Exam 2:	Monday, April 7	3:00-4:15pm
Final Exam:	Monday, May 12	1:30-4:15pm

These exams will be given in the usual classroom at the times given. As noted above, it is likely that most of the exams will include a problem which is very similar to one of the homework problems. All of the exams are closed book and **calculators will not be allowed**.

Course Grade

The final grade in the course is based on my best assessment of your understanding of the material and participation during the semester. The exams, problem sets, and project are combined with the following rough weighting to give a preliminary final grade:

Exam 1	17.5%
Exam 2	17.5%
Final Exam	25%
Labs	20%
Homework	10% (lowest score will be dropped)
Readiness Assessment Tests (RATs)	5% (lowest score will be dropped)
In-class problems	5% (lowest score will be dropped)

A student requesting a grade change for any assignment must provide the instructor with the following within *2 class periods* after the work is returned: the assignment and a paragraph describing why you feel you should receive additional points for the work. Note that in some cases, it is possible that what you wrote for the assignment indicated a better understanding of the problem than you actually possess. If the paragraph you submit indicates that you don't understand the problem as well as the grader thought you did, then your score *may be reduced*.

Academic Integrity

All students are expected to abide by the George Mason University Honor Code and the rules outlined below. Any reasonable suspicion of an honor code violation will be reported.

One important goal of this class is to help you learn to work collaboratively in a group. You will be working as a group during all the in-class interactive problem-solving sessions. You are also encouraged to collaborate on the homework assignments. Talking to other students, explaining your ideas and questioning their ideas, is a great way to learn. However, you must write up your own solution for the homework problems. In doing this, you **MUST** identify at the top of the assignment any students you collaborated with to complete the assignment. In signing your own name to the assignment, you are certifying that the work reflects your own understanding of the problems. Simply copying someone else's answer is not working collaboratively, and is not permitted.

The same rules that apply to homeworks also apply to the Matlab assignments. Sharing of ideas on the projects is permitted, but copying code or lab reports is explicitly forbidden.

The examinations are strictly your own effort, and I will be looking for consistency between the homework performance and the exam performance on those exam problems closely related to the problem sets.