

**ECE 220: Signals and Systems 1
Spring 2016**

SYLLABUS (And More)

Instructors:	Professor Monson H. Hayes Nguyen Engineering Building Suite 3100 (703) 993-3969 hayes@gmu.edu	Professor Lloyd Griffiths Nguyen Engineering Building Room 3206 (703) 993-1729 lgriff@gmu.edu
Class:	David King 1006 (Section 1) Tues/Thurs 4:30 pm - 5:45 pm	Innovation 204 (Section 2) Tues/Thurs 4:30 pm - 5:45 pm

Teaching Assistants

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Undergraduate Learning Assistants

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Textbook: B.P. Lathi, *Linear Systems and Signals*, Second Edition, Oxford University Press, 2005.

Software: Matlab

Links to some Matlab tutorials may be found here:

http://ece.gmu.edu/~hayes/courses/SignalsSystems_1/matlab.html

Course Assignments and Exams

Weekly homework
In class quizzes
Two midterm exams and a final exam during the final exam period
Laboratory projects and laboratory quizzes

Course Handouts

All handouts for the course (problem sets, solutions, lab assignments plus other material) will be available here:

1. Section 1 (Hayes): <https://ece.gmu.edu/~hayes/courses/SignalsSystems/>
2. Section 2 (Griffiths): Blackboard

Course Objectives

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

Course Organization

This course consists of two lectures, one recitation, and one laboratory session per week. Each lecture will introduce an important concept or application and illustrate its use through examples and problems. Lectures will not be a recitation of your textbook, and may often contain new material not found in the book, and different interpretations of the theory. The goal will be to instill a deep and intuitive understanding of concepts, why they are important, and how they are used or applied.

Prerequisites and Corequisites

The academic prerequisite for this course is a C or better in ECE 201. In addition, two math courses (MATH 203 and MATH 214) are corequisites. It is assumed that you are familiar with Matlab, which you used in ECE 201, and proficient in the use of complex numbers.

However, the most important prerequisite for the course is the willingness to work hard and an eagerness to learn. If you find yourself having trouble understanding a concept and putting it into practice, it will be extremely important to acknowledge that you are having trouble and get help, ask questions, and work extra problems.

Lecture

Lectures are on Tuesdays and Thursdays from 4:30 pm to 5:45 pm. For those students who are in Section 1 with Professor Hayes, the course meets in David King Room 1006 and for those in Section 2 with Professor Griffiths, the lecture is in Innovation Hall Room 204. You must attend the section for which you are registered. There will be random in class quizzes, and if you are in the wrong room, you will automatically receive a grade of zero.

In order to get the most out of the lecture, it is strongly encouraged that you come prepared by reviewing the posted lecture notes, and reading the assigned sections in your textbook.

Cell phones, pagers, and other communicative devices are not allowed to be used in the class. It is also expected that you will not have a laptop computer or tablet open to browse the net or communicate with others. For 75 minutes it is expected that you will remain **unplugged** from the outside world.

Homework

There will be regular homework assignments (problem sets). Each problem set will have some *Practice Problems* along with answers. These are generally short answer drill problems that are provided for those who would like a few extra problems to work in order to get more practice in developing problem solving skills and helping in the understanding of the basic concepts of the course.

In addition to the *Practice Problems*, there will be a set of *Regular Problems* that are to be turned in for grading. Detailed solutions will be provided for these problems. It is important to understand that a significant number of points will be deducted for any homework solution that is not neatly written and easy to follow, with clear explanations of the work and how the answers were obtained. Simply writing down an answer will not be sufficient to receive full credit.

You are allowed to discuss the homework problems with other students in the class. However, your homework must be written and prepared by yourself, and not copied in full or in part from another student, or from any other source including solutions manuals and the web. Such copying will be considered to be a violation of the George Mason University Honor code.

It cannot be stressed enough how important it is to put in a significant amount of time working the homework problems. Your performance in the class will be highly correlated with the amount of time spent on the homework.

Homework is to be turned in to your recitation instructor at the *start* of the recitation session for which you registered. Late homework will not be accepted, and you may only submit your own homework, and not the homework for another student.

Recitation

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 class. Extensions of material covered in class may also be presented in recitation. Attendance is expected, and you will be responsible for all material covered in recitation. In addition, as noted above, your homework is to be submitted at the start of each recitation section, and it will be returned in recitation.

Class participation in recitation is expected, and students may be asked to work problems, to answer questions, or participate in a discussion. A part of your grade for the course will be based on your participation in recitation.

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 lab assignments will result in a failing grade for the course.** The project reports must be handed in at the beginning of the lab in which they are due. Ten percent of the maximum number of points assigned to a lab project will be deducted for **each day that it is late**, and the total number of points may become negative. The syllabus for the labs will be distributed and discussed in your first laboratory session. Prior to the due date for the first laboratory, instructions on how to prepare your lab report will be discussed and handed out.

As with homework, your lab reports must be done by yourself, and copying of material from any student or any other source will be a violation of the honor code, and will be grounds for immediately reporting the infraction to the Office of Academic Integrity.

Teaching Assistants and Learning Assistants

There are three teaching assistants for this course who will be running the recitations and the labs as well as grading your homework. These TAs are committed to helping you learn the material and succeed in the course. They will be available to help you when you find yourself having trouble understanding a concept or working a problem, so feel free to seek their help and to ask questions when necessary.

In addition, there are two undergraduate learning assistants (ULA) for this course. Both ULAs have recently taken ECE 220, and will be an extremely valuable resource for you since they understand and remember the difficulties students in this course encounter. They will be used in a variety of ways throughout the semester.

Administration of the Course

This course consists of a large team of people – two Professors, three TAs, and two ULAs. This group will have weekly meetings to coordinate and organize the course and to identify and address any problems or issues that come up. The material in both sections of the course will be identical – the problem sets, the in-class quizzes, the exams and the laboratory assignments. The grading will also be done consistently between the two sections.

Office Hours

Office hours of the entire ECE 220 staff are a time for you to seek help in understanding the assigned reading or concepts introduced in lecture or recitation, and to answer any questions you may have about the ECE 220 material. Although these office hours may be used to get some guidance on homework or other assignments, they will not be used to show you how to solve a homework problem that is to be submitted for grading, or to check your answers. Please take advantage of office hours! They can be extremely helpful.

Exams

There will be two in-class midterm exams during the semester and one comprehensive final exam during final exam week. It is likely that one or more of the problems may be similar to one of the homework problems or to a problem worked in recitation. All of the exams are closed book and closed notes, and no electronic devices of any kind will be allowed. However, a formula sheet will be provided, so it is not expected that any student will have to spend time memorizing formulas. Prior to each exam there will be a review session to answer questions and to solve some practice problems.

Course Grade

The final grade in the course will be based on the following formula:

Two Midterm Exams	15% each
In class Quizzes	10%
Final Exam	25%
Laboratory Grade	20%
Homework	10% (lowest score will be dropped)
Participation	5%

A student requesting a grade change for any assignment or exam must provide the instructor with the assignment or exam with a detailed explanation describing why it is felt that additional credit should be received.

Re-grading of any resubmitted assignment or exam will not be limited to the particular problem or item in question. The entire assignment or exam will be regarded, and it may turn out that you end up with fewer points after re-grading.

Study Groups

Study groups can be extremely beneficial and effective in mastering the course material. It is strongly recommended that groups of students get together on a regular basis to work problems in the textbook, and to discuss the lecture and recitation material. Working a problem on a whiteboard and explaining your solution to a group of fellow students is a terrific way to learn.

Academic Integrity

GMU is an Honor Code university; please see the University Catalog for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously and violations are treated gravely. All ECE 220 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.

Three fundamental principles to follow at all times: (1) all work submitted must be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on an assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, factual information, graphs or figures from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Note that paraphrased material must also be cited. A simple listing of books or articles is not sufficient.

Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please see me. You are allowed and encouraged to collaborate on the homework assignments and discuss problems with each other. 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. Simply copying someone else's answer is not working collaboratively, and is not permitted. The same rules that apply to homework also apply to the Matlab assignments. Moderate discussion of ideas on the projects is permitted, but copying code or lab reports is explicitly forbidden.

Since examinations are strictly your own effort, any extreme inconsistencies between your performance on the homework and on exams will be scrutinized.

GMU Email Accounts

Students must check their Mason email account to receive important University information, including messages related to this class. See <http://masonlive.gmu.edu> for more information.

Reposting of Course Material to Other Websites

The course materials (lecture notes, homework, projects, exams, solutions, and anything else posted on the course website) are copyrighted. You may not upload them to any other website or share them with any on-line or off-line test bank.

Office of Disability Services

If you are a student with a disability and you need academic accommodations, please see the professor and contact the Office of Disability Services (ODS) at 993-2474. All academic accommodations must be arranged through the ODS. <http://ods.gmu.edu>

Other Important Dates (Check with official GMU calendar)

Jan. 26:	Last date to add courses and last date to drop with no tuition penalty
Feb. 02:	Last date to drop with 33% tuition penalty
Feb. 19:	Last date to drop with 67% tuition penalty
Mar. 07-13:	Spring break
May 2:	Last day of classes
May 4-11:	Exam period