TEXAS A&M UNIVERSITY

SYLLABUS

Course title and number	ECEN 314, Section 503: Signals and Systems
Term	Spring 2018
Meeting times & location	Lectures: MWF 10:20am – 11:10am, ETB 1020 Recitations: F 3:00pm – 4:00pm, ETB 1037

- ✓ Recitations constitute an integral part of the course. Attendance is required.
- ✓ Please check eCampus and emails frequently for notices and materials if not given in class.

Course Description and Prerequisites

Basic concepts of signals and systems and their various applications to signal processing will be introduced in this course. With a focus on linear, time-invariant systems, this course will cover powerful techniques that analyze and design systems that process signals for desired outcomes. Topics include continuous-time and discrete-time signals, signal and system representations in both the time domain and the frequency domain, the Fourier transform and generalizations that link the representations, and sampling that processes continuous-time signals in discrete time.

Prerequisites: Knowledge of sets, complex numbers, variables, functions, and college-level calculus.

Learning Objectives

With the completion of this course, students are expected

- to understand theoretical and mathematical concepts about signals and systems; and
- to apply the concepts to analyze and design systems that process real-world signals.

Instructor Information

Name	Yang Shen
Telephone number	979-862-1694
Email address	yshen@tamu.edu
Office hours	Tuesdays and Thursdays 1:30pm-2:30pm (tentative) or by appointment
Office location	Wisenbaker Engineering Building 215I

A recitation TA, Vikas Nallaparaju, will lead recitations to explain homework solutions and give quizzes.

Textbook and Resource Material

Recommended Textbooks:
[**OW**] Alan V. Oppenheim, Alan S. Willsky, with S. Hamid Nawab. *Signals and Systems* (2nd Edition). Prentice Hall, 1996. (ISBN-13: 978-0138147570 | ISBN-10: 0138147574)

Other teaching materials will be posted on the course website on eCampus.

Grading Policies

Weights towards final grades:

- 25% 5 Homework Assignments (including 10% that involves MATLAB programming)
- 25% 5 Long Quizzes during recitation (4 best out of 5; based on homework assignments)
- 20% Midterm Exam
- 30% Final Exam

- ✓ Each homework is expected to be submitted before the lecture on the due date. Late submission would incur a penalty of 10% a calendar day after the due time, up to a maximum of 7 calendar days. For instance, submissions on the due date but after the class receive 90% of their scores, those on the next day receive 80%, and those late for > 7 days are not accepted.
- ✓ Each quiz will be based on a homework assignment and be given about a week after the assignment's solutions are discussed during a recitation.
- ✓ Quizzes and exams are closed-book and closed-notes.

Final grades will be determined numerically, solely based on individual standing, to reflect how well students do in assignments, quizzes and exams. This approach is to ensure at least a fair mechanism to assess how well students learn course materials and accomplish course goals. Therefore, grades are very unlikely to change unless a mistake was made in grading or adding numbers. In such occasions, score adjustment can only be requested within a week after a graded assignment/quiz/exam is returned.

Grading Scale:

A	[90%, 100%]
B	[80%, 90%)
C	[70%, 80%)
D	[60%, 70%)
F	[0%, 60%)

Suggestions on Study Habits

As the instructor I will do my best to help you understand course materials and accomplish course goals. To this end, we will design lectures and recitations to lead you through step by step and give homework assignments, quizzes, and exams to provide feedbacks on your progress. We will also use office hours, regular or on demand, to better understand and address your study needs.

Our support is in no place replacing your own efforts. Better study habits will make your efforts effective at accomplishing your goals. So here is a list of suggestions that we think you might find beneficial:

- ✓ **Read course materials prior to lectures** to at least have a sense about what will be covered next.
- ✓ **Attend lectures and recitations regularly and avoid absence**. (See more in Attendance and Make-up Policies). Missing a lecture or recitation would inevitably disrupt your step-by-step study plan that is carefully designed. In case of having to miss a lecture or recitation, ask the instructor and fellow students for related course materials, study them by yourself as soon as possible, and ask questions that you might have during office hours.
- ✓ **Do your homework and do it by yourself**. Work on your homework and try to complete *before* the recitation to discuss about solutions. Each homework problem is a chance to apply new knowledge and hone new skills, not to mention that it is a chance to prepare for the quizzes and improve your scores. You are allowed to discuss about homework problems with other students when conceptualizing solutions. But you are expected to generate the written solutions, in scrap or final form, by yourself. ***The use of existing solutions from any source (other students, past solutions, the internet, etc.) is a violation of the Aggie Honor Code and is subject to the honor code penalties***.
- ✓ Over the weekend, **review materials and readings** covered in the preceding week and work on additional exercises on your own as needed (we are more than happy to help during office hours).
- ✓ Use quizzes and exams to **assess, adjust, and develop your own study habits.**

Attendance and Make-up Policies

Regular and punctual attendance to the lectures and recitations facilitates the effective implementation of a systematic study plan. Please consult student rule 7 for additional information: http://student-rules.tamu.edu/rule07.

Makeup quizzes or exams are only allowed under an approved university excused absence (see a list in student rule 7). A written request to the instructor is needed *prior to* the quiz or exam affected.

Course Topics, Calendar of Activities, Major Assignment Dates

Here is the list of tentative course topics in chronological orders

- Introduction and mathematical background
- Concepts and properties of signals
- Concepts and properties of systems; Linear, time-invariant (LTI) systems
- Time-domain analysis of LTI systems
- Continuous-time and discrete-time Fourier transforms
- Frequency-domain analysis of LTI systems
- Discrete-time sampling of continuous-time signals and systems
- Differential equations and Laplace transforms

Important Dates (*subject to change*)

- Quiz 1: Feb. 9, 2018 (F) during recitation
- Quiz 2: Feb. 23, 2018 (F) during recitation
- Quiz 3: Mar. 9, 2018 (F) during recitation
- Midterm Exam: Mar. 23, 2018 (F) during recitation
- Quiz 4: Apr. 13, 2018 (F) during recitation
- Quiz 5: Apr. 27, 2018 (F) during recitation
- Final Exam: May 7, 2018 (M), 8:00am – 10:00am (University Schedule; Early Morning)

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu.

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

"An Aggie does not lie, cheat, or steal, or tolerate those who do."