

ECE 500 - Syllabus

Course: ECE 500, Mathematical Methods for Engineers, is broken into three distinct sections:

- I. Signals, Systems, and Transforms
- II. Probability and Statistics
- III. Linear Spaces & Linear Operator Theory

Each of which will prepare you for a different set of graduate level classes here at the University of Michigan-Dearborn.

Professor: Chris Kreucher is a Research Scientist at ERIM International in Ann Arbor, MI and an Adjunct Lecturer at the University of Michigan - Dearborn.

I can be reached in (almost) real-time as ckreuche@umich.edu.

My website is <http://valhalla.umd.umich.edu/~ckreuche>.

I will usually be around 30 minutes before and after class.

Office Hours are Thursday 5:30-6:30 pm, 1231 EC, and by appointment.

Text: I do not mandate that you purchase a textbook for this course. You can rely on class notes and handouts exclusively if you choose.

There are many good references available in the library for each of the three subsections. The bookstore has in stock a very good Signals, Systems & Transforms text by Philipps and Parr that you may wish to purchase if you are interested in the topic and will be pursuing it further in your career.

Homework: Homework will be assigned every class. It will not be collected or graded. Solutions will typically be posted on the web. If you want to pass the course, do the homework.

- Topics:**
- I. Signals And Systems (Sept 13 – Oct 11)
 - a. Continuous Time Signals and Systems Overview
 - b. Convolution
 - c. Fourier Series
 - d. The Fourier Transform
 - e. Applications of the Fourier Transform
 - f. The Laplace Transform
 - g. Applications of the Laplace Transform

Exam 1 - October 18, 1999

II. Probability and Statistics (Oct 18 - Nov 8)

- a. Probability Basics
- b. Conditional Probability
- c. Independence
- d. Random Variables
- e. Expected Values, Variances
- f. Important Distributions

Exam 2 – November 15, 1999

III. Linear Spaces & Linear Operator Theory (Nov 15 - Dec 13)

- a. Matrices and Vectors
- b. Eigenvalues and Eigenvectors

Exam 3 – December 13, 1999

Final Exam – December 20, 1999

Grading: There will be 3 exams, one at the end of each section. At least one exam (probably 2) will be take home. Your best 2 will count for 30% of your grade each. The final exam will count for 40% of your grade.

Honor Code: Working in a group on homework is strongly encouraged. Working together in any manner on take home or in class exams is strictly forbidden.

General: We will be covering the material in this course at a brisk pace, so it is important that you attend the lectures, do the homework, and ask questions during office hours if necessary.

Please do not be hesitant to stop the lecture and ask questions. If no questions are asked, the default assumption will be that the material is understood by the students.