Instructor(s): Alexandra Duel-Hallen, sasha@ncsu.edu

Objective or Description: This course is the introductory course in digital signal processing. It develops essential tools required for a broad range of disciplines (e.g. communications, geophysics, medical image processing, etc.). The objective is to provide students with understanding of discrete-time signals and systems and to develop digital signal processing design and analysis skills.

Prerequisites: Signals and Systems (ECE 301 or Equivalent), MATLAB experience.


Topics: The course topics include properties and implementation of discrete-time signals and systems, analysis techniques using Z-Transform, Discrete-Time Fourier Transform, and Discrete Fourier Transform, sampling and reconstruction of signals, efficient computation methods using Fast Fourier Transform, and digital filter design.

Grading: 
Homework 17%, broken down as:
Matlab/Problems 9% (drop the two lowest scores)
WebWork 8% (drop the two lowest scores)
Peer grading 5% (drop the two lowest scores)
Matlab Project(s) 8% (one group project; one individual project)
WebWork Quizzes 10% (drop the two lowest scores)
Midterm (in-class) 25%
Final exam 35%
+/- grading system will be used.

The individual project will be optional for undergraduate students enrolled in ECE 421, but required for the students enrolled in ECE 592-104