**Syllabus**

**ECE 201: Introduction to Signal Analysis**

Department of Electrical and Computer Engineering
George Mason University
Fall 2008

**Instructor:** Dr. Joseph L. Hibey
**E-mail:** jhibey@gmu.edu
**Office:** Science and Technology II, Room 235
**Phone:** 703-993-1569 (ECE office)
**Office Hours:** Tuesday 1:00-2:00 pm
Thursday 1:00-2:00 pm

**Required Text:** DSP First – A Multimedia Approach

**Lab:** Meets once a week, and designed to complement course material.

**Course TA:** Anish Mitra

**Homework:** Assigned weekly and due the following week. Working in small groups is encouraged. Will comprise a maximum of 20% of final grade, where the actual percentage will be weighted by performance on two in class exams.

**Exams:** One midterm exam and one final exam will be administered in class. Each is closed-book, closed-notes. Students unable to attend on the announced date because of illness, business travel, or an emergency, must notify instructor before the test and provide written justification (such as a doctor’s note, a copy of travel documents, etc.).

**Grading:**
- Lab: 20%
- Homework: 20%
- Midterm exam: 30%
Final exam: 30%

Tentative Class Schedule

Week 1: Introduction to DSP; Sinusoids; sampling and plotting using MATLAB

Week 2: Complex exponentials; phasors

Week 3: Spectrum representation; periodic waveforms

Week 4: Sampling and aliasing; interpolation

Week 5: FIR filters; impulse response; convolution

Week 6: Linear time-invariant (LTI) systems; superposition

Week 7: Midterm exam

Week 8: Frequency response; steady-state response; transient response

Week 9: Plotting frequency response; lowpass filters; cascaded systems

Week 10: z-Transforms; block diagrams

Week 11: System functions; poles and zeros; running-sum filter

Week 12: IIR filters; step response; block diagram structures

Week 13: BIBO stability; inverse z-transform and partial fractions

Week 14: Second-order filters

Final Exam