Course Info

Instructor: Vivek Srinivasan  
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Office: GBSF 2521
Office Hours: F, 1:30-3:30 PM (or by appointment)

Lab TA: Shaun Garland  
E-mail: spgarland@ucdavis.edu
Office Hours: M, 10-11 AM, GBSF Lobby  
W, 4-5 PM, Academic Surge 2323 (or by appointment)

Description:
Basic concepts of digital recording and analysis, sampling, empirical modeling, Fourier analysis, random processes, and spectral analysis applied to biomedical signals.

Objectives:
The students will be able to apply Fourier analysis and linear systems theory to a wide range of analog and digital biomedical signals and systems.

Prerequisites:
See BMEGG prerequisites. In particular, the course will heavily use complex algebra.

Text:
There is no required text for the course. Supplemental reading material will be supplied as needed.

Website: SmartSite (TBA)

Lectures: GBSF 2202 (MW, 1:10-2:30)

Labs: Academic Surge 2323 (W, 2:40-4:00 PM). All labs are assigned on a Wednesday. Lab reports are due when specified in the syllabus.

Requirements:
This course will consist of 7-8 homeworks, 5-7 laboratories (with write-ups), in-class quizzes, a midterm exam, and a final exam. We will drop the lowest homework and laboratory grades.

Evaluation:
Homework: 20%
Midterm Exam: 25%
Final Exam: 40%
Laboratories and Quizzes: 15%
Homework is due one week after it is assigned at the beginning of class unless otherwise instructed.
Late submissions will receive no credit.
**Examinations:**
Midterm: Wednesday, April 30, 1:10-4 PM
Final: Wednesday, June 4, 1:10-4 PM
Introductions
Periodicity and Fourier Series
Homework 1 Out
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<td>Applications of the Fourier Series Homework 1 Due, Homework 2 Out</td>
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<td>Fourier Transforms and the Dirac Delta Function Homework 2 Due, Homework 3 Out</td>
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<td>Fourier Transform Properties Lab Report 1 Due</td>
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<td>Linear Time Invariant Systems Homework 3 Due, Homework 4 Out</td>
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<td>Differential Equations and Filtering / Convolution Lab Report 2 Due</td>
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<td>Convolution and Midterm Review Session Homework 4 Due</td>
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- **April 5**: Sampling and Aliasing
  - Homework 5 Out
- **April 6**: Sampling and Interpolation
  - Lab Report 3 Due
- **April 11**: Discrete Fourier transform
  - Homework 5 Due, Homework 6 Out
- **April 13**: Properties of the DFT
  - Homework 6 Due, Homework 7 Out
- **April 25**: Holiday (Memorial Day)
- **May 2**: Higher dimensional Fourier Transforms
  - Lab Report 5 Due
- **May 6**: Higher dimensional Fourier Transforms
  - Homework 7 Due, (Homework 8 Out) Lab Report 6 Due

**Homework Due Dates:**
- April 5: Homework 5
- April 13: Homework 6
- April 25: Holiday
- May 2: Higher dimensional Fourier Transforms
- May 6: Higher dimensional Fourier Transforms
- May 8: Homework 7
- May 10: Homework 8
- May 12: Lab Report 4
- May 20: Lab Report 4
- May 27: Lab Report 5
- June 1: Lab Report 6
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