

EE 123
DIGITAL SIGNAL PROCESSING
Fall 2009

Instructor: Dr. Murat Arcak (Email: arcak@eecs.berkeley.edu, Office: Cory 569, Phone: (510) 642-4804)

Office Hours: Thursday 5:00-6:00 pm or by appointment

Teaching Assistant: Nebojsa Milosavljevic (Email: nebojsa@eecs.berkeley.edu)

Office Hours: Thursday 3:00-4:00 pm (Moore Room, Cory Hall)

Administrative Assistant: Rosita Alvarez-Croft (Email: rosita@eecs.berkeley.edu, Phone: (510) 643-4976)

Class Hours and Room: Wednesday and Friday, 9:30 - 11:00 am, 521 Cory

Discussion Section: Wednesday 4:00-5:00 pm, 521 Cory

Course Web site: <http://www-inst.eecs.berkeley.edu/~ee123/fa09/>

In addition, bSpace will be used to post solutions and grades for tests and homework sets.

Prerequisite: EE 120, graduate standing, or consent of instructor

Textbook: "Discrete-Time Signal Processing," by A.V. Oppenheim and R.W. Schaffer, Prentice-Hall, 2nd ed., 1999

Reference Books: The following are on reserve for 1-day loan in the Kresge Engineering Library:

1. A.V. Oppenheim and R.W. Schaffer, Discrete-Time Signal Processing, 1999. TK5102.9 .O67
2. S. Mitra, Digital Signal Processing, 2006. TK5102.9 .M57
3. G. Strang and T. Nguyen, Wavelets and Filter Banks, 1997. TK7872.F5 S79
4. J.G. Proakis and D.G. Manolakis, Digital Signal Processing, 2007. TK5102.9 .P757
5. P. Bremaud, Mathematical Principles of Signal Processing, 2002. TK5102.9 .B72

Grading:	Homework:	20 points
	Midterm 1:	25 points
	Midterm 2:	25 points
	Final:	30 points

Homework: Weekly homework sets will be assigned. 20% penalty for each session late. Submission will **NOT** be accepted if more than two sessions late.

Midterm and final dates:

October 9, Friday:	Midterm 1 (in class)
November 13, Friday:	Midterm 2 (in class)
December 17, Wednesday:	Final (8:00 am – 11:00 am; location to be announced)

Tentative Course Outline:

- Review of discrete-time signals and systems, Discrete-Time Fourier Transform (DTFT), z-Transform (Chapters 2 and 3); digital filter structures (Chapter 6)
- Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT) (Chapters 8 and 9)
- Sampling and quantization, finite word length effects (Chapters 4 and 6)
- Frequency response of LTI systems (Chapter 5) and filter design techniques (Chapter 7)