

332:346 – Digital Signal Processing – Spring 2010

Course Description:

This course is an introduction to the basic principles and applications of digital signal processing. It covers the following topics:

<u>Topic</u>	<u>Lectures</u>
Sampling of analog signals; sampling theorem (ch.1)	3
Quantization; A/D and D/A converters (ch.2)	1
Discrete-time systems (ch.3)	1
Block processing by convolution methods (ch.4)	2
Sample processing methods; FIR, IIR filters (ch.4)	3
z-transforms (ch.5)	2
Transfer functions (ch.6)	3
Filter realizations; canonical, direct, cascade (ch.7)	2
Applications: audio effects & signal enhancement (ch.8)	2
DFT/FFT algorithms and spectral analysis (ch.9)	4
FIR digital filter design (ch.10)	1
IIR digital filter design (ch.11)	2

Text:

The text *Introduction to Signal Processing* by S. J. Orfanidis will be made freely available online.

Prerequisites:

The courses 332:345 (and 347) *Linear Systems and Signals* (and Lab).

Course Requirements and Makeups:

The course grade is based on the final exam, two in-class exams, and random quizzes, and random attendance taking. No make-up exams will be given. The nominal exam weights will be 30-30-40 percent—the actual percentages are determined after all three exams have been completed. The grades are not curved.

Exam dates & locations:

Prerequisite Quiz:	Thursday, January 28, 2010,	8:40–10:00 AM,	PH-115
Exam-1:	Thursday, February 25, 2010,	8:40–10:00 AM,	PH-115 & PH-111
Exam-2:	Thursday, April 8, 2010,	8:40–10:00 AM,	PH-115 & PH-111
Final Exam:	Tuesday, May 11, 2010,	8:00–11:00 PM,	location TBD

Instructor:

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Office hours: Monday & Thursday 10:15–11:15 AM (otherwise by appointment.)

Course Web Page:

www.ece.rutgers.edu/~orfanidi/ece346.