

ECE 3075: Random Signals
Syllabus for Fall 2008
Instructor: *Justin Romberg*

Objectives

Build a solid mathematical foundation for understanding continuous and discrete random variables, random processes, and their interaction with linear systems.

Prerequisites

ECE 2025, ISYE 3770, and a course in multivariable calculus.

Grading

20% Homework, roughly one problem set per week
15% Quiz #1
15% Quiz #2
15% Quiz #3
30% Final exam
5% Notebook and participation

Homework will be due in class. Late homework carries a 50% penalty, and homework turned in after the solutions are released gets a zero. All assignments must be completed to avoid an incomplete. Students are encouraged to discuss homework problems with one another, however each student must write up and turn in their own solutions.

Each student will keep a class notebook. At the end of each lecture period, you will write a few *complete sentences* summarizing the lecture. Each week, you will synthesize these notes into a coherent paragraph or two which will be turned in with the homework.

Unauthorized use of past quiz and homework solutions is prohibited in this course. Using these materials will be considered a direct violation of academic policy and will be dealt with according to the GT Academic Honor Code.

Office hours

I will have office hours from 4:30-6p the day before homework is due at Starbucks on 5th street (next to the bookstore).

I can also meet you by appointment in Centergy 5245 or Klaus 2125.

Office phone: 404-894-3930.

Email (this is the best way to reach me): jrom@ece.gatech.edu

Course Website

<http://users.ece.gatech.edu/~justin/ECE-3075-Fall-2008/>

Notes and homeworks will be posted on this site.

Teaching assistant

TBA

Office hours: time and location TBA

Text

Cooper and McGillem, *Probabilistic Methods of Signal and System Analysis*

You might also find the following references useful:

Feller, *An Introduction to Probability Theory and its Applications*

Stark and Woods, *Probability, Random Processes, and Estimation Theory for Engineers*

Papoulis and Pillai, *Probability, Random Variables, and Stochastic Processes*

I also recommend two popular accounts of the history of probability, and the role it plays in our day-to-day lives. These two books are an excellent supplement to the technical material in this course:

P. Bernstein, *Against the Gods: The Remarkable Story of Risk*

L. Mlodinow, *The Drunkard's Walk: How Randomness Rules Our Lives*