



ENCS 6161/4 - Probability and Stochastic Processes – Fall 2015

Final exam: Monday Dec 14, 19:00 to 22:00, FG B050

Instructor: Dr. Hassan Rivaz, EV5.154, hrivaz@ece.concordia.ca
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Lectures: Hall 540, Mondays 5:45PM to 8:15PM

Office hours: Fridays 9:30AM to 12noon.

Textbook: Alberto Leon-Garcia, Probability, Statistics, and Random Processes For Electrical Engineering, 3rd. Ed. Prentice Hall, 2008.

Syllabus:

1. Introduction: Motivation and Overview. Axioms of Probability. Independent Events. Total Probability. Conditional Probability. Bay's Theorem. Bernoulli Trials (Chapters 1 and 2).
2. Concepts of Discrete and Continuous Random Variables (RV). Probability Mass Functions (PMF) and Probability Density Functions (PDF), Cumulative Distribution Functions (CDF). Conditional Distribution and Probability Density Functions of Random Variables (Chapters 3 and 4).
3. Multiple random variables, joint PDF, conditional probability and conditional expectation, correlation and covariance, joint Gaussian random variables (Chapters 5 and 6).
4. Vector Random Variables. Sums of Random Variables. Long-Term Averages. Central Limit Theorem (Chapters 7)
5. Random Processes, Mean, Auto- correlation and Cross-correlation, Autocovariance, Stationarity (Chapter 9).
6. Power Spectral Density, Response of linear systems to random signals (Chapter 10).
7. Markov Chains (Chapter 11)

Midterm: Monday Oct 26, in class. No make-up tests offered.

Grading Schemes:

1. Assignments 6%, Midterm 30%, Final 64%
2. Assignments 6%, Midterm 0%, Final 94%

The better mark will be used to calculate the final grade.

Assignments:

Assignment 1: posted on Mon Sept 28. Due on Mon Oct 5 at the beginning of the lecture.

Assignment 2: posted on Mon Nov 16. Due on Mon Nov 23 at the beginning of the lecture.

Violation of the Academic Code of Conduct in any form will be severely dealt with (see <http://www.concordia.ca/students/academic-integrity.html>). You must sign the following form and hand it in with assignment 1:

<http://www.concordia.ca/content/dam/encs/docs/Expectations-of-Originality-Feb14-2012.pdf>