ECE 514 Applications of Random Processes

Fall 2019
General Course Information

Course URL: http://www.engr.colostate.edu/~echong/ece514/

Learning Objectives

By the time the students successfully complete the course, they should be able to:

- Explain the foundations of probability theory, random variables, and stochastic processes.
- Formulate and analyze probabilistic models and methods for electrical and computer engineering problems.
- Make precise statements about probabilistic models.

Brief Course Description

- Probability theory
- Random variables
- Stochastic processes
- Examples from various applications

Text

- John A. Gubner, *Probability and Random Processes for Electrical and Computer Engineers*, Cambridge University Press, 2006. ISBN: 9780521864701.

Prerequisites

- Undergraduate linear signals and systems.
- Undergraduate probability and statistics.
- An appreciation of rigor and abstract thinking.

Grading

- Homework due every 2 weeks: 10%
- Three exams: 30% each
- Project: none

Examples of applications

- Communication systems
- Manufacturing systems
- Internet
- Computer performance modeling

- Investment planning

Contact information

Professor Edwin K. P. Chong

- E-mail: Edwin.Chong@ColoState.Edu (preferred mode)
- Phone: 970-491-7858
- Fax: 970-491-2249

ECE 514 Outline, Fall 2019		
Topic	*Chapter*	*Weeks*
Preliminaries		0.5
Introduction to Probability	1	2
Discrete Random Variables	2,3	1.5
Continuous Random Variables	4	1
Cumulative Distribution Functions	5	1
Bivariate Random Variables	7	1
Introduction to Random Vectors	8	2
Gaussian Random Vectors	9	1
Introduction to Random Processes	10	3
Advanced Topics		1