EE 60563: Probability and Random Processes
Fall 2018

Instructor: Assoc. Prof. Ken Sauer
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Office hrs.: Open
Lecture: TTh, 9:30 - 10:45 AM, DeBartolo 240
Homework: Old exams and homework sets with solutions; not graded
Grading: 40% final exam, 30% ea. for 2 mid-terms
Web site: http://www.nd.edu/~sauer/random

Course Outline

   Probability spaces, axiomatic theory, independence, conditional probabilities, Bernoulli trials, Bayes’ theorem, distribution and density functions, pairs of random variables, conditional distributions, correlations, transformations of random variables, expectations.

   Finite-dimensional collections of RVs, correlation/covariance matrices, eigenanalysis, orthogonalizing transformations, linear, least-mean-squared-error estimation from random vectors.

3. **Random Processes and Filtering**, ch 10, (selections from)11,13,14
   Sequences of random variables, limit theorems, correlation functions, stationarity and ergodicity, Gaussian processes, Poisson processes, spectral properties, linear systems and stochastic processes, linear, least-mean-squared-error estimation, orthogonality, Wiener filtering.

Example Additional References


Miscellaneous Comments

- The text is relatively brief on some aspects of probability and basic random variables. There are many other books, including the texts by Garcia and Peebles, which give more complete coverage. If your background in the basics is lacking, or you need to review, please consider looking at other sources, too. Basic probability texts are also good places for finding sample problems for review.

- “This course includes too much material,” is a common complaint. Unfortunately, because of the varied backgrounds of people in the class, and the number of other courses and research which depend on your knowing something about stochastic processes, a lot is crowded into EE60563.

- Old exams from EE60563 are available for practice, and can be printed from the Website.

- Office hours are given as “open,” meaning they are not restricted to pre-set times. Just drop in any time, or email to make sure I’m available.