ISE 220 PROBABILITY CONCEPTS IN ENGINEERING - Fall 2015

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Textbook : Ross, S., *A First Course in Probability,* 9th ed., 2012
Pre-requisites: MATH 126 Calculus II

Course Objectives: This course is an introduction to the fundamental concepts of probability such as, sample spaces, events, conditional probability, independence and random variables. The course covers the most common continuous and discrete random variables and their distributions functions, and the most important limit theorems of probability. It shows how to apply this concepts to engineering problems.

Course Outline

Week	Topic	Book	Exam
1	Combinatorial Analysis	Ch 1	
2	Sample Space and Events	Ch 1	
3	Axioms of Probability	Ch 2	
4	Conditional Probability and Independence	Ch 3	Sep 21
5	Random Variables, PMF, CDF	Secs. 4.1, 4.9	
6	Expected Value and Variance	Secs. 4.4 - 4.5	
7	Discrete random variables, Bernoulli trials, Binomial variable	Sec. 4.6	
8	Poisson and Geometric	Secs. 4.7 - 4.8	Oct 26
9	Continuous random variables, PDF, CDF, expectation, variance	Secs. 5.1 - 5.2	
10	Uniform, Normal, Exponential and Gamma variables	Secs. 5.3 - 5.6	
11	Jointly distributed (multivariate) random variables	Secs. 6.1 - 6.2	
12	Conditional distributions: discrete and continuous cases	Secs. 6.4 - 6.5	
13	Covariance, Variance of sums, Correlations	Sec. 7.4	
14	Moment Generating Function	Sec. 7.7	
15	Inequalities and limit theorems	Ch. 8	TBD

Grading Policy:
Quizzes 20%
Midterms 25%
Final Exam 30%

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Students with Disabilities. Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776