ISE 220 PROBABILITY CONCEPTS IN ENGINEERING - Fall 2016

TTh, 8:00 – 9:50 a.m.

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Textbook : Ross, S., *A First Course in Probability,* 9th ed., Pearson, 2015
Pitman J., *Probability,* Springer, 1993
Pre-requisites: MATH 126 Calculus II Recommended: MATH 226

Course Objectives: This is an introductory course to the fundamental concepts of probability (sample space, probability of events, conditional probabilities, random variables, expected values, variances, common random variables). No previous background of probability and statistics is required. This calculus-based course covers the fundamental concepts showing how to apply these concepts to engineering problems.

Week	Topic	Book	Exam
1	Combinatorial Analysis	Ch 1	
2 – 3	Sample Space, Events, Axioms of Probability	Ch 2	
4	Conditional Probability and Independence	Ch 3	Sep
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	Geometric and Poisson variables	Secs. 4.7 - 4.8	
9	Continuous random variables, PDF, CDF, expectation, variance	Secs. 5.1 - 5.2	Oct 30
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 (MGF)	Sec. 7.7	
15	Inequalities and limit theorems	Ch. 8	Dec 13

Grading Policy:
Homework, Quizzes 20%
Midterms (each) 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