OR 442
Operations Research: Stochastic Models
Spring 2012

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Office Hours: Before or after class by appointment
Text: Operations Research: Applications and Algorithms (4rd Ed.) by Winston

Description: The intent of this course is to provide a modern perspective on the analysis of systems that are stochastic in nature, that is, ones that have a random component. There will be an emphasis on the underlying random processes, ultimately leading to the development of practical strategies for dealing with the design and analysis of these systems in a contemporary technological environment. Prerequisites are knowledge of the fundamental elements of probability (no statistical inference is needed) and a general maturity in applied mathematics. There will be a special emphasis on the numerical solution of problems using spreadsheet software. Description of class administration is provided.

Topic	Assignment
Introduction and Review of Probability	Read Chapt.12 pg 735 # 4, 6, 7
	Review Problem Sheet; Bayes problem sheet
Decision Making Under Uncertainty	Read Chapt.13, § 1-4, 6;
	Problems Sheet 1; Problem sheet 2
Deterministic Inventory Modeling	Read Chapt.15, § 1-7 pg 858 #1,3,11
	Pg 864 #1,3; pg 868#2,3,4; pg 872 #2
Probabilistic Inventory Models	Read Chapt.16, § 1-6 Pg 884 #1,2;
	Pg 888 #2,4; pg 897 #3,4
Markov Chains	Read Chapt. 17, § 1-5 Special HW 1
	Pg 931 #1, 3; pg 934 #3, pg 940 #3, 10, 13
	Pg 948 #9, 10
Queueing	Read Chapt. 20, § 1-11 pg 1062 #1,2,4
	Pg 1072 #1,2, pg 1081#1,2,3,4,14
Forecasting	Read Chapt. 24, § 1-6 Special HW 2
Simulation	Read Chapt. 21, § 1-9, Exp WS, Sim WS
	Sim HW

* Homework sets will be assigned on a weekly basis from appropriate problems in the textbook.

Grading: Midterms   40%
               Final Exam   40%
      Class & Homework   <u>20%</u>
                  100%