

**OR 442/Math 442**  
**Stochastic Operations Research**  
**Spring 2011**

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**Office Hours:** Before or after class, or by appointment

**Text:** **Operations Research: Applications and Algorithms (4<sup>rd</sup> 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 graduate-level maturity in applied mathematics. There will be a special emphasis on the numerical solution of problems using spreadsheet software.

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

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

<b>Grading:</b>	<b>Midterms (2)</b>	<b>40%</b>
	<b>Final Exam</b>	<b>40%</b>
	<b>Class &amp; Homework</b>	<b><u>20%</u></b>
		<b>100%</b>