OR542 Stochastic Models
Spring 2008

George Mason University
Department of Systems Engineering and Operations Research

Wednesday 7:20pm-10:00pm,
Krug Hall, Room 19

Instructor: Dr. Yifan Liu
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Office Hour: Tuesday 12:00-1:00pm, and 6:00-7:00pm, or by appointment

TA: TBA

Text: Wayn. L. Winston, *Operations Research Applications and Algorithms*, Fourth Edition, 2003.

Course Website: All course material will be posted on **WebCT**.

Course Summary: A survey of probabilistic methods for solving decision problems under uncertainty. Topics covered by this class include decision making, inventory theory, Markov chains, queuing theory, forecasting and simulation etc.

Prerequisite: STAT 346, MATH 351, or equivalent.

Tentative Course Schedule (subject to slight change, depending on the pace of the course)

Date	Topic	Chapters
1/23	Introduction and Review of Probability	12.3-12.7
1/30	Decision Making Under Uncertainty (I)	13.1-13.3
2/6	Decision Making Under Uncertainty (II)	13.4, 13.6
2/13	Deterministic Inventory Models (I)	15.1-15.3
2/20	Deterministic Inventory Models (II)	15.4-15.6
	Probabilistic Inventory Models (I)	16.1-16.3
2/27	Probabilistic Inventory Models (II)	16.4-16.6
3/5	Markov Chains (I)	17.1-17.4

3/12	Spring break	
3/19	Markov Chains (II)	17.5-17.7
3/26	Queuing Theory (I)	20.1-30.3
4/2	**Mid-term Exam** (on Decision Making and Inventory)	
4/9	Queuing Theory (II)	20.4-6
4/16	Queuing Theory (III)	20.7-20.9
4/23	Forecasting Models	24.1-24.6
4/30	Simulation	21.1-21.6
5/7	**Final Exam** (on Markov Chains, Queuing Theory and Forecasting)	

Grading:

Homework: 20%. Homework problems will be assigned each week (except for the week of Simulation), and due the next week in class, and will be graded and returned the following week. There are altogether 12 homework assignments. The 2 lowest scores will be dropped, and each of the other 10 counts for 2% towards your final grade.

Midterm Exam: 40%. Wednesday, 4/2, class time,

Final Exam: 40%. Wednesday, 5/7, 7:30-10:15pm,

The final and the midterm exams are **"semi-closed" book/notes**, that is, a sheet of formulae will be given, but the textbook and notes are not allowed. **No** computer allowed. Calculator is OK (and strongly recommended!). The two exams are roughly independent from each other, and non-accumulative.

Make-up exams will only be given for extreme situations, such as religious reasons, family emergency (Here "family" is only restricted to parents, spouse and children), sickness, conference or business trips, etc., and only if I am contacted **before** the exam is given and full arrangements are established. Early leave for the summer vacation does **NOT** qualify for an alternative time for the final exam.