

# OR 662: Probability Models for Decision Making

## Course Information

### Staff Information



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### Course Materials



#### Required Book

R.M. Feldman & C. Valdez-Flores, *Applied Probability and Stochastic Processes*, PWS Publishing, 1995.

### Supplemental Materials



Ross, S., *A First Course in Probability*, 6<sup>th</sup> Ed., Prentice-Hall, 2002.

Ross, S., *Intro to Probability Models*, 8<sup>th</sup> Ed., Elsevier Science/Academic Press, 2003.

Nelson, R., *Probability, Stochastic Processes & Queueing Theory: The Mathematics of Computer Performance Modeling*, Springer-Verlag, 1995.

Winston, W., *Intro to Probability Models*, 4<sup>th</sup> Ed., Thomson Brooks/Cole, 2004.

### Catalog Description



Techniques of modeling decision problems involving random phenomena. Topics include elementary probability models, discrete and continuous time Markov chains, waiting line models, and their applications.

### Prerequisites



[MBA 601](#) *Quantitative Analysis for Managers*

[STAT 601](#) *Statistics for Managerial Decisions*

or equivalent or consent of instructor.

### Course Objectives



Give students an improved ability to

✚ Build & analyze quantitative models to support a decision-making process

✚ Read and perform applied research in the field of OR/MS

### Student Learning Outcomes



Upon successful completion of this course, students should be able to

✚ Demonstrate a basic knowledge of linear optimization models and methods

✚ Recognize when and how these deterministic techniques are applicable

✚ Identify data requirements for successful implementation of these methods


✚ Create linear optimization models of OR/MS problems

✚ Analyze the models to support the decision-making process

## Course Topics

	Probability	Chapter 1	3 weeks
	Markov Chains	Chapter 2	2 2/3 weeks
	Markov Decision Processes	Chapter 9	1 1/3 week
	Markov Processes	Chapter 4	2 weeks
	Queueing Theory	Chapter 5	3 weeks

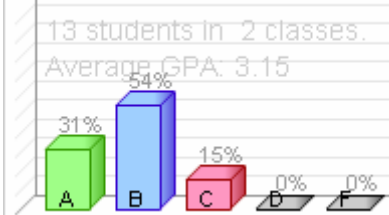
## Student Assessment

	Exam I: Probability	Chapter 1	22.5%
	Exam II: Markov Chain & Inventory Decisions	Chapters 2 & 9	22.5%
	Exam III: Markov & Queueing Processes	Chapters 4 & 5	30%
	<u>Homework</u>		<u>25%</u>
	Total		100%

## Grading Scale & History



≥85%	A
≥70%	B
≥55%	C
≥40%	D
<40%	F



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## Exam Policy



- ✚ Final exam is *not* comprehensive.
- ✚ Exams will not be cancelled or postponed by a posted note; only by a faculty member or secretary.
- ✚ No make-up exam will be given unless the instructor is notified in advance (except in emergency situations) and an official or acceptable written excuse is presented before rescheduling.
- ✚ The minimum penalty for cheating on any exam is a score of zero. The occurrence will be reported to your Dean's office.

## Homework Policy



- ✚ There will be about 10 "weekly" homework assignments.
- ✚ Homework assignments will be posted on Blackboard.
- ✚ The lowest score will be curved up.
- ✚ Late homework will not receive credit.
- ✚ Most homework will provide good preparation for the exam.
- ✚ Although a team approach is encouraged, for your own benefit please attempt homework on your own.
- ✚ Homework doesn't necessarily prepare you only for exam problems, but may also provide some real-life problems requiring serious computational effort.