

## ORI 390R1

### APPLIED PROBABILITY

TEXT: A First Course in Probability, 4th Edition, Sheldon Ross, Prentice Hall

OTHER REFERENCES:

An Intermediate Course in Probability, Allan Gut, Springer-Verlag

Stochastic Processes, Sheldon Ross, John Wiley

Introduction to Mathematical Statistics, Hogg/Craig, MacMillan

PREREQUISITES:

Graduate standing required. Prerequisite is multivariable calculus and an undergraduate course(s) in probability and statistics.

EXAMS: 2 Closed book exams during the semester scheduled during class hours; Final Exam - Saturday Dec 13, 7-10 pm

GRADING:

20% Homework (75% final hw grade req'd as minimum to pass course)

No homework accepted after 7 days overdue or after last day of class

25% Exam #1

25% Exam #2

30% Comprehensive Final Exam

Note: The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students or the College of Engineering Director of Students with Disabilities.

HOMEWORK:

The problems are intended to support the lecture material and will be selected primarily from the text exercises. It is expected that all exercises be carried out and turned in. Typically there are about 5 to 10 exercises each week.

CONTENTS OF COURSE:

Review of basic probability - combinatorial analysis, conditional probability, stochastic independence, discrete and continuous random variables

Probability distribution functions, parametric families of distributions

Jointly distributed random variables, multivariate normal distribution

Expectation, generating functions, covariance, correlation

Distributions of functions of random variables, order statistics

Multivariate random variables, multivariate normal distribution

Limiting distributions

Poisson process

Markov chains

Introduction to the theory of queues

COURSE EVALUATION:

Informal course/instructor evaluations will be administered at the mid-semester for instructor feedback, and formal evaluations will be administered at the end of the semester