

OR 645: Stochastic Processes

Fall 2004

Course Overview

Most real-world processes are fundamentally *stochastic* – that is, they have a random component. This course provides an in-depth survey of models that can be used to analyze a wide variety of stochastic processes. The focus is both on quantitative analysis of such models and practical issues using such models to represent real problems. This course assumes some prior knowledge of probability and basic stochastic models (like Markov chains). The pre-requisite is OR 542 (Stochastic Models), or STAT 544 (Applied Probability), or permission of the instructor.

Class Hours: Tuesday, 4:30 pm – 7:10 pm, Innovation Hall 316

Pre-requisites: OR 542, or STAT 544, or permission of instructor

Instructor: John Shortle
jshortle@gmu.edu
 703-993-3571
 Science & Tech II, room 313
 Office hours: Tue 3:30 pm – 4:30 pm, Tue 9:15 am – 10:15 am

Textbook: S. Ross, *Introduction to Probability Models*, 8th Ed.

Student Evaluation Criteria

Homework	10%
Midterm	40%
Final exam	50%

Schedule for Fall 2004

Aug. 31	Introduction Review of probability	
Sep. 7	The Poisson process	Hmwk #1 due
Sep. 14	The Poisson process	Hmwk #2 due
Sep. 21	Discrete time Markov chains	Hmwk #3 due
Sep. 28	Continuous time Markov chains	Hmwk #4 due
Oct. 5	Continuous time Markov chains	Hmwk #5 due
Oct. 12	** No Class ** (Columbus Day)	
Oct. 19	Renewal theory	Hmwk #6 due
Oct. 26	** Midterm **	
Nov. 2	Renewal theory	Hmwk #7 due
Nov. 9	Random walks and Martingales	Hmwk #8 due
Nov. 16	Random walks and Martingales	Hmwk #9 due
Nov. 23	Brownian motion	Hmwk #10 due
Nov. 30	Brownian motion	Hmwk #11 due
Dec. 7	Advanced topics	Hmwk #12 due
Tue. Dec. 14	** Final Exam **, 4:30 pm – 7:15 pm	