

OR / STAT 645: Stochastic Processes

Course Overview, Fall 2014

Many real-world processes are fundamentally *stochastic* – that is, they have some degree of randomness or uncertainty. This course provides an in-depth survey of models that can be used to analyze a wide variety of stochastic processes. The focus includes quantitative and theoretical analysis of such models as well as 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 – 7:10 pm, Innovation Hall, room 215G
 Pre-requisite: OR 542, or STAT 544, or permission of instructor

Instructor: John Shortle
 jshortle@gmu.edu
 703-993-3571
 Nguyen Engineering Building, room 2210
 Office hours: Mon 2:30 – 3:30 pm, Tue 10:30 – 11:30 am

Textbook: S. Ross, *Introduction to Probability Models*, 11th edition (earlier editions may be fine too)

Student Evaluation Criteria

Homework	15%
Midterm	40%
Final exam	45%

Syllabus and Course Schedule

Last updated: 8/6/14

Class	Lecture Topic	Homework
Aug. 26	Review of probability The exponential distribution	
Sep. 2	The Poisson process	
Sep. 9	The Poisson process	Hmwk #1 due
Sep. 16	Markov chains	
Sep. 23	Markov chains	Hmwk #2 due
Sep. 30	Markov chains	
Oct. 7	Markov chains	Hmwk #3 due
Oct. 14	** Columbus Day ** (on Monday)	
Oct. 21	** Midterm **	
Oct. 28	Renewal theory	
Nov. 4	Renewal theory	Hmwk #4 due
Nov. 11	Renewal theory	
Nov. 18	Brownian motion	Hmwk #5 due
Nov. 25	Brownian motion	
Dec. 2	Brownian motion	Hmwk #6 due
Dec. 16	** Final Exam **, 4:30 pm – 7:15 pm	