Department of Industrial & Management Systems Engineering

ESI 6213 Stochastic Decision Models I

Spring 2009

Time & Place	TR 11:00 am - 12:15 pm, ENB 228. Help sessions: F 07:30 - 09:00 am, ENB 228.
Instructor	Dr. Alex Savachkin, ENC 2201, savachki@eng.usf.edu, 813-974-5577.
Office Hours	Monday 08:00 - 10:00 am. *Feel free to stop by at any time.*
Textbook	*Introduction to Probability Models*, S. Ross, 9 ed., 2006, Academic Press, ISBN: 0125980620.

Course Objectives

Get exposed to the theory of mathematical probability and stochastic processes and build foundations for their applications in engineering, healthcare, and finances.

Grading Policy

Homeworks - 25%
Quizzes - 25%
Midterm - 25%
Final - 25%.

Miscellaneous Policies

Make-up examinations will only be given with prior arrangements. If a test/quiz is missed, you must have a written authorized excuse to be eligible for a make-up. Academic misconduct will not be tolerated; violations of academic honesty will be dispatched in accordance with the University Policy.

Topics

I. Crunch Review of Probability Theory

Elements of set theory; events & probability spaces; elementary Bayesian concepts; statistical independence; random variables, vectors, & functions; moments; conditional probability & expectation; distributions & transformations.

II. Discrete-Time Markov Chains (MC)

Markovian property; Chapman-Kolmogorov equations; classification of states; limiting probabilities; applications.

III. Poisson Processes

Counting processes; properties of Poisson processes; non-homogeneous & compound Poisson processes; applications.

IV. Markov Processes

Continuous-time MC; birth & death processes; transition probability function; limiting probabilities; applications.

V. Renewal Processes

Limit theorems; renewal reward processes; regenerative processes; semi-Markov processes; applications.