Summer 2016 - 8W1 (June 13 - Aug 07)

University of Akron Dept. of Statistics

3470: 650 ADVANCED PROBABILITY AND STOCHASTIC PROCESSES

Time and Place:	MTTh $4:30 - 6:05$ pm CAS 109
Instructor:	Nao Mimoto
Email:	nmimoto@uakron.edu
Instructor Web Page:	gozips.uakron.edu\~nmimoto\
Prerequisite:	3470:561 Applied Statistics or equivalent
	or permission of instructor

Course Objectives: Stochastic process is a framework to probabilistically model physical phenomena that occurs randomly in sequence. Stochastic process has been used to model a vast array of phenomena such as corrosion process, internet traffic, weather, customer demands, financial asset prices, population size, brain function, state of ion channels in cell membranes, etc.

In this course, we will use probability theory and software R to investigate various stochastic process models, and apply in fields such as engineering, computer science, finance/economics, operation research, and physical sciences.

Topics covered: Markov Chains, Homogeneous and Inhomogeneous Poisson Processes, Continuous-Time Markov Chains, Birth and Death Processes, Renewal Theory, Queuing Theory, Reliability Theory, Brownian Motion and Stationary Processes, and Simulation Techniques.

Textbook: Introduction to Probability Models 11th ed. / Sheldon M. Ross / Elsevier

Note on Prerequisite: If you have not had 3470:561 Applied Statistics or equivalent, but would like to take this course, please contact the instructor.