

ISE 538: Markov Models for Performance Analysis (3.0 units)

Contact Information

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Textbooks Introduction to Probability Models, twelfth ed., Sheldon Ross, Academic Press, 2019 (required)

Course Coverage Conditional Expectation, Poisson Process, Discrete time Markov Chains, Continuous time Markov chains, Queueing theory applications, Simulation

Course Objectives To familiarize the students with the concepts and ideas of stochastic processes, so as to be able to utilize and analyze stochastic models and systems.

Course Outcomes

- An understanding of, and facility in utilizing, conditional expectations
- Knowledge of exponential random variables and the Poisson process
- Being able to model and analyze via Markov chains
- An understanding of the concepts of queueing theory
- Being able to analyze waiting line (queueing) models
- Basic understanding of uses of simulation to analyze stochastic models

Grades Based on
20 percent: Homeworks

30 percent Midterm
50 percent: Final exam

Statement for Students with Disabilities

Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to your course instructor (or TA) as early in the semester as possible. DSP is located in STU 301 and is open from 8:30am to 5:00pm, Monday through Friday. Website and contact information for DSP (213) 740-0776 (Phone), (213) 740-6948 (TDD only), (213) 740-8216 (FAX)

Statement on Academic Integrity USC seeks to maintain an optimal learning environment. General Principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect ones own academic work from misuse by others as well as to avoid using anothers work as ones own. All students are expected to understand and abide by these principles. Scampus, The Student Guidebook, contains the Student Conduct Code in Section 11.00, while the recommended sanctions are located in Appendix A: <http://usc.edu/dept/publications/SCAMPUS/gov/> Students will be referred to the Office of Student Judicial Affairs and Community Standards for further review should there be any suspicion of academic dishonesty.

Emergency Preparedness/Course Continuity in a Crisis

In case of emergency, when travel to campus is difficult, if not impossible, USC executive leadership will announce a digital way for instructors to teach students in their residence halls or homes using a combination of the Blackboard LMS (Learning Management System), teleconferencing, and other technologies. Instructors should be prepared to assign students a Plan B project that can be completed at a distance.