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

Contact Information
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Textbooks Introduction to Probability Models, eleventh ed., Sheldon Ross, Academic Press, 2014 (required)
Stochastic Processes, second ed., Sheldon Ross, John Wiley, 1996 (optional)

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

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 and applications of renewal processes

- Being able to analyze waiting line (queueing) 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 ob-
tained from DSP. Please be sure the letter is delivered to your course in-
structor (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 prop- erty of others, the expecta-
tion 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 anoth- ers work as ones
own. All students are expected to understand and abide by these principles.
Scampus, The Student Guidebook, contains the Stu- dent 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 re-
ferred 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 impossi-
ble, 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.