Statistics 507   Applied Probability

(see Course Descriptions for the applicable academic year: http://www.ucalgary.ca/pubs/calendar/)

Reference Text: "Introduction to Probability Models", eighth edition, by S. Ross, Academic Press. (not necessarily a required text)

The topics below correspond to Sections 2.8, 4.1-4.6, 5.3-5.4, 6.1-6.5, 6.8, 7.1-7.3, 10.1-10.4, 11.2-11.5 in the text by Ross. Additional sections may be covered if time permits (e.g., 4.7-4.7).

Syllabus

Topics	Number of hours
Markov Chains. Classification of states, irreducibility, limit theorems.	5
Absorbing chains. The number of steps to absorption, its mean and variance. The probability of absorption in various states. Generating function techniques on vectors and matrices.	9
Renewal theory. Ordinary and alternating renewal processes. Laplace transform techniques.	4
Poisson processes and generalizations, Continuous-time Markov chains.	10
Brownian motion and stationary processes. Simulation methods.	8
TOTAL HOURS	**36**

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