

DEPARTMENT OF MATHEMATICS SYLLABUS

Course # & Name: MAT 135B: Introduction to Stochastic Processes

Recommended Text(s) & Price: Grimmet and Stirzaker's "Probability and Random Processes, 3rd Edition" (Oxford Univ. Press; \$69.50) or Sheldon Ross' "Introduction to Probability Models, 8th Edition" (Academic Press; \$89.95)

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Lecture(s)	Sections	Comments/Topics
1-2 weeks		Conditional probabilities, expectations and distributions, computing probabilities and expectations by conditioning
1 week		Generating functions and their applications. Branching processes.
2-3 weeks		Discrete time Markov chains. Classification of states, limit theorems, reversibility, chains with finitely many states.
1-2 weeks		Poisson process and continuous time Markov chains.

Additional Notes:

The two suggested books have different advantages and disadvantages; the choice of text may depend on the instructor.

Other remaining topics to be chosen include: Martingales; Renewal Theory; Random walks; and Brownian motion.