

Syllabus for MAT 526 Spring 2008

Instructor: Terry McConnell

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Office hours: MWF 10:30-11:30, and by appointment.

Class: MWF 8:25-9:20 306 Carnegie

Text: *An Introduction to Stochastic Modeling. 3rd Ed.*, by Howard M. Taylor and Samuel Karlin, Academic Press, San Diego, California, 1998.

Catalogue Description:

MAT 526 **Probability** 3 Y Topics chosen from: Markov chains, game theory, queuing theory, information theory

Course Description: Please note that, while the catalogue description allows considerable flexibility in the choice of subject matter, this course will study 4 specific probability models: (i) Discrete parameter Markov chains with finite or countable state space, (ii) Poisson processes, (iii) Continuous time Markov processes, (iv) Brownian motion. Each will be illustrated with one or more examples drawn from or motivated by applications, although the emphasis will be on mathematical issues and on obtaining a broad introduction to the main ideas and results in each area.

The textbook will be used mainly as a source of additional examples and problems. I do not plan to follow the book at all closely in lectures, so **attendance at all classes is extremely important!**

Learning goals: Within the context of application areas related to the subject matter, students should be able to set up an appropriate mathematical model for a given real world application. They should understand how to critically evaluate applicability of the chosen model, and where to look for more sophisticated tools if they need them. They should be able to reduce most questions of interest about the selected model to specific probability theory calculations. They should be able to accurately calculate relevant probabilities using an appropriate tool, ranging from hand calculation to symbolic software packages.

Prerequisite: MAT 521, or equivalent calculus-based semester introduction to probability.

Grading: 3 in-class tests 60%, final 20%, quizzes and homework 20%

To aid in planning, here are the dates of all the tests. They correspond, approximately, with the ends of each of the units of the course:

- Test 1, Friday, Feb. 13 (We're not superstitious, are we?)
- Test 2, Wednesday, Mar. 4
- Test 3, Monday, April 6
- Final Exam, Monday, May 4, 7:15-9:15 pm

Academic Integrity: All cases of academic dishonesty will be reported to the Office of the Dean. There is no tolerance of cheating and other immature and dishonest behavior. The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and

know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see [academic integrity site](#)

Students with Disabilities: Students who may need academic accommodation due to a disability are encouraged to discuss their needs with instructor at the beginning of the semester. In order to obtain authorized accommodations, students must be registered with the Office of Disability Services (ODS), 804 University Avenue, Room 309, (315) 443-4498 and have an updated accommodation letter for the instructor. Accommodations and related support services such as exam administration are not provided retroactively and must be requested in advance. For more information about services and policy, see Office of Disability Services.

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