

## MATH 353/653: Mathematical Models, Spring 2013

Professor: Dr. Rob Erhardt

Office: 342 Manchester Hall

Office Hours: T 3:30-4:30, W 2:30-3:30, R 3:30-5:00 (Manchester 342)

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1. **Location and Time:** Tuesdays and Thursdays, 12:30-1:45, in Manchester 020
2. **Book:** Introduction to Modeling and Analysis of Stochastic Systems, by V. G. Kulkarni (2nd edition)
3. **Outline:** This course covers two important classes of stochastic (random) models: discrete time Markov chains (DTMCs), and continuous time Markov chains (CTMCs). These powerful models are widely used in business, finance, the natural sciences, engineering, manufacturing, computer science, and elsewhere. We will construct appropriate DTMCs and CTMCs to describe systems, analyze these models using probability and mathematical techniques, and utilize these models to answer important scientific and business questions.  
Specifically, we will cover an introduction to probability, and most of chapters 2-4. If time permits, we will add selected topics from chapter 7.
4. **Exams:** There will be a total of two in-class midterm exams (tentatively scheduled for Thursday, February 28, and Thursday, April 11), and one final exam on May 8 at 9:00AM. In general make-up exams are not given, but for truly exceptional circumstances, contact me *before* the exam date. Graduate students (MATH 653) will also have a short take-home portion to exams.
5. **Assignments:** We will have weekly assignments, due in class each Thursday. Assignments must be neat, stapled, entirely your own work, and on time. If you need to miss class, place HW in my mailbox (in Manchester 131) by the start of class to be counted fully. Homework up to 24 hours late is counted 50%, and not accepted after 24 hours since solutions are posted.
6. **Grading:** Assignments count 16%, each midterm counts 28%, and the final exam counts 28%. Grades follow the standard scale, with cutoffs: 93 A, 90 A-, 87 B+, 83 B, 80 B-, 77 C+, 73 C, 70 C-, 67 D+, 63 D, 60 D-, and below 60 is F. Modest curving of grades *may* be used, but only at the end of the semester.
7. **Honesty and Courtesy:** Academic dishonesty of any sort will not be tolerated, and could result in an immediate grade of F. Refer to <http://services.studentlife.wfu.edu/judicial-affairs/honor/>. Phones, laptops, and other electronic devices are distractions when used in class. There is a mountain of research that shows we do lower quality work when distracted by electronic devices. Additionally, I find it extremely disheartening when I see students texting or on the internet during class.
8. **Getting Help:** Come to my office hours, or e-mail me and set up an appointment. Please contact the Learning Assistance Center (758-5929) within the first two weeks of class if you require accommodations for taking this course due to a disability.