STATISTICS 7540 - SPRING 2020

Instructor: Professor Doug Critchlow

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Office Hours: Wednesdays and Fridays 1:15 – 2:15 p.m.

Textbook: <u>A First Course in Stochastic Processes</u> (2nd Ed.) by S. Karlin & H. M. Taylor

Topics Covered in the Course:

Brief Overview of General Stochastic Processes
Discrete State - Discrete Time Markov Chains (including classification of states, recurrence, and limiting behavior of the Markov chain as time $\to \infty$)
Discrete State - Continuous Time Markov Chains (including the Poisson process and birth and death processes)
Brief Introduction to Continuous State - Discrete Time Markov Chains (which are used in the computer-intensive Markov Chain Monte Carlo method)
Brownian Motion
Martingales
Additional Topics selected from Gaussian Processes, Diffusion Processes, Renewal Processes, etc.

Additional References:

Feller, W., <u>An Introduction to Probability Theory and its Applications</u>, Volume 1.
Kemeny, J.G. and Snell, J.L., <u>Finite Markov Chains</u>.
Meyn, S.P. & Tweedie, R.L., <u>Markov Chains and Stochastic Stability</u>.
Robert, C.P. & Casella, G., <u>Monte Carlo Statistical Methods</u>.
Ross, S.M., <u>Introduction to Probability Models</u>.

Prerequisite: Statistics 7201

Grading Scheme (Tentative):

Homework Assignments (Weekly)	55%
Midterm Quiz	15%
Final Examination	30%

The final exam is on Thursday, April 23 from 10 AM – 11:45 AM in the usual lecture classroom. No "early" final exams will be given, so make your travel plans accordingly.

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Classroom Policies: Use of personal computers, cell phones, etc. is prohibited during lecture. Please do not read the newspaper or other extraneous materials during lecture. Homework will be due at the start of class; please do not work on the homework during lecture.

Attendance Policy: In accordance with University Rules, a student who is absent from three or more (not necessarily consecutive) classes, without contacting the instructor with a valid excuse, may be reported for possible disenrollment. To prevent disenrollment, the instructor should be contacted (e-mail: critchlow.1@osu.edu) within 24 hours of the third (and any subsequent) absence.

Academic Misconduct: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct (http://studentlife.osu.edu/csc/**)**.

Disability Accommodations: The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue**.**