ST 746 (3 credits), SPRING 2018
Introduction to Stochastic Process
Prerequisite: Probability, Calculus, Linear algebra, Programming
Instructor: Subhashis Ghoshal
MW 10:15-11:30 AM, SAS 1107

Instructor:	Subhashis Ghoshal		
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Text: *Stochastic Processes, Second Edition* Author: Sheldon M. Ross. Publisher: John Wiley. ISBN 0-471-12062-6

Other useful books: (a) S. Karlin and H. Taylor, *A first Course in Stochastic Process*, Academic Press, (b) H. Taylor and S. Karlin, *An Introduction to Stochastic Modeling*, Academic Press, (c) R. N. Bhattacharya and E. C. Waymire, *Stochastic Processes with Applications*.

Course content: Course materials will cover four topics: discrete time Markov chain, Poisson process, renewal theory, continuous time Markov chain (including queuing theory). Must have taken formal graduate level courses in Calculus, Linear algebra and basic probability theory in NCSU or elsewhere. Knowledge of standard distributions (binomial, Poisson, geometric, negative binomial, uniform, normal, exponential, gamma, Weibull etc.) is required. No knowledge of Statistics is assumed. Some knowledge of programming (any language will do) will be needed.

1. Grading Policy: The final grade is determined by a weighted combination of homework (15%), class problems and participation (5%), computer projects (10%), mid-term 30% and the final exam 40%. Plus/minus grading will be used. A rough guide for the grades (including plus/minus) is as follows: 90% for A, 80% for B, 70% for C, 60% for D, less than 60% is F.

2. Homework: These are theoretical exercises from the text. Homework problems will be announced at least one week prior to the due date. Assignments need to be submitted in class time on due dates, or by e-mail before that directly to the TA. Late homework submission is *not* acceptable, but advance submission is accepted (please put your submission in TA mailbox or e-mail her your solutions — please do not send to the instructor). If you score 90% or more on homework in aggregate, you get full 100% credit in homework.

3. Class problems: Problems, distributed beforehand, to be solved by students in the class at the chalkboard. Every student will have to do at

least one problems at the chalkboard, assigned randomly to them in the class.

4. Computer based projects: These are simulation and numerical problems which can be solved only with the help of a computer. Due dates and problems will be announced at appropriate times. Solutions must be typed and e-mailed directly to the TA along with output files and a ready-to-run code attched in the e-mail.

5. Exams: There will be one mid-term exam and one final exam:

Mid-term: Wednesday March 14, 8:30-9:45 am, 1107 SAS Hall.

Final exam: Monday, April 30, 8-11 am, 1107 SAS Hall.

Missing exam means automatic zero without documented medical reason plus prior permission except in extreme emergencies.

6. Classroom instruction: You should bring the text book, notes (hard or e-copy) and a calculator in the class.

7. Office hours: You may approach the instructor or the TA in the regular office hours. If your schedule does not permit to meet the instructor or the TA in regular office hours, you can ask for an appointment.

8. Web and e-mail assistance: Hard copy of notes or problems will not be distributed. Softcopy is posted on Moodle. You can ask questions by e-mail. Announcements will be sent by e-mail.

9. No-class days: January 15 (MLK), March 5 and 7 (spring break).

10. Audit Policy: Class attendance, homework, computer assignments and class problems. Auditing students are exempted from taking mid-terms and the final, but need to have satisfactory attendance and homework performance to get AU grade.

11. Attendance: You are required to attend the class, arrive in time and participate in activities such as in-class problem solving. If you are going to miss a class for a reasonable cause, notify the instructor in advance as a courtesy. See university's Attendance Regulation (REG02.20.03) for the list of excused absences.

12. Accommodation for disabilities: Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.01).

13. Integrity: University regulations require that every course syllabus remind students that the Code of Student Conduct defines a university policy on academic integrity already pledged by each student. Instructors assume that the students' names on their submitted work imply compliance with this policy. See `http://www.fis.ncsu.edu/ncsulegal/41.03-codeof.htm`