

Statistics 6540 (Spring 2019) Applied Stochastic Processes

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| Instructor | Prof. Shili Lin, 305A Cockins Hall, (614) 292-7404 |
| Lectures | MWF 10:20-11:15 AM, Bolz Hall 314. No classes on Jan 21, Mar 11, 13, & 15 |
| Office Hours | MW 9:05-10:00 AM and by prior appointment. |
| Grader | Mr. Qiuyu Gu; email: gu.675@buckeyemail.osu.edu; Phone: (614) 247-2013 Tutor room & hours: CH122 - T 9:10-11:20 AM; CH134 - R 9:10-11:20 AM |
| Website | http://carmen.osu.edu |
| Required Textbook | Taylor and Karlin (1998) <i>An Introduction to Stochastic Modeling</i> , 3rd Edition. Academic Press. |
| Prerequisites | Statistics 6301 or equivalent |
| Course Description | An introduction to some of the commonly encountered stochastic processes, including Markov chains and Poisson processes. Basic theory as well as applications will be discussed. |
| Learning Objectives | Develop technical skills for working with discrete-time Markov chains; understand the theory and applications of Poisson processes; gain familiarity with branching processes, birth and death processes, and Gaussian processes |
| Homework | There are (approximately) weekly homework assignments. You may discuss with other students, but DO NOT simply copy any part of someone else's work or solutions from any other sources. Violations will be treated as academic misconducts. Homework will be collected in class. No late homework will be accepted. |
| Exam 1 | Friday, February 22 (in class). One 8.5" X 11" sheet of notes (single-sided) may be used for the exam. No make-up exam will be given. |
| Exam 2 | Friday March 30 (in class). One 8.5" X 11" sheet of notes (single-sided) may be used for the exam. No make-up exam will be given. |
| Final Exam | Thursday Apr 25, 10:00-11:45 AM. Two 8.5" X 11" sheets of notes (single-sided) may be used for the exam. No make-up exam will be given. |
| Grading | The final numerical grade will be determined as follows: Attendance 3% Homework 12% Exams 1 & 2 45% Final Exam 40% |
| Special Accommodations | If you need any accommodations based on the impact of a documented disability, contact the instructor privately to discuss your specific needs. You should also contact the Office of Disability Services to coordinate special accommodations. |
| Academic Misconduct | Academic misconduct will not be tolerated and will be dealt with procedurally in accordance with university policy. |

Tentative Schedule

| Topics | Chapters | No. of Lectures |
|-------------------------------------|----------|-----------------|
| Introduction and probability review | 1, 2 | 3 |
| Discrete-time Markov chains | 3 | 15 |
| Limiting behavior | 4 | 6 |
| Poisson processes | 5 | 10 |
| Continuous-time Markov chains | 6 | 6 |