Statistics 6540 (Spring 2019)
Applied Stochastic Processes

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@buckeymail.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

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:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Attendance</td>
<td>3%</td>
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<tr>
<td>Homework</td>
<td>12%</td>
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<tr>
<td>Exams 1 &amp; 2</td>
<td>45%</td>
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<tr>
<td>Final Exam</td>
<td>40%</td>
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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

<table>
<thead>
<tr>
<th>Topics</th>
<th>Chapters</th>
<th>No. of Lectures</th>
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<tbody>
<tr>
<td>Introduction and probability review</td>
<td>1, 2</td>
<td>3</td>
</tr>
<tr>
<td>Discrete-time Markov chains</td>
<td>3</td>
<td>15</td>
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<tr>
<td>Limiting behavior</td>
<td>4</td>
<td>6</td>
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<tr>
<td>Poisson processes</td>
<td>5</td>
<td>10</td>
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<tr>
<td>Continuous-time Markov chains</td>
<td>6</td>
<td>6</td>
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