

Math 180C

Introduction to Stochastic Processes, II

Fall 2022

The introduction to stochastic processes begun in Math 180B continues in Math 180C with the study of **Markov chains** in continuous time and **renewal processes**. These topics generalize the notion of Poisson process in two different ways. We will then proceed to an introduction to the **Brownian motion**, one of the two building blocks of the subject of stochastic processes (along with the Poisson process). Time permitting, we will take up some topics in the theory of **queues** (waiting lines) as an application of the preceding material.

The required text for Math 180C is *An Introduction to Stochastic Modeling* (Fourth Edition) by M. Pinsky and S. Karlin. I plan to discuss most of the material contained in chapters 6, 7, and 8 of the text, with selected topics from chapter 9.

- Lectures will be on Monday, Wednesday, and Friday, from 11 AM to 11:50 AM in Peterson Hall 104.
- The discussion sections meets on on Thursdays according to the following schedule:
 - Section A01: 6 to 6:50 PM, Sequoyah 148
 - Section A02: 7 PM to 7:50 PM, Sequoyah 148
- Your course grade will be based on your performance on the two midterm exams and the final exam. These exams will be weighted as follows:
 - Midterm 1: 25%
 - Midterm 2: 25%
 - Final: 35%

You will have the option of substituting your final exam score for *one* of your midterm scores.

- In addition there will be weekly homework assignments which in total will account for the remaining 15% of your grade.
- You will be submitting your homework assignments through GRADESCOPE at <https://gradescope.com>.
 - Your login is your university email address, and your password can be changed (or set) at https://gradescope.com/password_resets/new.
 - Your homework solutions should be in a single pdf file before being uploaded, or as a picture for each question.
 - Please make sure your files are legible before submitting them — unreadable solutions will not earn credit.

- Most word processors can save files as a pdf.
- There are many tools to combine pdfs, such as <http://www.pdfmerge.com/>, and others for turning jpgs into pdfs, such as <http://jpg2pdf.com>.
- The midterm exams will be given on the Friday of the fourth and eighth weeks of the term (October 21 and November 18).
- The +/- grading system will be used for letter grades.
- **Academic Integrity** is highly valued at UCSD and academic dishonesty is considered a serious offense. Occurrences of academic dishonesty will be reported to the Academic Integrity Office. Students involved in an academic integrity violation will face administrative sanctions which may include suspension or, in very serious cases, expulsion from the university. Cultivate and protect your academic integrity! For more about academic integrity and its value, visit
<https://academicintegrity.ucsd.edu>.

Instructor: P. Fitzsimmons, Office: AP&M' 5715; email: pfitzsim@ucsd.edu; phone: 534-2898; Office hours: MWF 2:30–3:30 PM (via zoom), or by appointment.

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This handout and other course information is available at the URL

<http://math.ucsd.edu/~pfitz/fall22/180c/>