Math 3312 – Markov Chains

Lecture Time: 2:00pm – 3:50pm (MW)   Location: Knudson Hall 100

Textbook: Levin, Peres, and Wilmer, Markov Chains and Mixing Times

Instructor: Mei Yin   mei.yin@du.edu
   Office and Office Hours: Zoom, 10:30am – 12:00pm (TR), or by appointment

Tentative Calendar:

|  |  |
| --- | --- |
| The Week Of | Material Covered |
| April 1 – April 5 | Introduction, Metropolis and Glauber Dynamics |
| April 8 – April 12 | Gambler's Ruin / Coupon Collecting |
| April 15 – April 19 | Urns |
| April 22 – April 26 | Random Walks |
| April 29 – May 3 | Random Walks (Continued) |
| May 6 – May 10 | Card Shuffling |
| May 13 – May 17 | Coupling |
| May 20 – May 24 | Bottleneck |
| May 27 – May 31 | Hitting Times / Cover Times |
| June 3 – June 7 | Project Presentation |

Grading: Your final grade for the course will be determined based on a numerical weighted average calculated as follows:**Homework 30% Midterm 30% Term Project 40%**.

Homework: There will be three homework sets, due at the beginning of the class on **Mondays April 15, April 29, and May 27.**

Midterm: A take-home midterm will be given, with a tentative due date on **Friday, May 17**.

Term Project: The term project can be targeted towards any Markov chains model (whether covered in class or not) and is due on **Wednesday, June 5**.

Students with Disabilities: If you qualify for academic accommodations because of a disability or medical issue, please submit a faculty letter to me from AccessibleDU: Student Disability Services (SDS) in a timely manner so that your needs may be addressed. SDS determines accommodations based on documented disabilities/medical issues. SDS is located in Suite 22 on the lower level of Driscoll South, 303-871-3241. Information is also available online at <https://studentaffairs.du.edu/disability-services-program>.

Honor Code: Follow the [Honor Code](https://studentaffairs.du.edu/student-rights-responsibilities/honor-code) in all activities related to this course. Incidents of academic misconduct will be reported to and investigated by the Office of Student Conduct.

Inclusive Learning Environment: In this class, we will work together to develop a learning community that is inclusive and respectful. Our diversity may be reflected by differences in race, culture, age, religion, sexual orientation, socioeconomic background, and myriad other social identities and life experiences. The goal of inclusiveness, in a diverse community, encourages and appreciates expressions of different ideas, opinions, and beliefs, so that conversations and interactions that could potentially be divisive turn instead into opportunities for intellectual and personal enrichment.

A dedication to inclusiveness requires respecting what others say, their right to say it, and the thoughtful consideration of others' communication. Both speaking up and listening are valuable tools for furthering thoughtful, enlightening dialogue. Respecting one another's individual differences is critical in transforming a collection of diverse individuals into an inclusive, collaborative and excellent learning community. Our core commitment shapes our core expectation for behavior inside and outside of the classroom.

Religious Accommodations: University policy grants students excused absences from class or other organized activities for observance of religious holy days, unless the accommodation would create an undue hardship. Faculty are asked to be responsive to requests when students contact them **in advance** to request such an excused absence. Students are responsible for completing assignments given during their absence, but should be given an opportunity to make up work missed because of religious observance. Once a student has registered for a class, the student is expected to examine the course syllabus for potential conflicts with holy days and to notify the instructor by the end of the first week of classes of any conflicts that may require an absence (including any required additional preparation/travel time). The student is also expected to remind the faculty member in advance of the missed class, and to make arrangements in advance (with the faculty member) to make up any missed work or in-class material within a reasonable amount of time.

Other: Check the **DU academic calendar** for important dates throughout the quarter: <http://www.du.edu/registrar/calendar/index.html>.