

Statistics 8289
Martingale and other advanced topics in Probability
Spring, 2023

Instructor: Feifang Hu
Office: Phillips Hall, Room 727
Phone: 804-310-0383
Office hours: Thursday 3:30pm-5:00pm.
Class: Thursday, 12:45pm-3:15pm.

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Topics: Martingale; Martingale Central Limiting Theorem; Applications of Martingale Theory; Markov Chains and their properties; Applications of Markov Chain; Empirical Process, Stochastic Process, Stochastic Differential Equations and Their Applications.

Pre-Req: STAT8263 and STAT8257

Textbook

Title: TBD

Learning Outcomes

This course is mainly for PhD students in Statistics.

Grading

The course grade will be based on homework, exam I and exam II as follows:

40% homework (biweekly; about 5 or 6 homeworks),
30% Examine I, and 30% Examine II. Both Examine I and II are most likely take-home exams (usually one week to complete).

Class Attendance

Class discussions will extend the materials covered in the textbook. Therefore, it is important that you attend the class. You are responsible for any materials covered or any announcements made in class, even if you are not present.

University Policy on Religious Holidays:

1. Students should notify faculty during the first week of the semester of their intention to be absent from class on their day(s) of religious observance;
2. Faculty should extend to these students the courtesy of absence without penalty on such occasions, including permission to make up examinations;
3. Faculty who intend to observe a religious holiday should arrange at the beginning of the semester to reschedule missed classes or to make other provisions for their course-related activities

[NOTE: See the following website for other university policies: <http://www.gwu.edu/~academic/Teaching/main.htm>]

ACADEMIC INTEGRITY

I personally support the GW Code of Academic Integrity. It states: “Academic dishonesty is defined as cheating of any kind, including misrepresenting one's own work, taking credit for the work of others without crediting them and without appropriate authorization, and the fabrication of information.” For the remainder of the code, see: <http://www.gwu.edu/~ntegrity/code.html>

SUPPORT FOR STUDENTS OUTSIDE THE CLASSROOM

DISABILITY SUPPORT SERVICES (DSS)

Any student who may need an accommodation based on the potential impact of a disability should contact the Disability Support Services office at 202-994-8250 in the Marvin Center, Suite 242, to establish eligibility and to coordinate reasonable accommodations. For additional information please refer to: <http://gwired.gwu.edu/dss/>

UNIVERSITY COUNSELING CENTER (UCC) 202-994-5300 The University Counseling Center (UCC) offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include:

crisis and emergency mental health consultations

- confidential assessment, counseling services (individual and small group), and referrals

<http://gwired.gwu.edu/counsel/CounselingServices/AcademicSupportServices>

SECURITY

In the case of an emergency, if at all possible, the class should shelter in place. If the building that the class is in is affected, follow the evacuation procedures for the building. After evacuation, seek shelter at a predetermined rendezvous location.

Emergency Preparedness and Response at The George Washington University

To Report an Emergency or Suspicious Activity

Call the University Police Department at 202-994-6111 (Foggy Bottom) or 202-242-6111 (Mount Vernon).

Shelter in Place

Although it is unlikely that we will ever need to shelter in place, it is helpful to know what to do just in case. No matter where you are, the basic steps of shelter in place will generally remain the same.

If you are inside, stay where you are unless the building you are in is affected. If it is affected, you should evacuate. If you are outdoors, proceed into the closest building or follow instructions from emergency personnel on the scene.

Locate an interior room to shelter inside. If possible, it should be above ground level and have the fewest number of windows. If sheltering in a room with windows, move away from the windows. If there is a large group of people inside a particular building, several rooms may be necessary.

Shut and lock all windows (tighter seal) and close exterior doors.

Turn off air conditioners, heaters, and fans. Close vents to ventilation systems as you are able. (University staff will turn off ventilation as quickly as possible).

Make a list of the people with you and ask someone to call the list in to UPD so they know where you are sheltering. If only students are present, one of the students should call in the list.

Await further instructions. If possible, visit Campus Advisories for incident updates (<http://CampusAdvisories.gwu.edu>) or call the GW Information Line 202-994-5050.

Make yourself comfortable and look after one other. You will get word as soon as it is safe to come out.

Evacuation

An evacuation will be considered if the building we are in is affected or we must move to a location of greater safety. We will always evacuate if the fire alarm sounds. In the event of an evacuation, please gather your personal belongings quickly (purse, keys, GWorld card, etc.) and proceed to the nearest exit. Do not use the elevator. Once you

have evacuated the building, proceed to our primary rendezvous location: the conference room of the Statistics Department. In the event that this location is unavailable, we will meet at the first floor of Fungler Hall

Alert DC

Alert DC provides free notification by e-mail or text message during an emergency. Visit Campus Advisories for a link and instructions on how to sign up for alerts pertaining to GW.

Emergency Information

Additional emergency information may be obtained by visiting the Campus Advisories webpage (<http://CampusAdvisories.gwu.edu>) or calling the GW Information Line at 202-994-5050.