

STA 4321/5323: Introduction to Mathematical Statistics

Course description: This course covers topics including: combinatorial analysis, random variables (discrete and continuous), probability distributions, independence, conditional probability, sums of random variables, generating functions, central limit theorem, the laws of large numbers, etc.

Prerequisite courses: MAC 2311, 2312, 2313. You need to be familiar with the theory and applications in Calculus I, II, III.

Lecture: Tuesdays and Thursdays, 9:30–10:45 AM. The class will meet over zoom. You can access the meetings via canvas, or <https://fsu.zoom.us/j/98869788219> (please do not share this link publicly!) Class sessions will be recorded.

Instructor: Prof. Hongyuan Cao

Email: hcao@fsu.edu

Office Hour: Tuesdays 10:45–11:30 AM over zoom <https://fsu.zoom.us/j/98869788219> or by appointment.

Teaching Assistant: Chenran Wang

Email: cw16d@my.fsu.edu

TA Office Hour: Tuesdays and Thursdays 3:00–4:00 PM over zoom

<https://zoom.us/j/7508898352?pwd=MUISQjNkOUprbVhRVG5KNGU4ci9nZz09> or by appointment

Class Website: <https://canvas.fsu.edu>

Textbook (required): *A First Course in Probability* (9th Edition), by Sheldon Ross, Pearson Education, 2014. Most of the homework problems will be from this book.

References: *Probability and Statistics with Applications: A Problem Solving Text*, by Leonard A. Asimow and Mark M. Maxwell, ACTEX Publications, 2010.

Introduction to Probability and Mathematical Statistics (2nd Edition), by Bain and Engelhardt.

Homework: The homework assignments will be posted regularly. You are encouraged to discuss with each other, but should write down the answers independently. Please also indicate your collaborators if you discuss with other people.

Exams: There will be two midterm exams and a final exam. The midterms will be based on the material covered by the time of the exams. The final exam will be cumulative. You will be permitted to bring an A4 sheet of notes written on both sides to the midterms and two A4 sheet of notes written on both sides to the final exam. You may need a calculator for some problems. I plan to display the exam over zoom during our regular class time. Tentative schedule for the exams are in the following.

- Midterm 1: 9:30–10:45 AM, Tue, October 6

- Midterm 2: 9:30–10:45 AM, Tue, November 3
- Final: 7:30 –9:30 AM, Wed, December 9

There will be no makeup exams. If you must miss an exam, notify the instructor as early as possible.

Final grade: It will be determined by a weighted average of the following items: (1) midterms 2 × 15%, (2) final exam 30%, (3) homework 30%, and (4) in-class discussion 10%.

Course Policies

- **Classroom policies:** The classroom environment is an important factor for effective learning. In order to not distract other students' attention please follow these classroom policies. The first one of these is the university policy. Remember that no food or drinks are allowed. Turn off all audible alarms (cell phones, pagers, calculators, watches etc.) Do not use cell phones in the class. Come to the class on time.
- **Attendance:** You are required to attend all classes. The class activities will help you assimilate the lessons more easily, giving you an opportunity for active learning. Do not let this opportunity slip away. Any foreseen absence must be cleared with the instructor. If the absence is due to emergencies, it is the student's responsibility to notify the instructor at the earliest opportunity of the emergency.
- **Homework and exams:** After finishing the homework, please use your phone to take pictures of each page of your work, combine them into a pdf file and upload the pdf to Canvas. The TA will grade them, take pictures of the graded homework, combine them into one pdf file and upload the pdf to Canvas. Same rule applies to the exams. It is the student's responsibility to retrieve his or her homework/exam whenever they are returned and to check grades on the class website. If you notice any mistake in recording grades, please inform the instructor about it as soon as possible but no later than one week from grades been posted online.
- **Homework re-grade:** You have one week to request a re-grade of a homework from the date on which the graded homework is available to the students of the class. Submit a written request detailing the nature of the grading error to the instructor along with the relevant homework.
- **Contacting the instructor or TA outside the class:** You are strongly encouraged to come to the instructor or TA during their office hours. If your schedule conflicts with the office hours, you can make an appointment. You may ask the instructor brief questions by e-mail, but you may be asked to come to office hours if the instructor thinks that the questions are better answered this way. When you send e-mails remember the following: always send e-mails from your FSU accounts. The e-mails from non-FSU accounts may not reach me due to filters. Always write your full name at the end of each e-mail message you send.
- **Academic honor policy:** The Florida State University Academic Honor Policy outlines the University expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "... be honest and

truthful and ... [to] strive for personal and institutional integrity at Florida State University.” (Florida State University Academic Honor Policy)

- Students with disabilities: Students with disabilities in need of academic accommodation should: 1. Register with and provide documentation to the Student Disability Resource Center; 2. Bring a letter to the instructor indicating the type of accommodation needed. This should be done during the first week of class. See <https://dos.fsu.edu/sdrc/> for more information.