STAT 1151: INTRODUCTION TO PROBABILITY

Fall 2024 Course Syllabus

Credit: 3

Lecture Hours

Section 1: Monday 1:50-4:25 pm, Room 3-101
Section 2: Thursday 1:50-4:25 pm, Room 3-101

Instructor

Xiaomei Tan
Email: xiaomei.tan@scupi.cn
Office: 417
Office Hours: 9:00am - 12:00pm, Monday & Thursday
Contact instructor:

- Attend office hour or via email
- Extra office hours will be offered by appointment.

Teaching Assistants

Weijia Wang (Section 1)
Email: 735839579@qq.com

Bei Wu (Section 2)
Email: 2488455026@qq.com

TA Responsibilities: TAs primarily support the instructor across a range of tasks, including grading homework, in-class exercises, and exams, addressing student inquires, and contributing to the smooth functioning of educational environments.
Contact TAs: QQ Group (see QR code on last page) or via email

Note:

- Modifications to this syllabus may occur. Please stay informed about any revisions announced during class or on the Blackboard website. Lecture materials, reading lists, grading details, and announcements will all be accessible through Blackboard.
- Important dates and information will be announced during class. Students should stay informed about announcements on Blackboard and via emails sent to their SCU email address.
- While emailing the instructor or TAs, please kindly include **"STAT 1151"** in the subject line for efficient communication. Please use your university email account (student_ID_number@stu.scu.edu.cn), as emails from other sources could be caught by the SCU spam filter.

Textbook

Walpole R. E., Myers R. H., Myers S. L., & Ye K. (2012). *Probability & Statistics for Engineers & Scientists* (9th ed.). Prentice Hall. (Available on Blackboard)

Course Description

Introduction to Probability is an undergraduate-level core course that introduces students to the fundamental principles of probability theory. This course provides a rigorous foundation in probability, covering key concepts such as sample spaces, events, probability measures, and various probability distributions. Through theoretical exploration and practical applications, students will develop the skills necessary to analyze uncertainty, calculate probabilities, and model random phenomena. This course serves as a vital steppingstone for students pursuing studies in mathematics, statistics, engineering, economics, and various other fields where probabilistic thinking is essential.

Course Objectives

By the end of this course, students should be able to:

- understand the basic principles of probability, including sample spaces, events, and probability axioms.
- compute probabilities for simple and complex events using techniques such as permutations, combinations, and conditional probability.
- analyze and work with probability distributions, both discrete and continuous, including the binomial, Poisson, normal, and exponential distributions.
- apply probability theory to real-world situations, demonstrating the ability to model and analyze random phenomena, make predictions, and solve practical problems involving uncertainty.

Learning Outcomes

Upon successful completion of this course, students will be able to:

- demonstrate a solid understanding of fundamental probability concepts and principles.
- compute probabilities accurately for both simple and complex events, using appropriate methods.
- analyze and work with various probability distributions, applying them to relevant scenarios.
- apply probability theory to practical situations, including modeling random events and solving problems involving uncertainty.
- utilize probabilistic reasoning to make informed decisions in diverse fields, showcasing the ability to think critically and solve problems effectively in uncertain environments.

Grading

- Midterm exam: 40%
- Final exam: 40%
- Homework: 10%
- Attendance / In-class exercise: 10%

Course grades are assigned based on a 100-point scale. The numerical equivalence to letter grades is as follows:

Total Scores	Grades	Total Scores	Grades
>=90	A	>=70	C+
>=85	A-	>=66	C
>=80	B+	>=63	C-
>=76	B	>=60	D
>=73	B-	Below 60	F

*Round up policy: For example, if you get a final score of 89.5, we will round it up to 90. If you get 89.4 unfortunately, we are not able to round it up to 90. We keep this rule the across all students.

Attendance

Attendance at lectures is mandatory. **Missing Three or more sessions will result in a loss of all the attendance points. Absences of five or more will lead to failure (F grade) in the course.** To monitor attendance, in-class exercises will be conducted periodically. **NO makeup in-class exercises will be permitted.**

Homework

[Due] Homework assignments will be distributed periodically throughout the semester and will be due at the start of the subsequent class, usually due on 13:50 PM. **Late homework will NOT be accepted**, unless certified medical proof is given. It is advised that assignments be submitted in advance of the designated deadline to avoid any potential lateness. It is the students' responsibility to ensure **accurate and timely submission**.

[Submission] Each assignment must be submitted in **one PDF format file through the Blackboard**. Please also answer the problems according to the order of problems assigned. (Notes: The homework can be typed or handwritten to take photos. The HW done on iPad can be directly generated by the software to generate PDF files, and the handwritten work can be merged to generate PDF as well.)

[Naming Format] Student ID Name. (Example: 2022141520173王唯佳)

[Grading Criteria] The full score of each assignment is 100 points. Five points will be lost if you fail to submit it in the correct format and order of the problems. Extra points will be lost if you miss answering problems. **Directly copying and pasting solutions generated by Large Language Models (LLMs) or Generative AI is prohibited and will result in a complete loss of points for that question.**

[HW Solution] Generally speaking, HW solutions will be posted on Blackboard on Friday.

Exams

Exams are scheduled following the course timetable. **Closed book, closed notes. A single A4-sized cheat sheet is allowed** with content handwritten on both sides.

Attendance for exams is mandatory. In case of foreseeable absences, it is the students' responsibility to inform the instructor **one week prior to the event** and provide **written verification** of the reason for missing the class. For unforeseen emergencies, it is the students' responsibility to provide written verification **within one week after the event**. Makeup exams will be arranged as needed. Failure to give prior notice for an absence will result in a "**ZERO**" score, except in exceptional cases.

Class Policy

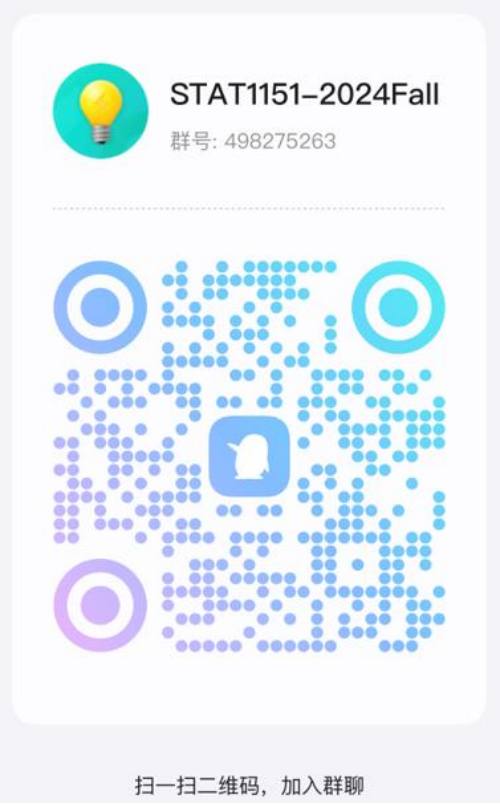
1. Class participation

Regular class attendance as well as active participation in course activities is expected. It is the students' responsibility to complete all assigned in-class tasks. Any required student absences should be reported to the instructor in advance via email or if not possible in advance, shortly thereafter.

2. Academic integrity

Academic integrity is the pursuit of scholarly activity in an open, honest, and responsible manner. In this course, students are expected to uphold the dignity, rights, and property of their peers. All exam work and homework must be a product of individual effort. **Any violation of academic integrity, including uncredited copying or closely paraphrasing others' work, as well as exam cheating, will not be tolerated.** The minimum penalty for academic dishonesty is a one-letter grade deduction.

Sections 1&2:



Tentative Course Schedule (September 5, 2024)

Lecture	Date	Topic
1	9/2 9/5	Probability (2.1-2.4)
2	9/9 9/12	Probability (2.5-2.7)
3	9/14 (Mon) 9/19	Random Variables and Probability Distributions (3.1-3.3)
4	9/23 9/26	Random Variables and Probability Distributions (3.4)
	9/30	Guest Speaker; Tutorial
5	10/10 10/12 (Mon)	Mathematical Expectation (4.1, 4.2)
6	10/14 10/17	Mathematical Expectation (4.3, 4.4)
7	10/21 10/24	Review
	11/01 9:00-11:00	Midterm Exam
8	11/4 11/7	Some Discrete Probability Distributions (5.1-5.3)
9	11/11 11/14	Some Discrete Probability Distributions (5.4, 5.5)
10	11/18 11/21	Some Continuous Probability Distributions (6.1-6.4)
11	11/25 11/28	Some Continuous Probability Distributions (6.5-6.6)
12	12/2 12/5	Some Continuous Probability Distributions (6.7-6.10)
13	12/9 12/12	Some Joint Probability Distributions
14	12/16 12/19	Functions of Random Variables (7.1-7.3)
15	12/23 12/26	Review
	TBD	Final Exam