SCUPI – STAT1151 Introduction to Probability-Section 2
Fall Semester, 2025

INSTRUCTOR: Zheng Yang **OFFICE:** South Campus N517 **EMAIL:** zhengyang2018@scu.edu.cn
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QQ group: TBA
TA Recitation Hours: TBA
OFFICE HOURS: Tuesday 2 pm – 6 pm, Other times by appointments

LECTURES: Friday 8:15 am – 9 am, 9:10 am – 9:55 am, 10:10 am – 10:55 am, South Campus S105

CREDITS: 3 credit hours

REQUIRED TEXTBOOK: *Walpole R.E., Myers R.H., Myers S.L., Ye K. (2012). Probability & Statistics for Engineers & Scientists (9th ed.). Prentice Hall.*
Reference book: *Ross S. (2019) A First Course in Probability (10th ed.). Pearson Education.*
DESCRIPTION: This is an undergraduate-level core course that introduces students to the fundamental principles of probability theory. It 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 (at least):

- 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 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 FOR THIS COURSE:
Upon successful completion of the course, students will be able to:

1) Demonstrate a solid understanding of fundamental probability concepts and principles.
2) Compute probabilities accurately for simple and complex events using appropriate methods.
3) Analyze and work with various probability distributions, applying them to relevant scenarios.
4) Apply probability theory to practical situations, such as modeling random events and solving problems involving uncertainty.
5) Utilize probabilistic reasoning to make informed decisions in diverse fields, showcasing the ability to think critically and solve problems effectively in uncertain environments.

GRADE: The final grade will be based on the **score**. The score is a number determined by

Homework: 15% Attendance: 5% Quizzes: 10% Exam: 20% Final Exam: 30% Project: 20%

The final letter grade is determined from the following table.

A: 90 – 100	A−: 85 – 89	B+: 80 – 84	B: 76 – 79	B−: 73 – 75	
C+: 70 – 72	C: 66 – 69	C−: 63 – 65	D+: 61 – 62	D: 60	F: < 60

HOMEWORK: There will be a suggested homework assignment given on each section covered.
I recommend you work through many examples and their associated exercises of the book. Make sure you provide detailed steps for each problem that you attempt. The homework will be graded for the selected problems based on your honest efforts. You may meet with TAs to go over problems related to the material covered in the previous lectures. Please also read the "**Requirements of HW Submission**" for details.

QUIZZES: There will be many quizzes given during recitations. I may also collect your solved exercises as quiz problems. In general, quiz and exam problems will be modeled on the homework problems. Your lowest quiz score maybe dropped at end.

EXAMS: There is an 120 minutes, closed book/notes, major test and a final exam. Tentative Dates are given in the schedule below. Each major test will be cumulative with more emphasis on the material since the previous test. The final exam will be comprehensive. **There is NO Make up for all quizzes and exams.**

PROJECT: You are asked to work as a group of 3-5 students for a final project. The detailed instructions and deadlines of the project will be provided later. The project will be graded based on a PPT presentation (plus a written report) and your overall efforts as a team.

ATTENDANCE: You are expected to attend all the classes. A student who misses a class is responsible for finding out what was covered in the class. Note that you will also miss more "unexpected" points for being absent since I will likely provide a quiz or collect homework during your absence. You will also lose "surprised" bonus for being absent since I may assign problems during class. **Remember there are no make ups for all grades related activities. Missing three classes in a row may result an F for the course!!!**

CLASSROOM RULES: Electronic devices including but not limited to iphone, smartphone, ipod, ipad, pc are NOT allowed, except for course work.
CODE OF ACADEMIC CONDUCT: All students in attendance at the SiChuan University are expected to be honorable and to observe standards of conduct appropriate to a community of scholars. The University expects from its students a higher standard of conduct than the minimum required to avoid discipline. Academic misconduct includes all acts of dishonesty in any academically related matter and any knowing or intentional help or attempt to help, or conspiracy to help, another student. The Academic Misconduct Disciplinary Policy will be followed in the event of academic misconduct.

NON-ACADEMIC MISCONDUCT: All cell phones and other electronic devices are to be turned off and out of sight while you are in the classroom. All newspapers and other materials not related to the class are to be put away once class begins. Operating these devices and reading unrelated materials while in class is disrespectful of your instructor and fellow classmates. If you fail to abide by this rule, the instructor has the right to confiscate the device or materials. If you have an emergency and need to have your phone turned on during class, ask your instructor for permission

MATERIAL COVERED: Tentative sequence of the sections covered in this class is:

Week	Chapter/Section	Topics
1	2.1-2.5	• Sample space, events, probability
2	2.6-2.7	• Conditional probability, independence • Bayes' rule
3	3.1-3.2	• Random variables • Discrete probability distributions
4	3.3-3.4	• Continuous probability distributions • Joint probability distributions
5	4.1-4.2	• Mean, variance, covariance
6	4.3-4.4	• Chebyshev's theorem
7	5.1-5.3	• Binomial and multinomial distributions • Hypergeometric distribution
8	5.4-5.5	• Negative binomial and geometric distributions • Poisson distributions **Midterm exam**
9	6.1-6.4	• Continuous uniform distribution • Normal distribution
10	6.5-6.6	• Gamma and exponential distribution • Chi-squared distribution
11	6.7-6.10	• Beta distribution • Other distributions
12		• Joint distributions
13	7.1-7.3	• Moments and moment-generating functions
14	Chapter 8	• Central limit theorem • Other topics
15		**Presentations**
16		**Presentations** **Final Exam**