



# **MAT 270 Introduction to Probability and Statistics**

**Summer 2024**

**Course Credits:** 4

**Contact Hours:** 56 hours

**Instructor:** TBA

**Email:**TBA

## **COURSE OBJECTIVES**

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The course embodies the fundamental theories and methods in probability and statistics. The following topics will be discussed in the course: data description, probability and probability distributions, random variables, estimation, hypothesis testing, analysis of variance, linear regression and correlation. In addition, students will learn about a traditional introduction of descriptive and inferential statistics as well as modern technology, including computational software and interactive visual tools.

Upon Completion of this Course, students will be able to:

1. Identify the basic concept and examples of probability and statistics;
2. Explore the relevance between probability and statistics and everyday life;
3. Evaluate the validity of the assumptions behind statistical tests;
4. Estimate population parameters form data sets and use the sampling distributions to compute confidence intervals for these population parameters;
5. Ability to interpret statistical results by statistical reasoning.

## **PREREQUISITES**

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MAT 113 Mathematics I

## **GRADING**

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Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

<b>ITEM</b>	<b>POINTS</b>
2 Assignments	20 Points



2 Quizzes	20 Points
Midterm Exam	25 Points
Final Exam	35 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

### COURSE MATERIALS

#### **Required Texts:**

*Introduction to Probability and Statistics*, by William Mendenhall, Robert J. Beaver, Barbara M. Beaver, Fourteenth Edition, Duxbury Press, 2012.

#### **Recommended (Optional) Texts or Other Materials:**

None

### COURSE TOPICS

MODULE	TASKS
Module 1	<b>Topics:</b> Topic 1: Course Introduction Topic 2: Describing Data with Graphs Topic 3: Describing Data with Numerical Measures Topic 4: Describing Bivariate Data <b>Assessments:</b> Assignment #1
Module 2	<b>Topics:</b> Topic 5: Probability and Probability Distributions Topic 6: The Role of Probability in Statistics Topic 7: Probability Distribution and Probability Density Topic 8: Independence, Conditional Probability, and the Multiplication Rule <b>Assessments:</b> Quiz #1



Module 3	<b>Topics:</b> Topic 9: Discrete Random Variables and Their Probability Distributions Topic 10: Mean and Variance Topic 11: Tests of Hypotheses Topic 12: Statistics and Sampling Distributions <b>Assessments:</b> Assignment #2 Midterm Exam
Module 4	<b>Topics:</b> Topic 13: Linear Regression Topic 14: Correlation Analysis Topic 15: Multiple Regression Analysis Topic 16: Analysis of Categorical Data <b>Assessments:</b> Quiz #2
Module 5	<b>Topics:</b> Topic 17: Nonparametric Statistics Topic 18: The Poisson Probability Distribution Topic 19: The Normal Probability Distribution Topic 20: Final Exam Reviews <b>Assessments:</b> Final Exam

## ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.



## **LEARNING REQUIREMENTS**

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

## **TECHNOLOGY POLICY**

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

## **ACADEMIC INTEGRITY POLICY**

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

## **DISABILITY ACCOMMODATION**

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a



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learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.