Soochow University

STA 223 Statistical Methods and Applications
Summer 2023

Course Credits: 4
Contact Hours: 55 hours
Instructor: TBA
Email: TBA

COURSE OBJECTIVES

This course provides students with a detailed introduction of applied statistics on the basis of statistical theory. In this course, topics such as sampling distributions, point estimation, confidence intervals, hypothesis testing, linear regression, graphical and computational methods, nonparametric methods are included and highlighted. In addition, this course will deeply combine the statistical methods with practical applications, as well as aim at cultivating students' ability to analyze and apply statistical date.

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

1. Master the common statistical analysis methods

2. Choose appropriate methods to analyze and study social and economic phenomena

3. Improve the ability to analyze statistical problems and solve statistical application problems

4. Strengthen the application of statistical methods and the cultivation of practical skills

PREREQUISITES

STA 201 Introduction to Statistics

GRADING

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

ITEM	POINTS
2 Quizzes	20 Points
Midterm 1	15 Points
Midterm 2	15 Points
2 Reports	20 Points
Final Exam	30 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 ≥ 90 > B ≥ 80 > C ≥ 70 > D ≥ 60 > F.

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

COURSE MATERIALS

Required Texts:

Dieter Rasch Rostock, Rob Verdooren Wageningen, Jürgen Pilz Klagenfurt, *Applied Statistics: Theory and Problem Solutions with R*, John Wiley & Sons, 2020.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	**Topics:** Topic 1: Course Introduction Topic 2: Sample Statistics Topic 3: Sampling Distributions Topic 4: Estimation and Point Estimation **Assessments:** Quiz#1
Module 2	**Topics:** Topic 5: Range Estimation Topic 6: Methods of Finding Estimators Topic 7: Interval Estimation and Hypothesis Testing Topic 8: Simple Linear Regression **Assessments:**

	Quiz#2
Module 3	**Topics:** Topic 9: Estimation (Three Ways) Topic 10: Parametric and Non-parametric Tests Topic 11: Interpretation of the Regression Slope Topic 12: Inferences in Simple Linear Regression **Assessments:** Midterm#1 Report#1
Module 4	**Topics:** Topic 13: Confidence Intervals Topic 14: Multiple Regression Topic 15: Interpretation of the Regression Coefficients Topic 16: Interpretation of the Regression Coefficients (Cont.) **Assessments:** Midterm#2 Report#2
Module 5	**Topics:** Topic 17: The Multiple Regression Model Topic 18: Extending the Multiple Regression Model Topic 19: Graphical and computational methods Topic 20: Final Exam Reviews **Assessments:** 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).

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