STA 402 Programming for Statistical Analysis Using SAS

Winter 2024

Course Credits: 4
Contact Hours: 56 hours
Instructor: TBA
Email: TBA

COURSE OBJECTIVES

This course introduces students to the fundamentals of statistical programming using the SAS (Statistical Analysis System) software. Emphasizing a case studies approach, students will learn the essentials of programming in SAS and its applications in statistical analysis. The course covers topics such as data manipulation, data analysis, and reporting, with a focus on real-world scenarios and practical applications.

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

1. Gain a foundational understanding of statistical programming using SAS software, including learning the basics of data manipulation, management, and exploratory data analysis.

2. Develop the ability to create new datasets using SAS and learn how to import and read existing datasets into the SAS environment.

3. Acquire skills in computing descriptive statistics for both character and numeric variables within SAS.

4. Be capable of identifying and correcting data errors, ensuring the creation of clean datasets for analysis.

5. Be capable of presenting data in a structured and readable format, which is important for effective communication of findings.

PREREQUISITES

STA 201 Introduction to Statistics

GRADING

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

ITEM	POINTS
Quizzes	10 Points
Assignments	40 Points
Midterm Exam	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:

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

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

COURSE MATERIALS

Required Texts:

1. Jim Blum, Jonathan Duggins, ***Fundamentals of Programming in SAS: A Case Studies Approach***, 7th Edition, McGraw-Hill, 2011.
2. SAS Institute, ***SAS Certified Specialist Prep Guide: Base Programming Using SAS***, 7th Edition, SAS Institute, 2019.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS

Module 1	**Topics:** Topic 1: Overview of SAS Software and Its Application Topic 2: Basic Concepts Topic 3: Accessing Your Data Topic 4: Creating SAS Data Sets **Assessments:** Quiz#1 Assignment#1
Module 2	**Topics:** Topic 5: Identifying and Correcting SAS Language Errors Topic 6: Creating Reports Topic 7: Understanding DATA Step Processing Topic 8: BY-Group Processing **Assessments:** Assignment#2
Module 3	**Topics:** Topic 9: Creating and Managing Variables Topic 10: Combining SAS Data Sets Topic 11: Processing Data with DO Loops Topic 12: SAS Formats and Informats **Assessments:** Midterm Exam Assignment#3
Module 4	**Topics:** Topic 13: SAS Date, Time, and Datetime Values Topic 14: Using Functions to Manipulate Data Topic 15: Producing Descriptive Statistics Topic 16: Creating Output **Assessments:** Quiz#2 Assignment#4
Module 5	**Topics:** Topic 17: Introduction to Advanced Reporting Topic 18: Advanced DATA Step Concepts Topic 19: Practice Programming Scenarios Topic 20: Clinical Trial Case Study **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.