# STAT 1000: APPLIED STATISTICAL METHODS

## Spring 2026 Course Syllabus

**Credits**: 4

**Lecture Hours**

Monday 10:15 – 11:55 am, N210
Thursday 1:50 – 3:30 pm, N210

**Instructor**

Dr. Xiaomei Tan
**Email**: xiaomei.tan@scupi.cn
**Office:** N417
**Office Hours**: Thursday 3:30 – 6:30 pm
**Contact Instructor:**
- Attend office hours or via email
- Extra office hours will be offered by appointment.

**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, please kindly include **"STAT 1000"** 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.

**Course Description**

This course is an intensive introduction to statistical methods. It is designed for students who want to do data analysis and to study further ideas in applied statistics beyond this course. Topics include Describing Distributions, Probability and Random Variables, Estimating with Confidence, Hypothesis Testing, Linear Regression, and One-Way ANOVA. Students will also learn how to use the statistical computer package **Minitab**.

**Course Objectives**

- To understand basic concepts of statistics and probability
- To be proficient at the use of **Minitab** and apply basic statistical techniques to a variety of subjects with the aid of **Minitab** statistical software

**Learning Outcomes**

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

- identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- acquire and apply new knowledge as needed, using appropriate learning strategies.

## Textbook

Moore, David S., McCabe, George P., and Craig, Bruce A. (2014). *Introduction to the Practice of Statistics*, 8th ed., W.H. Freeman and Company, New York. (Available on Blackboard)

## Minitab

Minitab Statistical Software is a comprehensive statistical and graphical analysis software package used by many quality engineers/professionals and data analysts around the world. I would like to encourage each of you to install the Minitab 21 on your laptop or desktop computer.

## Grading

- In-class activities and attendance: 10%
- Homework: 10%
- Project (report + presentation): 20%
- Midterm: 30%
- Final exam: 30%

## Attendance

Attendance at lectures is mandatory and will be monitored periodically. In case of foreseeable absences, it is the students' responsibility to **inform the instructor prior to the class and provide written verification of the reason for the absence. Missing three or more lectures will result in a loss of all the attendance points. Absences of five or more will lead to failure (F grade) in the course.**

## Homework

**[Due]** Homework assignments will be distributed periodically throughout the semester. **Late homework will NOT be accepted**, unless prior permission from the instructor. 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 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: 2024141520XXX 张三)

**[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 Generative AI tools is prohibited and will result in a complete loss of points for that question.

## Exams

**[Format]** Exams are scheduled following the course timetable. **Closed book. One single A4-sized cheat sheet is allowed** with content handwritten on both sides.

**[Attendance]** Attendance for exams is mandatory. In case of foreseeable absences, it is the students' responsibility to inform the instructor **one week prior to the exam** and provide **written verification** of the reason for missing the exam. For unforeseen emergencies, it is the students' responsibility to provide written verification **within one week after the exam**. 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 will be taken very seriously.** This includes, but is not limited to, plagiarism (such as uncredited copying, closely paraphrasing others' work without proper citation, or submitting work that is not your own) and any form of cheating during exams or assignments. Penalties for academic dishonesty may range from a one-letter grade reduction to failure of the course, depending on the severity of the offense. In more serious cases, incidents may also be reported to the university for further disciplinary action in accordance with institutional policies.

**3.  Accommodation**
Students requiring accommodation should schedule a meeting within the first week of classes.

**Tentative Course Schedule (March 9, 2026)**

| Week | Date | Topic |
|---|---|---|
| 1 | 3/9, 3/12 | Data Distributions |
| 2 | 3/16, 3/19 | Relationships of Two Variables |
| 3 | 3/23, 3/26 | Producing Data |
| 4 | 3/30, 4/2 | Probability and Random Variables |
| 5 | 4/6, 4/9 | Probability and Random Variables *(Tomb Sweeping Day, no class)* |
| 6 | 4/13, 4/16 | Sampling Distribution |
| 7 | Midterm (TBD) | Review and Midterm (*No classes*) |
| 8 | 4/27, 4/30 | Estimating with Confidence |
| 9 | 5/7, 5/9 | Introduction to Hypothesis Testing *(Makeup for classes on 5/4)* |
| 10 | 5/11, 5/14 | Inference for Distributions |
| 11 | 5/18, 5/21 | Inference for Proportions |
| 12 | 5/25, 5/28 | Simple Linear Regression |
| 13 | 6/1, 6/4 | Multiple Linear Regression |
| 14 | 6/8, 6/11 | One-Way ANOVA |
| 15 | 6/15, 6/18 | Project presentation |
| 16 | 6/22, 6/25 | Review |
| 17 | Final (TBD) | Final Exam |

**Please Note: The schedule is subject to change** based on the classroom driven and the interactive nature of this course. All topics will be covered, but order may vary. Changes to the schedule will be announced during the lecture period and updated in syllabus. Students are responsible for noting these changes.