



Course STAT 3304-002 Introduction to Statistical Computing
Time TuTh 12:30 pm – 1:50 pm
Location Hyer Hall 0102

Instructor Information

Instructor	Sy Han (Steven) Chiou
Email	schiou@smu.edu
Office	Heroy Hall 105
Office hours	Thursday 3:30 pm - 5:00 pm, Friday 3:30 pm - 5:00 pm, or by appointment.

Teaching Assistant

TA	Kylie Green
Email	kjgreen@smu.edu
Office	Heroy Hall 126
Office hours	Monday and Wednesday 11:00 am – 12:00 pm.
TA duties	<ul style="list-style-type: none">• Assist with homework and projects.• Respond to student questions (about course material or homework grades).• Provide feedback or comments on homework assignments.

General Course Information

Course website	All course materials will be posted on Canvas.
Prerequisite	STAT 2331 or an equivalent course. No calculus or prior experience with statistical software is necessary. STAT 2331 introduces fundamental concepts such as basic graphics, linear regression, probability, confidence intervals, and hypothesis testing. While we will briefly review these introductory topics during the semester, it's important to address any gaps in your understanding independently, as early in the semester as possible.
Course description	This course emphasizes the use of statistical software for conducting basic statistical analyses. Specifically, we will utilize R and SAS to perform analyses similar to those covered in an introductory statistics course (STAT 2331), such as regression, t-tests, and descriptive statistics. Our focus will primarily be on learning the software, rather than the statistical methods themselves. For each statistical package, the course will cover key topics, including language structure, basic descriptive statistics, visualization tools.
Learning outcomes	By the end of this course, students will be able to: <ol style="list-style-type: none">1. Develop algorithmic thinking skills.2. Evaluate the strengths and limitations of various statistical software packages.3. Apply coding and documentation practices that ensure data reproducibility.4. Accurately interpret output from any statistical software package.5. Effectively communicate the results of a statistical analysis.
Required text	There is no required textbook for this course; however, the following materials are used as supplementary references.
Supplementary text	<ol style="list-style-type: none">1. <i>Basic Elements of Computational Statistics</i> by Wolfgang Karl Härdle, Ostap Okhrin, and Yarema Okhrin. ISBN: 978-3-319-55335-12. <i>SAS Essentials</i> by Alan C. Elliott and Wayne A. Woodward . ISBN: 978-1119901617
Other requirements	This course is computationally intensive; therefore, access to a laptop or desktop computer is essential. You are welcome to bring your laptop to class to follow along with in-class examples. However, please exercise discretion to avoid disturbing your fellow classmates.
Generative AI	The use of any form of Generative AI (e.g., ChatGPT) is not encouraged in this course and is strictly prohibited during exams. The assignments have been designed to ensure that you develop and demonstrate the knowledge and skills associated with the learning outcomes laid out in the syllabus. Because generative AI tools and detection software are developing at a rapid pace, it is possible that assignments you turn in might appear as “false positives” and raise concerns of possible academic dishonesty. To ensure that you can demonstrate intellectual ownership of the assignments you submit, you are therefore encouraged to maintain clear evidence of your work. Any violation of these rules will be treated at the undergraduate level within the SMU Student Honor Code and at the graduate and professional level within the honor codes found in their respective school policies. If there is sufficient cause for concern, an incident report will be submitted for review by the Office of Student Conduct and Community Standards.

Course Policies

Grading criteria

The course letter grade will be determined based on homework assignments and two in-class exams. The breakdown of the grade distribution is as follows.

In-class assignments (10%):

- Assigned and completed during class, either at the beginning or end of class.
- The format will be short responses or multiple-choice questions.
- The total number of questions will aim to be about 30.
- Each question is worth 2 points, and the final percentage will be calculated out of 50 points.

Homework (15%):

- A total of 11 homework assignments will be given.
- The lowest homework grade will be dropped.
- Assignments will be posted at least one week before the due date.
- All reports must be submitted via Canvas within the designated submission window.
- Late submissions will not be accepted and will receive a grade of 0.

Exams (25% × 2):

- There will be two in-class exams.
- Exam 1 will focus on R, and Exam 2 will focus on SAS.
- The exams are scheduled for **October 16 (Thursday)** and **December 4 (Thursday)**.
- Computers, calculators, and laptops will not be needed to complete the exam.

Final project (25%):

- Students may choose to complete the project individually or as part of a team (up to 3).
- The final project consists of three parts: a progress report, a final report, and a presentation.
- Potential topics will be posted by October 23, but students can propose their own ideas.
- Group members and topics must be confirmed with me by October 31.
- A one-page progress report is due on December 4.
- A lightning talk presentation (~5 to 10 minutes) will be on the final exam day.
- Each group will choose a different topic; if you find one that interests you, claim it quickly.
- Grading rubrics will be provided.

Letter grade

The letter grade will be assigned based on the overall course score with the cutoffs:

The grading scale is as follows: **A⁺** [97, 100], **A** [93, 97), **A⁻** [90, 93), **B⁺** [87, 90), **B** [83, 87), **B⁻** [80, 83), **C⁺** [77, 80), **C** [73, 77), **C⁻** [70, 73), **D⁺** [67, 70), **D** [63, 67), **D⁻** [60, 63), and **F** [0, 60).

Institutional Policies and Procedures

Disability Accommodations

Students who need academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214- 768-1470 or visit <http://www.smu.edu/Provost/SASP/DASS> to begin the process. Once they are registered and approved, students then submit a DASS Accommodation Letter through the electronic portal, DASS Link, and then communicate directly with each of their instructors to make appropriate arrangements. Please note that accommodations are not retroactive, but rather require advance notice in order to implement.

Religious Observance

Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. <https://www.smu.edu/StudentAffairs/ChaplainandReligiousLife/ReligiousHolidays>

Excused Absences for University Extracurricular Activities

Students participating in an officially sanctioned, scheduled university extracurricular activity should be given the opportunity to make up class assignments or other graded assignments that were missed as a result of their participation. It is the responsibility of the student to make arrangements for make-up work with the instructor prior to any missed scheduled examinations or other missed assignments. (See 2020- 2021 SMU Undergraduate Catalog under “Enrollment and Academic Records/Excused Absences.”)

Student Academic Success Programs

Undergraduate students needing assistance with writing assignments for SMU courses may schedule an appointment with the Writing Center through Canvas. Students who would like support for subject-specific tutoring or success strategies should contact SASP, Loyd All Sports Center, Suite 202; 214-768-3648; <https://www.smu.edu/sasp>.

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Tentative Calendar

Week	Tuesday	Thursday	Homework & Project
1	August 26: Introduction to R / Rmd	August 28: Introduction to R / Rmd	
2	September 2: Introduction to R / Rmd	September 4: Descriptive Statistics and Graphics in R	HW 1 due
3	September 9: Descriptive Statistics and Graphics in R	September 11: Descriptive Statistics and Graphics in R	HW 2 due
4	September 16: Descriptive Statistics and Graphics in R	September 18: Descriptive statistics and Graphics in R	HW 3 due
5	September 23: Inference using R	September 25: Inference using R	HW 4 due
6	September 30: Inference using R	October 2: Inference using R	HW 5 due
7	October 7: Correlation and Re- gression using R	October 9: Correlation and Re- gression using R	HW 6 due
8	October 14: Exam 1 Review	October 16: Exam 1	HW 7 due
9	October 21: Fall Break- No class	October 23: Exam 1 Discussion	
10	October 28: Introduction to SAS	October 30: Descriptive statistics and graphics in SAS	Members and topics dues
11	November 4: Descriptive statistics and graphics in SAS	November 6: Descriptive statistics and graphics in SAS	HW 8 due
12	November 11: Inference using SAS	November 13: Inference using SAS	HW 9 due
13	November 18: Inference using SAS	November 20: Inference using SAS	HW 10 due
14	November 25: Holiday- No Class	November 27: Holiday- No Class	
15	December 2: Exam 2 Review	December 4: Exam 2	HW 11 due Progress report due
Final Project Presentation: December 15 (Monday), 11:30am – 2:30pm			