SMU		
	Course	STAT 3304-002 Introduction to Statistical Computing
	Time	TuTh 12:30 pm – 1:50 pm
	Location	Moody School 0125

Instructor Information

Instructor	Sy Han (Steven) Chiou
Office	Heroy Hall 105
Email	schiou@smu.edu
Office hours	Wednesday 4:00 pm - 5:00 pm and Thursday 3:30 pm - 5:00 pm or by appointment.

Teaching Assistant

TA	Cole Wagner
Email	clwagner@smu.edu
Office hours	The TA is available to answer questions about homework. Please contact Cole directly to schedule an appointment

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: **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	**1.** *Basic Elements of Computational Statistics* by Wolfgang Karl Härdle, Ostap Okhrin, and Yarema Okhrin. ISBN: 978-3-319-55335-1 **2.** *SAS Essentials* 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. • Each assignment will consist of one or two short-response or multiple-choice questions. • Each question is worth 2 points, and the final percentage for the in-class assignment grade 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% $\times$ 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 22 (Tuesday)** and **December 5 (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 22, 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 5. • A lightning talk presentation ($\sim$10 – 15 minutes) will be on the final exam day. • Each group will choose a different topic; if you find one that interests you, claim it quickly. • Grading rubrics will be provided. Online submissions are due by 11:59 PM on Thursdays.
Letter grade	The letter grade will be assigned based on the overall course score with the cutoffs: The grading scale is as follows: **A**$^+$ [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 27: Introduction to R	August 29: Introduction to R	
2	September 3: Introduction to R	September 5: Descriptive statistics and Graphics in R	HW 1 due
3	September 10: Descriptive Statistics and Graphics in R	September 12: Descriptive statistics and Graphics in R	HW 2 due
4	September 17: Descriptive Statistics and Graphics in R	September 19: Descriptive statistics and Graphics in R	HW 3 due
5	September 24: Inference using R	September 26: Inference using R	HW 4 due
6	October 1: Inference using R	October 3: Inference using R	HW 5 due
7	October 8: Fall Break- No class	October 10: Correlation and Regression using R	HW 6 due
8	October 15: Correlation and Regression using R	October 17: Exam 1 Review	HW 7 due Project topics posted
9	October 22: Exam 1	October 24: Introduction to SAS	
10	October 29: Introduction to SAS	October 31: Descriptive statistics and graphics in SAS	Members and topics dues
11	November 5: Descriptive statistics and graphics in SAS	November 7: Descriptive statistics and graphics in SAS	HW 8 due
12	November 12: Inference using SAS	November 14: Inference using SAS	HW 9 due
13	November 19: Inference using SAS	November 21: Inference using SAS	HW 10 due Progress report due
14	November 26: Correlation and Regression using SAS	November 28: Holiday- No Class	
15	December 3: Exam 2 Review	December 5: Exam 2	HW 11 due
Final Exam/ Final Project: December 16 (Monday), 11:30am – 2:30pm			