SMU		
	Course	STAT 6337: Statistical Analysis II
	Time	TuTh, 12:30 am–1:50 pm
	Location	Junkins Building 0203

Instructor Information

Instructor	Sy Han (Steven) Chiou
Office	Heroy Hall 105
Email	schiou@smu.edu
Office hours	TuTh 2:00 pm - 3:00 pm or by appointment.
	In-person or virtual office hours are both welcome.

General Course Information

Course website	All materials will be posted on Canvas.
Prerequisite	STAT 6336. Basic knowledge in `R` and linear algebra.
Course overview	The second semester of Statistical Analysis is an introductory graduate-level course that emphasizes statistical methods. Students should be familiar with sampling distributions and statistical inference (confidence intervals and tests of statistical hypotheses) for averages and standard deviations obtained from simple random samples and, for two-sample inference, with both independent samples and matched-pairs sample analysis. The course is a blend of applications and the theory necessary to fully understand the appropriateness of the methods used to analyze the data.
Learning outcomes	**1.** Understand and apply appropriate inference tools for analyzing count/categorical data. **2.** Conduct power analyses and sample size calculations. **3.** Derive the distribution of test statistics using theory of multivariate normal. **4.** Analyze data from random and mixed models.
Required text	*A First Course in Design and Analysis of Experiments* by Fred Oehlert (2010) Free download from `http://users.stat.umn.edu/~gary/book/fcdae.pdf`
Other requirements	Access to a laptop or desktop computer is essential. You can bring your laptop to class to follow along with in-class examples but please avoid disturbing your fellow classmates.

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. **Homework (50%)**: • There will be 11 homework assignments. • The lowest homework grade will be dropped. **Exams (25% $\times$ 2)**: • There will be two in-class exams. • Exam 1 will be on Thursday, March 12 and Exam 2 will be on Thursday, April 23. • `R` will be required complete the exams.
Submission guidelines	Here are some general policies: • All reports should be submitted via Canvas within the designated submission window. • All reports should be prepared with the provided `R Markdown` templates and knitted to `pdf`. • A `.Rmd` file and a `.pdf` file (generated by `R Markdown` are required in submission. • Late submissions will not be graded and will be counted as 0. • Submissions a `.Rmd` that won't compile will not be graded.
Letter grade	The letter grade will be assigned based on the overall course score with the cutoffs: **A**: [93, 100]; **A**$^-$ [90, 93); **B**$^+$ [87, 90); **B** [83, 87); **B**$^-$ [80, 83); **C**$^+$ [77, 80); **C** [60, 77); **F** [0, 60).

Tentative Calendar

Week	Tuesday	Thursday	Due	Readings
1	January 20: Intro. to categorical data analysis	January 22: Intro. to categorical data analysis		
2	January 27: Intro. to categorical data analysis	January 29: Intro. to categorical data analysis	HW 1	
3	February 3: Intro. to categorical data analysis	February 5: Intro. to categorical data analysis	HW 2	A.1 to A.2
4	February 10: Linear model review	February 12: Linear model review	HW 3	A.3 to A.5
5	February 17: Linear model review	February 19: Contrasts	HW 4	4.1, 4.2, 7.1
6	February 24: Power and sample size	February 26: Power and sample size	HW 5	7.2 to 7.4
7	March 3: Power and sample size	March 5: Power and sample size	HW 5	
7	March 10: Exam 1 Review	March 12: Exam 1		
9	March 17: Spring Break - No class	March 19: Spring Break - No class		
10	March 24: Factorial design	March 26: Factorial design	HW 7	7.2 to 7.4
11	March 31: Unbalanced designs	April 2: Multiple comparisons	HW 8	8.6 to 8.7, 9.1, 10.3
12	April 7: Random effects	April 9: Random effects	HW 9	10.1, 10.2
13	April 14: Nesting, mixed effects, and expected mean squares	April 16: Nesting, mixed effects, and expected mean squares	HW 10	11.1 to 11.3
14	April 21: Exam 2 Review	April 23: Exam 2 Review	HW 11	

Institutional Policies and Procedures

Generative AI
The use of any form of Generative AI (e.g., ChatGPT, iA Writer, DALL-E) is not permitted in this course. 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 (e.g., time-stamped drafts and notes; copies and links to source material). Any violation of these rules will be treated at the undergraduate level within the SMU Student Honor Code and at thegraduate 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.

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.

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 missed as a result of their participation. It is the responsibility of the student to make ar- rangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work.