EDP 480C 4: Correlation/Regression Methods

Unique: 13240

Fall 2026

Time:	Lecture: TTH 9:30 AM – 11:00 AM Lab: T 8:30 AM – 9:30 AM	**Location:**	SZB 3.808
Credits	4 credits		
Instructor:	Man Chen, Ph.D.	**Office:**	SZB 5.308L
Email:	man.chen@austin.utexas.edu	**Office hours:**	T 3:30 PM – 5:00 PM
TA:		**Office:**	
Email:		**Office hours:**	

Course Description

This course introduces the theory and application of correlation and regression techniques and provides a foundation for more advanced methods. The overall objective is to familiarize you with the theoretical foundations of correlation and regression, as well as their application to real-world data. In this course, you will learn how to specify, conduct, and interpret correlation analyses and regression models. All analyses will be conducted in R, an open-source programming language and environment for statistical computing and graphics.

Pre-requisites

- EDP 380C.2 Fundamental Statistics
- EDP 480C.6 Statistical Analysis for Experimental Data
- Experience with at least one statistical software for data management and analysis (e.g., R, SAS, Stata, Python, SPSS). For example, you should be able to load a dataset, calculate summary statistics for a set of variables in a dataset, create new variables and add them to a dataset, and create graphs.

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Learning Outcomes

By the end of this course, students will be able to

1. Understand the main concepts underlying correlation and regression methods;
2. Select and apply appropriate methods to answer research questions;
3. Make appropriate statistical inferences considering the underlying assumptions;
4. Interpret statistical results and communicate findings effectively.

Course Materials

Required Textbook

- Warner, R. M. (2013). Applied statistics: From bivariate through multivariate techniques (2nd ed.). Sage.

or

- Warner, R. M. (2020). Applied Statistics II: Multivariable and Multivariate Techniques (3nd ed.). Sage.

Recommended Textbooks

- Rasco, Danney (2020). An R Companion for Applied Statistics II: Multivariable and Multivariate Techniques (1st ed.). Sage.
- Fox, J. (2016). Applied Regression Analysis and Generalized Linear Models (3rd ed.). Sage. Online resources (appendix, data, etc.): https://www.john-fox.ca/AppliedRegression/index.html
- Fox, J., & Weisberg, S. (2018). *An R Companion to Applied Regression* (3rd ed.). Sage. Online resources (appendices, scripts, etc.): https://www.john-fox.ca/Companion/index.html
- Cohen, J., Cohen, P., West, S. G. & Aiken, L. (2003). *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences* (3rd ed.). New York: Taylor and Francis Group, Routledge Publishers.

Sharing of Course Materials Is Prohibited

No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets and additional problem sets, may be shared online or with anyone outside of the class without my explicit, written permission. Unauthorized sharing of materials may facilitate cheating. The University is aware of the sites used for sharing materials, and any materials found online that are associated with you, or any suspected unauthorized sharing of materials, will be reported to Student Conduct and Academic Integrity in the Office of the Dean of Students. These reports can result in initiation of the student conduct process and include charge(s) for academic misconduct, potentially resulting in sanctions, including a grade impact.

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Course Requirements, Grading, and Policies

Required Technology and Computing

Statistical Computing

We will use the R environment (R and R studio) for demonstrations in this class. In principle, you are welcome to use any other programs instead, but I won't be able to provide examples and technical support for any software not demonstrated in class.

R: https://www.r-project.org

RStudio: https://www.rstudio.com

Calculator

Students must have access to a calculator for performing mathematical computations (e.g., taking the square root, natural log, etc) during the midterm exam. During lectures and labs, students may use either a calculator or R for basic calculations.

Technical Support

Students who need assistance with technology for this course should contact Enterprise Technology.

Classroom Expectations

- **Class attendance.** Except for approved accommodation or unavoidable circumstances, in-person attendance is required. If you must miss a class, please notify me in advance whenever possible. You will be responsible for any course materials that you missed.
- **Class participation and feedback.** Student participation is an integral part of this course, and your feedback is important to me. Although class participation is not included in the course grade, I strongly encourage you to engage actively in labs and class activities and discussions. You will be invited to complete a survey at the beginning of the semester and another in the middle of the semester. Your feedback about your learning experience will help me adjust the course content and instruction so that everyone can learn as much as possible.
- **Respectful learning environment.** Please be respectful to each other and maintain a healthy learning environment in all course activities.

Classroom Recording Statement

HOP 2-9970 prohibits students from recording class instruction (audio or video) unless a student obtains the instructor's permission or Disability & Access has approved audio recording as an accommodation.

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Evaluation & Grading

- **Exit tickets (10% = 10 * 1%)**
    - **Ten** exit tickets will be administered throughout the semester to assess your understanding of each lecture's learning objectives. Each exit ticket will include one to three short questions and will be graded for completion.
- **Assignments (40% = 5 * 8%)**
    - **Five** assignments will be given to familiarize you with the correlation and regression methods and their applications in R. Students are expected to do some hand calculations, conduct analyses in R, and interpret the results. Assignments will be posted on Canvas, and the deadlines will be specified in class. Assignments should be submitted through Canvas. Students may discuss the homework assignments with others, but the responses should be your own work. Assignments should be submitted on time for full credit.
    - A late assignment will be accepted within two days after the due date but with a 20% of points deduction.
- **Exams (50%)**
    - **Midterm (20%):** There is an in-class midterm exam covering correlation, simple linear regression, and multiple linear regression.
    - **Final exam (30%):** There will be a take-home exam at the end of the semester. The final take-home exam will be cumulative, covering all topics that we discuss during the semester. **The exam will be distributed on Tuesday, December 1, 2026, and will be due by December 10th, 2026.** Students are expected to complete the exam individually without discussing the exam materials with other students. Students may ask clarification questions to the instructor.
    - There is no makeup for missed exams, unless arrangements are made with the instructor in advance.

Grade Breaks

A tentative rubric for assigning final grades is provided below. The instructor reserves the right to modify the rubric.

Grade	A	A−	B+	B	B−	C+	C	C−	D+	D	D−	F
Cutoff	93%	90%	87%	84%	80%	77%	74%	70%	67%	64%	60%	<60%

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AI Policy Statement

In accordance with the University's Institutional Rules on Student Services and Activities, Chapter 11, students accept the responsibility to always uphold academic integrity and an honor code reflective of a scholarly community devoted to academic and personal success. All members of the University community are fully accountable and responsible for any output they produce as part of academic work. They are also responsible for following the guidance specified in the Texas Statement on Academic Integrity and avoiding prohibited uses of generative AI tools outlined in the Information Security Office's guidance on Acceptable Use of Generative AI Tools.

In this course, generative AI use is partially permitted.

- **Generative AI use is strictly prohibited for the midterm and final exams at every stage of the work**. Students are not authorized to use AI to generate ideas, answer questions, solve problems, write or debug code, or create any output with any generative AI for the midterm and final exam. All work in the exams must be produced entirely on your own. Using generative AI tools for exams in this course may constitute academic misconduct under UT Austin's Institutional Rules and may be referred to Student Conduct and Academic Integrity in the Office of the Dean of Students for resolution.
- **Generative AI use shall be permitted on a partial basis for homework assignments in this course**, provided that students 1) use AI responsibly, 2) practice critical discernment and conduct meaningful human review of any output generated by AI, and 3) properly disclose use according to the disclosure policies in this syllabus. Unless an assignment provides different instructions, you may use generative AI to 1) obtain explanations of statistical concepts, 2) debug R code that you have written, or 3) receive grammar-level feedback on writing that you have drafted yourself. However, you are not allowed to upload or paste assignment questions and course materials into any generative AI tool. You may not ask AI to conduct analyses, produce all or part of an answer, or generate response for submission.
- **Disclosure**. If you use Generative AI tools on a homework assignment, you must disclose that use at the end of your submission. Descriptions of your use of AI tools should include: 1) the name and version of each tool; 2) the purpose(s) of using the AI tool; 3) a full description of how you used the tool; and 4) whether and how you reviewed and verified the output generated by the AI tools. Using AI tools without authorization or failing to disclose AI use, even when AI use is permitted, may constitute academic misconduct under UT Austin's Institutional Rules and may be referred to Student Conduct and Academic Integrity in the Office of the Dean of Students for resolution.

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Academic Integrity Expectations

Students who violate University rules on academic misconduct are subject to the student conduct process. A student found responsible for academic misconduct may be assigned both a status sanction and a grade impact for the course. The grade impact could range from a zero on the assignment in question up to a failing grade in the course. A status sanction can include a written warning, probation, deferred suspension or dismissal from the University. To learn more about academic integrity standards, tips for avoiding a potential academic misconduct violation, and the overall conduct process, please visit the Student Conduct and Academic Integrity website at: http://deanofstudents.utexas.edu/conduct.

Religious Holy Days

By UT Austin policy, you must notify me of your pending absence for a religious holy day as far in advance as possible of the date of observance. If you must miss a class, an examination, a work assignment, or a project to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Carrying of Handguns in My Personal Office

Per my right, I prohibit carrying of handguns in my personal office. Note that this information will also be conveyed to all students verbally during the first week of class. This written notice is intended to reinforce the verbal notification and is not a “legally effective” means of notification in its own right.

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Course Outline & Tentative Schedule

All instructions, assignments, readings, rubrics and essential information will be on the Canvas website. Check Canvas regularly. **Changes** to the schedule may be made at my discretion if circumstances require. I will announce any such changes in class and will also communicate them via a Canvas announcement. It is your responsibility to note these changes when announced, and I will do my best to ensure that you are notified of changes with as much advance notice as possible.

Week	Date	Lab Topics	Lecture Topics	Readings
Week 1	Aug. 25	Introduction to R	Course introduction	Syllabus; Warner Ch. 1-3
	Aug. 27		Review of statistical concepts	
Week 2	Sep. 1	Examining data	Bivariate relationship: correlation	Warner Ch. 7-8
	Sep. 3			
Week 3	Sep. 8	Bivariate relationship	Other bivariate correlations	Warner Ch. 7-8
	Sep. 10		Multivariate relationships	Warner Ch. 10 (p. 471-496), Ch. 11 (p. 530-536)
Week 4	Sep. 15	Multiple relationships	Simple linear regression	Warner Ch. 9; Fox Ch. 5.1, 6.1, 11-12
	Sep. 17			
Week 5	Sep. 22	Simple linear regression	Simple linear regression	
	Sep. 24			
Week 6	Sep. 29	Simple linear regression Cont.	Multiple linear regression	Warner Ch. 11 & 14; Fox Ch. 5.2, 6.2, 13
	Oct. 1			
Week 7	Oct. 6	Multiple linear regression	Multiple linear regression	
	Oct. 8		Midterm review	
Week 8	Oct. 13	Midterm practice problems	Regression with categorical predictors	Warner Ch. 12; Fox Ch. 7.1-7.2
	Oct. 15		**Midterm**	
Week 9	Oct. 20	Regression with categorical predictors	Regression with categorical predictors	Warner Ch. 12; Fox Ch. 7.1-7.2

Week	Date	Lab Topics	Lecture Topics	Readings
	Oct. 22		Modeling interactions	Warner Ch. 15; Fox Ch. 7.3-7.4
Week 10	Oct. 27	Interaction	Modeling interactions	
	Oct. 29			
Week 11	Nov. 3	Interaction Cont.	Mediation	Warner Ch. 16
	Nov. 5			
Week 12	Nov. 10	Mediation	Logistic regression	Warner Ch. 23; Fox Ch. 14.1
	Nov. 12			
Week 13	Nov. 17	Logistic regression	Model building, comparison, and selection	Fox Ch. 22
	Nov. 19			
Week 14	Nov. 24 Nov. 26	Fall break/Thanksgiving; no classes		
Week 15	Dec. 1	Model building	Power	
	Dec. 3		Wrap-up	

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How Will You Learn?

Teaching Modality Information

This is a fully in-person course. The lectures and labs will be held in-person throughout the semester. As such, in-person attendance is expected, other than normal emergency accommodations. There will be no course recording.

Communication

The course Canvas site can be found at https://utexas.instructure.com/courses/1458825. All the readings, lecture notes, lab materials, assignments, exams, and announcements are posted on Canvas. You are responsible for ensuring that the primary email address you have recorded with the university is the one you will check for course communications because that is the email address that Canvas uses.

Asking for Help

Learn as much as possible. You're welcome to ask questions during class. If there is not enough time, please come to the office hours. If you can't make it to the office hours, please make arrangements with me or the TA in advance.

Accessible/Compliant Statement

If you are a student with a disability, or think you may have a disability, and need accommodations, please contact Disability and Access (D&A). Contact and more details are available on D&A's website: http://disability.utexas.edu. If you are already registered with D&A, please share your accommodation letter with me as early as possible in the semester so we can discuss how your approved accommodations will be implemented in this course.

University Policies and Resources for Students

Please refer to the University Policies and Resources for Students Canvas page for a list of resources that are important for you as you engage with and navigate your course and the university.