

STAT 5385/ STAT 6385: Statistics in Research

CRN: 10811/ 15670

Fall 2023

TR: 1:30 pm - 2:50 pm

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COURSE DESCRIPTION

Regression analysis is often used in investigating relationships among different variables, with the goal of developing predictive models for some variables. This graduate level course provides an introduction to regression analysis. Topics include simple regression and multiple regression, inference for regression parameters, confidence and prediction intervals, model diagnostics and remedial measures, model selection, dummy variables, logistic regression, and generalized linear model. Other topics include nonlinear regression and nonparametric data smoothing techniques. Statistical software (R) will be used for data analysis.

COURSE OBJECTIVES OR EXPECTED LEARNING OUTCOMES

At the end of this course, students will be expected to:

- Identify specific method(s) require for a particular research problem,
- Derive regression model and other related statistical methods *analytically* for analyzing the data,
- Use tools and techniques to check underlying assumptions of the methods and apply remedial measures when the model assumptions violate,
- Use statistical software R to analyze data, interpret outputs, and summarize the results.

REQUIRED MATERIALS

Required Text: Applied Linear Statistical Models by Kutner, Nachtsheim, Neter, and Li, 5th edition, McGraw-Hill, 2004.

Other Recommended Texts:

1. Introduction to mathematical statistics by Hogg, McKean, and Craig, 8th edition, Pearson Education, 2019.
2. An Introduction to Generalized Linear Models by Dobson and Barnett, 4th edition, Chapman and Hall/CRC, 2018.

R software:

R is a free software that can be downloaded onto your personal computer. Installation of R is a two step process:

1. The base R framework is available for download at <https://cran.r-project.org/>
2. RStudio is a good integrated development environment to R (makes it simpler to work in R) and can also be downloaded for free at <https://www.rstudio.com/products/rstudio/>

A R software manual: An Introduction to R: <https://cran.r-project.org/doc/manuals/r-release/R-intro.pdf>

COURSE ASSIGNMENTS AND GRADING

Homework/R project will be assigned every week. The due dates will be announced in the class/Blackboard. Three (closed notes and closed book) exams will be taken. The exams will be based on homework, lecture notes, and material covered from the textbook. One 8.5" x 11" page with handwritten notes will be allowed for the exams. Exam dates will be announced in class/Blackboard.

Grade Distribution:

Homework/ R Project: 15%
Exam 1: 20%
Exam 2: 25%
Exam 3: 25%
Final Project: 15%

LATE WORK and MAKE-UP EXAMP

No late work will be accepted if the reason is not considered excusable. No make-up exam will be given unless there is a documented emergency.

Grading Scale

The usual grading scale will be used for this course:

90–100% = A
80–89% = B
70–79% = C
60–69% = D
0–59% = F

EXCUSED ABSENCES AND/OR COURSE DROP POLICY

According to UTEP Curriculum and Classroom Policies, “When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of “W” before the course drop deadline and with a grade of “F” after the course drop deadline.” See academic regulations in the UTEP Undergraduate Catalog for a list of excuse absences. Therefore, if I find that, due to non-performance in the course, you are at risk of failing, I will drop you from the course. I will provide 24 hours advance notice via email.

OR

I will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the [Registrar's Office](#) to initiate the drop process. If you do not, you are at risk of receiving an “F” for the course.

ACCOMMODATIONS POLICY

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#) (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at cass@utep.edu, or apply for accommodations online via the [CASS portal](#).

SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

COPYRIGHT STATEMENT FOR COURSE MATERIALS

All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. They may not be further disseminated.

Course Resources: Where you can go for assistance

UTEP provides a variety of student services and support:

Technology Resources

- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

Academic Resources

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

Individual Resources

- [Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.
- [Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.
- [Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.