

SYLLABUS
CJ 7321.251 – Linear Regression for Criminal Justice Research
SPRING 2021

INSTRUCTOR: Sean Patrick Roche, PhD (sean.roche@txstate.edu)
OFFICE: HILL HOUSE 110

CLASS MEETING: 12:00 PM – 1:25 PM Tuesdays & Thursdays VIA ZOOM:
<https://txstate.zoom.us/j/96163878161?pwd=c08zdUR4cFFkNEU2RWp6eDc3Q3pnUT09>
Meeting ID: 961 6387 8161
Passcode: 361439

OPTIONAL SYNC. 3:30 PM – 5:00 PM Tuesdays
DISCUSSION: 12:00 PM – 2:00 PM Wednesdays
AND BY APPOINTMENT
<https://txstate.zoom.us/j/95640680168?pwd=bkRaZktWeURKSy9RYitRYVBUUZmZz09>
Meeting ID: 956 4068 0168
Passcode: 321757

Course Description:

Instruction on the use of advanced linear modeling techniques in criminal justice research is addressed. After completing this course, students should be able to evaluate quantitative research articles in the major criminal justice journals and be prepared to complete a major quantitative research project of their own.

Course Learning Objectives:

This course provides an introduction to multivariate regression analysis. Topics include estimation, bivariate and multivariate regression models, model assumptions and diagnostics, and statistical interactions. These topics will receive theoretical treatment, but this is not a mathematical statistics or calculus-based course. The objective of the course concerns the application of the techniques and the interpretation of estimates generated with statistical software (Stata and R). This doctoral-level course is for students who intend to engage in quantitative data analysis for research purposes. After completing this course, students should be able to evaluate quantitative research articles in the major criminal justice journals and be prepared to complete a begin their own quantitative research projects.

The course assumes students have the basic understanding of statistics provided by CJ 7323.

Required Texts:

- Gelman, Andrew, Hill, Jennifer, & Vehtari, Aki. (2020). *Regression and other stories*. Cambridge University Press. ISBN-13: 978-1107676510.
- Supporting data and code: <https://avehtari.github.io/ROS-Examples/>

COURSE REQUIREMENTS AND GRADING

Attendance: Class attendance is *essential* to both learning and performance, and any absences will be noted. In the event of an absence, students are responsible for all material covered in class, and for any announcements or assignments.

In-Class Technology Policy:

Laptop computers are allowed in class for the purpose of taking class notes. Emailing or unrelated Internet use is not allowed during class. Smartphones are permitted provided that they are switched to vibrate mode. No calls, texting, gaming, etc. during class. **If you violate this policy, you may be asked to leave class for the day.**

Quizzes (100 points):

There will be 10 quizzes worth 10 points each spread across the semester.

Exams (300 points):

There are three (3) exams during the semester. Each exam is worth 100 points. Exams are take-home assignments due approximately one week after they are assigned. The subjects we cover are generally cumulative in nature. As a result, areas covered earlier in the course will be relevant throughout the entire course.

- Policy for Missed Exams: Make-up exams will only be allowed in:
 - a. Cases of injury or illness requiring treatment at home or in a hospital including any temporary medical condition (e.g., pregnancy);
 - b. Death of a family member;
 - c. Required participation in a university-sponsored activity (UPPS No. 02.06.03);
 - d. A field trip or off-campus activity required for a non-elective course essential to the student's degree program;
 - e. Required participation in active military service (UPPS No. 02.06.03);
 - f. Official religious holy days (UPPS No. 02.06.01).

Grading: The final grade will be based on the following scale:

- 400 – 332 points = A
- 331 – 252 points = B
- 251 and below = C

Weekly Quizzes	100 points	25%
Exam 1	100 points	25%
Exam 2	100 points	25%
Exam 3	100 points	25%
Total Points	400 points	100%

Syllabus Change Policy:

This syllabus is designed to be a resource that students should refer to throughout the semester. While this syllabus lists readings and exam dates, students should also refer to Canvas for the most up-to-date information regarding the course.

Honor Code and Code of Student Conduct:

All students taking classes in Criminal Justice must subscribe to the Texas State University Honor Code (<http://www.txstate.edu/honorcodecouncil/Academic-Integrity.html>) and Code of Student Conduct (<http://www.dos.txstate.edu/handbook/rules/cosc.html>). Failure to adhere to any component of these documents may entail consequences ranging from serious (e.g. unexcused absences, zero points assigned for exam grades, etc.) to severe (a course grade of “F” or even dismissal from the University).

Disability Statement:

In accordance with University policy and federal law, reasonable and appropriate accommodations will be made for qualified students with disabilities. Students with disabilities are asked to contact the Office of Disabilities Services who will then coordinate with the instructor on any necessary accommodations. For more information contact:

Office of Disabilities Services
LBJ Student Center, Suite 5-5.1
601 University Drive
San Marcos, TX 78666
Phone: (512) 245-3451 (voice/TTY)
Fax: (512) 245-3452
<http://www.ods.txstate.edu/>

Statement on Civility and Compliance in the Classroom

Civility in the classroom is very important for the educational process and it is everyone’s responsibility. If you have questions about appropriate behavior in a particular class, please address them with your instructor first. Disciplinary procedures may be implemented for refusing to follow an instructor’s directive, refusing to leave the classroom, not following the university’s requirement to wear a cloth face covering, not complying with social distancing or sneeze and cough etiquette, and refusing to implement other health and safety measures as required by the university. Additionally, the instructor, in consultation with the department chair/school director, may refer the student to the Office of the Dean of Students for further disciplinary review. Such reviews may result in consequences ranging from warnings to sanctions from the university. For more information regarding conduct in the classroom, please review the following policies at AA/PPS 02.03.02, Section 03: Courteous and Civil Learning Environment, and Code of Student Conduct, number II, Responsibilities of Students, Section 02.02: Conduct Prohibited.

Campus Health, Wellness, and Safety

- Reminder of the [10 Guiding Principles for Health, Safety, and Wellness](#) at Texas State, including requirement to wear a [cloth face covering](#) and perform a [self-assessment](#) each day before coming to campus.
- Importance of the [Bobcat Pledge](#), including the shared responsibility to practice healthy behaviors and follow the health and safety guidelines, which shows respect for others and helps prevent the spread of COVID-19 on campus and in the surrounding community.
- Please see the [Student Roadmap](#) for more information on students’ return to campus.

TENTATIVE COURSE CALENDAR

Gelman et al. (2020) **must be purchased/rented**. All other readings are available on Canvas.

Week 1	Jan 19 & 21	Course Introduction, Data and Measurement
		<ul style="list-style-type: none"> Chapters 1 & 2, Gelman et al. (2020)
Week 2	Jan 26 & 28	Probability and Statistical Inference
		<ul style="list-style-type: none"> Chapters 3 – 5, Gelman et al. (2020)
Week 3	Feb 2 & 4	Background on Regression
		<ul style="list-style-type: none"> Chapter 6, Gelman et al. (2020)
Week 4	Feb 9 & 11	Linear Regression with a Single Predictor
		<ul style="list-style-type: none"> Chapter 7, Gelman et al. (2020) <i>February 11 – Exam 1 Distributed</i>
Week 5	Feb 16 & 18	Fitting Regression Models
		<ul style="list-style-type: none"> Chapter 8, Gelman et al. (2020) <i>February 18 – Exam 1 Due</i>
Week 6	Feb 23 & 25	Prediction, Frequentist and Bayesian Inference
		<ul style="list-style-type: none"> Chapter 9, Gelman et al. (2020)
Week 7	Mar 2 & 4	Linear Regression with Multiple Predictors
		<ul style="list-style-type: none"> Chapter 10, Gelman et al. (2020)
Week 8	Mar 9 & 11	Assumptions, Diagnostics, and Model Evaluation
		<ul style="list-style-type: none"> Chapter 11, Gelman et al. (2020)
Week 9	Mar 15 – 19	SPRING BREAK, Transformations
		<ul style="list-style-type: none"> Chapter 12, Gelman et al. (2020), sections 12.1 to 12.4
Week 10	Mar 23 & 25	Transformations (continued)
		<ul style="list-style-type: none"> Chapter 12, Gelman et al. (2020), sections 12.5 to 12.7 <i>March 25 – Exam 2 Distributed</i>
Week 11	Mar 30 & Apr 1	Logistic Regression
		<ul style="list-style-type: none"> Chapter 13, Gelman et al. (2020) <i>April 25 – Exam 2 Due</i>
Week 12	Apr 6 & 8	Design and Sample Size
		<ul style="list-style-type: none"> Chapter 16, Gelman et al. (2020)
Week 13	Apr 13 & 15	Poststratification and Imputing Missing Data
		<ul style="list-style-type: none"> Chapter 17, Gelman et al. (2020)
Week 14	Apr 20 & 22	Randomized Experiments and Regression
		<ul style="list-style-type: none"> Chapter 18 & 19, Gelman et al. (2020)
Week 15	Apr 27 & 29	Advanced Regression Techniques
		<ul style="list-style-type: none"> Chapter 22, Gelman et al. (2020)

Week 16 **FINALS WEEK**

- *May 5 – Exam 3 Distributed*
 - *March 12 – Exam 3 **Due***
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