1 Instructor Information

J. Tobin Grant, Professor
Phone: 618.453.3167
Email: grant@siu.edu
Office: Faner 3124
Office Hours: 10:00-12:00 M,T,Tr
Class Location: Faner 3173
Course Time: Monday, 2:00-4:30

2 Course Description

A seminar in regression and other statistical modeling in political science. The course covers in-depth linear models (estimation, inference, and diagnostic testing of assumptions) and introduces other models commonly used in political science, including models of limited dependent variable models and time series models.

3 Course Objectives

This course is required of all doctoral students in political science. Graduate students from other departments also enroll in the course. Students have a range of goals, from meeting a requisite to starting a career as a political methodologist. Regardless, the course goals are the same for all students:

- Develop an intuitive understanding of statistical models that will allow one to read and appreciate research employing statistical analysis.
- Acquire proficiency in applied statistical modeling. Students will be able to evaluate, use, and teach statistical modeling.
- Provide a foundation for further study on specific statistical models.
- Understand the basic terrain of quantitative political methodology as a subfield within the discipline.

4 Books

5 Assessment

Problem Sets (60%)  
After each class, there will be a problem set. Most problem sets will focus on the application of methods using STATA. Each problem set is weighted equally.

Research Poster (30%)  
Each student will conduct independent, original research using statistical methods covered in the course. The results of this research will be presented as a poster at the end of the semester. We will hold an open poster session May 7.

Exam (10%)  
An open-book, take-home exam will be given. The exam will be administered online and will be a timed exam (two hours). The questions for the exam will be similar to those found on a methodology preliminary exam.

6 Course Schedule

All readings should be completed prior to the class and then reviewed after the class. Readings marked with † are (highly) recommended, but not required.

January 14 Linear Regression Model
  • Long Ch. 2 †
  • Gujarati 2-4
  • Gujarati Appendix A †

January 28 Inferences Using Linear Regression Model
  • Gujarati 5-8
  • Kennedy 4†
February 4 Linear Regression Model, Under the Hood
  - Gujarati Appendix B†
  - Gujarati Appendix C

February 11 Multiplicative and Nonlinear Equations
  - Gujarati 9, 14
  - Kennedy 6, 11

February 18 Assumptions of and Diagnostics for Linear Regression Models
  - Kennedy 3, 8, 9
  - Gujarati 10-12

February 25 Model Specification
  - Gujarati 1,13
  - Kennedy 5


March 4 Dynamic Processes

• Gujarati 17

• Kennedy 17


March 11 Spring Break

March 18 Panel Data

• Gujarati 16


March 25 Time Series Models

• Gujarati 21-22


April 1 Modeling Dichotomous Outcomes

- Long Ch. 3-4
- Gujarati 15†

April 8 Modeling Ordinal and Nominal Outcomes

- Long 5-6
- Kennedy 15†

April 15 Modeling Censored and Truncated Outcomes

- Long 7
- Kennedy 16

April 22 Modeling Count Data

- Long 8


April 29 Additional Topics in Modeling


May 7 FINAL EXAM 5:50 - 07:50 p.m.