EPPS 6316 Applied Regression
Fall Semester 2015

Instructor: Dr. James R. Harrington
Time: Tuesday 7:00pm-9:45pm
Class Location: GR 4.204
Phone: 972-883-3513
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Office: GR 2.820
Office Hours: Tuesday/Thursday 2 to 3 or by appointment

Course Description:

This course provides a survey of the bivariate and multiple regression models estimated using Ordinary Least Squares (OLS), with an emphasis on using regression models to test social and economic hypotheses. This application-focused course presents examples drawn from economics, political science, public policy and sociology, introduces the basic concepts and interpretation of regression models, and basic methods of inference. Topics are supported by computer-supported data analyses.

Learning Objectives/Outcomes

- Appropriate application of the OLS model (knowing when and where regression can be applied)
- Understand the assumptions of the OLS model (what conditions must be met in order for the OLS model to be applied and the results be meaningful)
- Diagnose problems with the OLS model (recognize when an OLS assumption is violated and how to diagnose it)
- Identify corrective measures (know how to modify the analysis when assumptions are violated)
- Interpret findings (be able to interpret the substantive meaning of OLS regression results)
- Develop a comprehensive understanding of applied regression in social science research

Prerequisite

If you have not taken the prerequisite (EPPS 6313 or equivalent) for this class, contact Dr. James Harrington for permission to enroll.

> Prerequisite: EPPS 6313 - Introduction to Quantitative Methods - This introductory graduate-level statistics course is geared to the consumption of statistical methods commonly used in social science research. Topics include creating and interpreting graphical and tabular summaries of data, descriptive statistics, basic probability theory, sampling distributions, basic hypothesis testing (t-tests, chi-square tests, and analysis of variance), estimation of population parameters, confidence intervals and correlation. An introduction to regression analysis will also be provided. Topics are supported by computer-supported data analyses.

Format: The course will meet from 4:00-6:45 P.M. in GR 4.204 on Thursday from August 22 through December 15. Class sessions will consist of small group activities, exercises, workshops, seminar-style discussions, and lectures.

Required Texts:

Mendenhall, W. and Sincich, T. (2011). A Second Course in Statistics: Regression Analysis (7th Edition). ISBN-10: 0321691695

Other required readings will be available electronically via our eLearning course page and/or available for reserve at the Eugene McDermott Library.

Citation Style

For your papers, you should use either APA or Chicago style. I expect students to be consistent in regards to formatting, citations, and references. For more information, please refer to one of these style manuals.

> Turabian, Kate L. 2007. *A Manual for Writers of Research Papers, Theses, and Dissertations.* 7th ed. Chicago: The University of Chicago Press.
>
> American Psychological Association. (2009). Publication Manual of the American Psychological Association, 6th Edition.

Grading Policy

Assignments

		Grading for this course shall be structured as follows:
Exam 1	25%	93-100=A, 90-92=A-
Exam 2	30%	87-89=B+, 83-86=B, 80-82=B-
Case Study	15%	77-79=C+, 73-77=C, Below 73=F.
Homework (4 assignments)	20%	
Participation	10%	
Total	100%	

Course Requirements

1) *Class preparation and participation* - Students are expected to do all required readings prior to class and must be able to demonstrate comprehension and adequate reflection of the material.
2) *Assignments*
    - Homework 1: 3.1; 3.3; 3.5; 3.7; 3.11; 3.13; 3:15; 3.17; 3.23; 3.31
    - Homework 2: 3.41; 3.83; 4.3; 4.5; 4.7; 4.9; 4.11; 4.13; 4.19
    - Homework 3: 7.1; 7.3; 7.5; 7.11; 7.15; 8.1; 8.3;
    - Homework 4: 8.11; 8.17; 8.21; 8.25; 8:31; 8.33; 8.43; 9.23; 9.25
3) *Exam 1 -* October 11
4) *Exam 2 -* December 6
5) *Case Study -* 10 to 12-page research paper on a single topic. I will provide you a dataset; however, you may request to use another dataset instead. This paper will include a brief literature review, data and method section, data analysis, and a discussion of the findings. You will leverage the skills you learned in class to write an applied research paper.

Course & Instructor Policies

Attendance Policy

Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. Because of the importance of attendance and active participation in the design of the course, more than three absences mean that your academic credit for the course is in jeopardy. If for some reason, you must miss a class, please phone or e-mail faculty in advance. It is especially important not to miss course if possible given the course only meets once per week.

Late work

No late paper will be read (any exceptions owing to special circumstances must be arranged in advance of the due date).

Electronic Device

You will be allowed to take notes and access articles on your laptop or tablet. You are expected to use electronic devices for coursework-related activities. Please be respectful to your colleagues and resist the urge to surf the internet. Please remember to keep your cell ringer off during class time.

AccessAbility Services

It is the policy and practice of The University of Texas at Dallas to make reasonable accommodations for students with properly documented disabilities. However, written notification from the Office of Student AccessAbility (OSA) is required. If you are eligible to receive an accommodation and would like to request it for this course, please discuss it with your professor and allow one week advance notice. Students who have questions about receiving accommodations, or those who have, or think they may have, a disability (mobility, sensory, health, psychological, learning, etc.) are invited to contact OSA for a confidential discussion. OSA is located in the Student Services Building, SSB 3.200. They can be reached by phone at 972-883-2098, or by email at studentaccess@utdallas.edu.

Student Conduct and Discipline

The University of Texas System (Regents' Rule 50101) and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UT Dallas online catalogs (http://catalog.utdallas.edu).

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the Student Code of Conduct, UTDSP5003 (http://policy.utdallas.edu/utdsp5003). Copies of these rules and regulations are available to students in the Office of Community Standards and Conduct, where staff members are available to assist students in interpreting the rules and regulations (SSB 4.400, 972-883-6391) and online at https://www.utdallas.edu/conduct/.

A student at the University neither loses their rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating its standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such conduct.

Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrates a high standard of individual honor in his or her scholastic work.

Academic Dishonesty: Academic dishonesty can occur in relation to any type of work submitted for academic credit or as a requirement for a class. It can include individual work or a group project. Academic dishonesty includes plagiarism, cheating, fabrication, and collaboration/collusion. In order to avoid academic dishonesty, it is important for students to fully understand the expectations of their professors. This is best accomplished through asking clarifying questions if an individual does not completely understand the requirements of an assignment.

Additional information related to academic dishonesty and tips on how to avoid dishonesty may be found here: https://www.utdallas.edu/conduct/dishonesty/.

Sharing Confidential Information

Students considering sharing personal information in email, in person, or within assignments or exams should be aware that faculty members and teaching/research assistants are required by UT Dallas policy to report information about sexual misconduct to the UT Dallas Title IX Coordinator. Per university policy, faculty have been informed that they must identify the student to the UT Dallas Title IX Coordinator. Students who wish to have confidential discussions of incidents related to sexual harassment or sexual misconduct should contact the Student Counseling Center (972-883-2527 or after hours 972-UTD-TALK or 972-883-8255), the Women's Center (972-883-8255), a health care provider in the Student Health Center (972-883-2747), the clergyperson (or other legally recognized religious advisor) of their choice, or an off-campus resource (i.e., rape crisis center, doctor, psychologist). Students who are sexually assaulted, harassed, or victims of sexual misconduct, domestic violence, or stalking, are encouraged to directly report these incidents to the UT Dallas Police Department at 972-883-2222 or to the Title IX Coordinator at 972-883-2218. Additional information and resources may be found at http://www.utdallas.edu/oiec/title-ix/resources.

Campus Carry

The University's concealed handgun policy is posted on the campus carry website: https://www.utdallas.edu/campuscarry/

Student Grievance Procedures

Procedures for student grievances are found in university policy UTDSP5005 (http://policy.utdallas.edu/utdsp5005). In attempting to resolve any student grievance regarding disputes over grades, application of degree plan, graduation/degree program requirements, and thesis/and dissertation committee, adviser actions and/or decisions, evaluations, and/or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originated.

Incomplete Grade Policy

As per university policy, incomplete grades may be given, at the discretion of the instructor of record for a course, when a student has completed at least 70% of the required course material but cannot complete all requirements by the end of the semester. An incomplete course grade (grade of 'I') must be completed within the time period specified by the instructor, not to exceed eight (8) weeks from the first day of the subsequent long semester. Upon completion of the required work, the symbol 'I' may be converted into a letter grade (A through F). If the grade of Incomplete is not removed by the end of the specified period, it will automatically be changed to F.

Withdrawal from Class

The administration at UT Dallas has established deadlines for withdrawal from any course. These dates and times are published in the Comet Calendar (http://www.utdallas.edu/calendar) and in the Academic Calendar http://www.utdallas.edu/academiccalendar). It is the student's responsibility to handle withdrawal requirements from any class. In other words, a professor or other instructor cannot drop or withdraw any student unless there is an administrative drop such as the following:

- Have not met the prerequisites for a specific course

- Have not satisfied the academic probationary requirements resulting in suspension

- Office of Community Standards and Conduct request

- Have not made appropriate tuition and fee payments

- Enrollment is in violation of academic policy

- Was not admitted for the term in which they registered

It is the student's responsibility to complete and submit the appropriate forms to the Registrar's Office and ensure that he or she will not receive a final grade of "F" in a course if he or she chooses not to attend the class after being enrolled.

Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose

places of worship are exempt from property tax under Section 11.20, Tax Code, *Texas Code Annotated*.

The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment.

If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of *TEC 51.911(b)*, and the student and instructor will abide by the decision of the chief executive officer or designee.

UT Dallas Syllabus Policies and Procedures

The information below constitutes the University's policies and procedures segment of course syllabi and may be referenced by faculty members in their course syllabi.

Please use the following permanent address when referring to this page: http://go.utdallas.edu/syllabus-policies

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Course Outline

Date	Topic	Assignments Due
Session 1: August 23	Introduction to the Course	
Session 2: August 30	Introduction to Regression Analysis	
Session 3: September 6	Simple Regression	
Session 4: September 13	Simple Regression	**HW1**
Session 5: September 20	Multiple Regression	
Session 6: September 27	Multiple Regression	**HW2**
Session 7: October 4	Quantitative and Qualitative Independent Variables	
Session 8: October 11	**Exam 1**	
Session 9: October 18	Multicollinearity, Extrapolation, and Heteroscedasticity	
Session 10: October 25	The Normality Assumption, Outliers, and Detecting Residual Correlation	
Session 11: November 1	Linear Probability Model/Logistic Regression	**HW3**
Session 12: November 8	Logistic Regression/Ordinal/Multinomial Regression and Weighted Least Squares	
Session 13: November 15	Case Study Workshop	**HW4**
No Class November 22	**Thanksgiving Break**	
Session 14: November 29	Review	**Case Study Due**
Session 15: December 6	**Exam 2**	

Reading List

Session 1: Introduction to the Course

Read - Chapter 1 (Review Prior Course Materials)

Session 2: Introduction to Regression Analysis / Introduction to Data Analysis

Chapter 2.1-2.4

Session 3: Simple Regression

Chapter 3.1-3.6

Session 4: Simple Regression

Chapter 3.7-3.10

Session 5: Multiple Regression

Chapter 4.1-4.9

Session 6: Multiple Regression

Chapter 4.10-4.11, 4.13-4.14

Session 7: Quantitative and Qualitative Independent Variables

Chapter 4.12, Chapter 5.7-5.10

Session 8: Exam 1

Session 9: Multicollinearity, Extrapolation, and Heteroscedasticity

Chapter 7.1-7.6, Chapter 8.1-8.3

Session 10: The Normality Assumption, Outliers, and Detecting Residual Correlation

Chapter 8.4-8.7

Session 11: Linear Probability Model/Logistic Regression

Chapter 9.6

Session 12: Logistic Regression/Ordinal/Multinomial Regression and Weighted Least Squares

Chapters 9.4-9.6

Cutt et al. 2008. "Understanding Dog Owners' Increased Levels of Physical Activity." American Journal of Public Health. Vol 98(1): 66-69.

Session 13: Case Study Workshop in the Computer Labs

Session 14: Review for the Final

Session 15: Exam 2

Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student's U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

These descriptions and timelines are subject to change at the discretion of the Professor.