

University of Central Oklahoma
Department of Economics
Advanced Business Statistics (ECON 5453)
Course Syllabus – Fall 2019

Instructor: Travis Roach
Place and Time: TR, 3:30-4:45 BUS 111
Office: Thatcher Hall 221
Office Hours: M 6:00-8:00, or by appointment
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Reading Material

Required Books

- Mastering Metrics: The Path from Cause to Effect
 - Joshua Angrist and Jorn-Steffen Pischke

Supplemental Books

- Econometric Analysis
 - William H. Greene

Software

- This course uses SAS software to complete all assignments

Course Description

General linear models for estimation and hypothesis testing, policy analysis, and interpretations of various statistical models. The topics treated include general linear and nonlinear regression models, inferences in regression analysis, multivariate analysis, analysis of categorical data, panel data methods, time-series forecasting, and topics in sampling techniques and machine learning.

Transformative Learning Objectives

The University and the College of Business are committed to providing students transformative learning experiences in six core areas: **discipline knowledge; leadership; research, creative and scholarly activities; service learning and civic engagement; global and cultural competencies; and health and wellness.** This class supports these goals by providing significant opportunities for the acquisition of discipline knowledge, creative and scholarly activities, leadership, and global and cultural competencies.

Learning Outcomes

Upon completion of this course, students should be able to:

1. Demonstrate their knowledge of hypothesis testing and regression analysis
2. Demonstrate their knowledge of cross-sectional, time-series, and panel data methods
3. Demonstrate their knowledge of limited or binary dependent variable models
4. Demonstrate their knowledge of sampling, matching, and other synthetic control methods

Methods of Assessing the Expected Learning Outcomes

The expected learning outcomes for the course will be assessed through exams, in-class application activities, graded and non-graded quizzes, class discussion and participation, and homework.

Description of How Grades are Determined

Exams

There will be 2 midterm exams that apply the methodologies learned in class to real-world data. The data and questions for these tests will be given with one week allowed for preparation of a written analytical report.

Each midterm exam is worth 30% of the final grade. Thus, the 2 midterm exams weigh 60% of your total final grade.

Class Activities/Quizzes/Homework

These will account for 20% of your final grade. Details will be discussed on an assignment –by-assignment bases with you in class.

Independent Research Assignment

This is a semester-long task that will have multiple iterations. The first two ‘peer review’ and data collection assignments will count as homework grades. The final submission and presentation will be worth 20% of your final grade. Details will be distributed as the semester progresses.

Grading Scale

A = 89.5% - 100%
B = 79.5% - 89.49%
C = 69.5% - 79.49%
D = 59.5% - 69.49%
F = 0% - 59.49%

Exams =	60%
Class Activities =	20%
Independent Research =	20%

Extra Credit Policy

There is no extra credit policy offered in this course.

Notes

1. Students are expected to assist in maintaining a classroom environment which is conducive to learning. In order to assure that all students have an opportunity to gain from time spent in class, unless otherwise approved by the instructor, **students are prohibited from using cellular phones, eating or drinking in class, making offensive remarks, using laptops for nonrelated class activities, reading newspapers, sleeping or engaging in any other form of distraction.** Inappropriate behavior in the classroom shall result in, minimally, a request to leave class.
2. Attendance is **REQUIRED** and will be **MONITORED** throughout the semester. Incidences of excessive absence will be dealt with in a manner consistent with University policy and procedures.
3. All MBA courses follow the Fatal Error Policy, which means all written assignments must meet minimal presentation standards to be acceptable for grading. These standards address spelling, punctuation, format, and basic grammar. The term Fatal Errors refers to technical American English errors of form. Specifically, they include the following: a) each different word misspelled; b) each sentence fragment; c) each run-on sentence or comma splice; d) each mistake in capitalization; e) each serious error in punctuation that obscures meaning; f) each error in verb tense or subject/verb agreement; g) lack of conformity with assignment format; and, h) each improper citation, or lack of citation, where one is needed. Papers with more than three (3) fatal errors marked by an instructor on any one page, will need to be revised and resubmitted as shared in the pass/fail policy.
4. The University of Central Oklahoma complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Students with disabilities who need special accommodations must make their requests by contacting Disability Support Services, at (405) 974-2516. The DSS Office is located in the Nigh University Center, Room 305. Students should also notify the instructor of special accommodation needs as soon as possible. Per Title IX of the Education Amendments of 1972 ("Title IX"), pregnant and parenting students may request adjustments by contacting the Title IX Coordinator, at (405) 974-3377 or TitleIX@uco.edu. The Title IX Office is located in the Lillard Administration Building, Room 114D.
5. Student Absence for Observation of Religious Holy Days. A student who is absent from classes for the observation of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence if, not later than the fifteenth day after the first day of the semester, the student had notified the instructor of each scheduled class that the student would be absent for a religious holy day.
6. **ACADEMIC AFFAIRS INFORMATION SHEET:** The University of Central Oklahoma Student Information Sheet and Syllabus Attachment is available and currently located at the URL provided below. Students are required to read and familiarize themselves with this document. The information contained in this document is considered part of the course syllabus. <http://www.uco.edu/academicaffairs/FORMS/StudentInfoSheet.pdf>
7. Any instance of cheating will result in an (F) for the course. The instructor reserves the right to pursue the matter further.

Outline of Topics

Week	Topic(s)
1	Statistics background primer,
2	Multivariate analysis (cross-sectional), Gauss-Markov assumptions
3	Sampling, Data generating Processes, Sources of bias
4	Single restriction, multiple restriction hypothesis testing
5	Multicollinearity, micronumerosity
6	Heteroskedasticity, Autocorrelation
7	Time-series methods
8	Panel data methods
9	Panel data methods
10	Treatment-effects
11	Causality, confounder and collider biases
12	Advanced topics (Logit, Probit, Binomial Regression, etc.)
13	Advanced topics (Bayesian Analysis, Machine Learning, AI)
14	Independent Research Presentations