

**SEMESTER AND YEAR: Fall 2018**

**COURSE SYLLABUS**

# LOCATOR INFORMATION:

Course Name: ECON 6010 Statistical Methods

Credit Hours: 03

**Professor**: Dr. Fadi Fawaz

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**Office Hours**: .

* W: 12:00 am – 3:00 pm
* T: 1:00 pm – 2:00 pm
* Or by appointment.
* By email anytime

**Reading Material:**

1. Textbook: Wooldridge, J. M. (2016) Introductory Econometrics: A Modern Approach (6th edition), ISBN: 978-1305270107. Mason, OH: Southwestern Cengage Learning.
2. Class Notes.
3. Recommended readings will be announced in class.

**Learning Outcomes:**

This course is an introduction to Econometrics at the master’s level with emphasis on empirical econometric modeling. It is designed to provide the necessary concepts, tools and techniques for analyzing and modeling economic data and drawing conclusions from such data. In this course, we will introduce the Classical Linear Regression model. We will focus on its assumptions and optimality properties. We will learn how to use misspecification testing to examine the validity of the underlying assumptions and develop better models. A major feature of the course are the computer-based exercises which will enable students to obtain considerable practical experience in analyzing real economic data and a wide variety of econometric problems.

**Software:**

We will be using **STATA** for all the applied homework assignments. **STATA** is an interactive user-friendly statistical package and is available in several campus computer labs.

**Grading Scheme:**

A 90% and above

B 80% to 89%

C 70% to 79%

D 60% to 69%

F Below 60%

**Homework:**

There will be roughly 8 homework sets. These will be posted on the class web page or distributed in the class and will be due in approximately one week. The assignments will be due at the beginning of the class. **No late homework will be accepted.** The homework will be 45% of your final grade. You are allowed to discuss homework problems with other students, groups of 2 students will be allowed.

**Exams, Grades and Attendance:**

The expected Learning Outcomes for the course will be assessed through midterm exams, homework, class participation, attendance, and final exam as follows:

In summary:

Attendance 5%

Midterm exam 20%

Homework assignments 50%

Final Exam 25%

***TOTAL***: 100%

For exams you will need to be, able to use the concepts, models and tools not just memorize them. Exams may include material from reading assignments, lectures and practice problems. Final exam is not cumulative.

Consistent class attendance and participation will greatly increase your chances for success, as well as lightening your outside of class workload.

**All the exams will be administered in strict observance of the University Honor Code, without compromise or exception**.

**Tentative Course Outline:**

**Introduction to Empirical Modeling (Week 1)**

The Nature of Econometrics and Economic Data

A. What is Econometrics?

B. Nature of Economic Data

C. Statistical vs Theory information

D. Experimental vs Observational data

E. Descriptive Statistics

*Reference: Chapter 1, Wooldridge, + Lecture Notes*

**Review of Statistics (Week 2)**

Review of Basic Probability Theory

A. Random Variables

B. Discrete and Continuous Probability Distributions

C. Joint /Conditional /Marginal Distributions

D. Conditional Means (E(Y/X)

**Review of Statistics (Week 3)**

Review of Basic Statistical Inference

A. Estimators

B. Properties of estimators

C. Hypothesis Testing

- Misspecification testing

- Specification testing

***Computer Lab on Introduction to Stata***

**Linear (Normal) Regression Model (Week 4,5,6)**

Simple Regression Analysis

A. The Two-Variable Case

B. OLS estimation

C. Properties of OLS estimators

***Computer Lab on Linear Regression (Week 5)***

Multiple Regression Analysis

A. Multiple Regression in Matrix form

B. Gauss Markov Theorem (BLUE)

C. T-statistics and Confidence Intervals for Coefficient estimates

D. Joint tests of hypotheses

E. OLS asymptotic

**Linear (Normal) Regression Model (Week 7)**

Choice of Functional Form for the Regression

Multiple Regression Analysis with Qualitative Explanatory Variables

A. Uses of Dummy variables

B. Chow test for structural difference

Nonlinear Regression Functions

A. Polynomials

B. Log-Log /Log-Linear/Linear-Log

C. Interaction terms

**MIDTERM EXAM: (WEEK 8)**

**Model Misspecification (Week 9)**

Misspecification (Diagnostic) Testing

A. Normality

B. Heteroscedasticity

C. Linearity

Heteroscedasticity

A. Nature of Heteroscedasticity

B. Consequences of Heteroscedasticity

C. Tests for Heteroscedasticity

**Internal and External Validity (Week 10)**

Threats to Internal Validity

A. Omitted Variables

B. Functional Form Misspecification

C. Measurement Error

D. Sample Selection

E. Simultaneous Causality

***Computer Lab on Model Misspecification***

**Binary Choice Models (Week 11)**

A. Linear Probability Model

B. Probit and Logit Model

***Computer Lab on Binary Choice Models***

**Instrumental Variables (IV) Regression (Week 12)**

A. Instrument Relevance

B. Instrument Exogeneity

C. Two- Stage Least Squares Estimators

**Experiments and Quasi -Experiments (Week 13)**

A. Idealized Experiments and Causal Effects

B. Difference Estimator

C. Potential Problems with Experiments in Practice

D. The Differences-in Differences Estimator

E. Quasi-Experiments/Natural -Experiments

**FINAL EXAM**

**ONLINE STUDENTS’ EVALUATION:**

Right before the end of the semester

**DISABILITY ACCOMMODATION STATEMENT**

TSU is committed to creating inclusive learning environments and providing all students with opportunities to learn and excel in their course of study. Any student with a disability or condition which might interfere with his/her class performance or attendance may arrange for reasonable accommodations by visiting the Office of Disability Services (ODS). ODS is located in Kean Hall, room 131 and can be reached at 963-7400 or [www.tnstate.edu/disabilityservices](https://mail.tnstate.edu/owa/redir.aspx?C=ByOMTH-G20GuPAMW872yHVsp4Av0ytMIeQ-9hHPtI3lDAAmxTvvbwLHd4rXstyX7bC3qswXPyA8.&URL=http%3a%2f%2fwww.tnstate.edu%2fdisabilityservices) .  You will be required to speak with ODS staff and provide documentation of the need for an accommodation.  If you qualify for an accommodation you will be provided with a document stating what type of classroom accommodations are to be made by the instructor.  It is your responsibility to give a copy of this document to the instructor **as soon as you receive it**.  Accommodations will only be provided **AFTER** the instructor receives the accommodation instructions from ODS; accommodations are not retroactive.  You must follow this process for each semester that you require accommodations.

**SEXUAL MISCONDUCT, DOMESTIC/DATING VIOLENCE, STALKING**

TSU recognizes the importance of providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking.  If you (or someone you know) has experienced or is experiencing any of these incidents, there are resources to assist you in the areas of accessing health and counseling services, providing academic and housing accommodations, and making referrals for assistance with legal protective orders and more.

Please be aware that most TSU employees, including faculty and instructors, are “responsible employees”, meaning that they are required to report incidents of sexual violence, domestic/dating violence or stalking.   **This means that if you tell me about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, I must report the information to the Title IX Coordinator.**  Although I have to report thesituation, you will still have options about how your situation will be handled, includingwhether or not you wish to pursue a formal complaint.  Our goal is to make sure you areaware of the range of options available to you and have access to the resources youneed.

You are encouraged to contact TSU’s Title IX Coordinator to report any incidents of sexual harassment, sexual violence, domestic/dating violence or stalking.  The Title IX coordinator is located in the Office of Equity and Inclusion, McWherter Administration Building, Ste. 260 and can be reached at 963-7494 or 963-7438.  For more information about Title IX and TSU’s SART or policies and procedures regarding sexual, domestic/dating violence and stalking please visit:  [www.tnstate.edu/equity](https://mail.tnstate.edu/owa/redir.aspx?C=ByOMTH-G20GuPAMW872yHVsp4Av0ytMIeQ-9hHPtI3lDAAmxTvvbwLHd4rXstyX7bC3qswXPyA8.&URL=http%3a%2f%2fwww.tnstate.edu%2fequity).

If you wish to speak to someone confidentially, who is not required to report, you can contact the TSU Counseling Center, located in the basement of Wilson Hall, at 963-5611 or TSU Student Health Services, located in the Floyd Payne Campus Center room 304, at 963-5084.  You may also contact the following off campus resources:  Sexual Assault Center of Nashville at 1-800-879-1999 or [www.sacenter.org](https://mail.tnstate.edu/owa/redir.aspx?C=ByOMTH-G20GuPAMW872yHVsp4Av0ytMIeQ-9hHPtI3lDAAmxTvvbwLHd4rXstyX7bC3qswXPyA8.&URL=http%3a%2f%2fwww.sacenter.org) or the Tennessee Coalition to End Domestic & Sexual Violence at 615-386-9406 or [www.tncoalition.org](https://mail.tnstate.edu/owa/redir.aspx?C=ByOMTH-G20GuPAMW872yHVsp4Av0ytMIeQ-9hHPtI3lDAAmxTvvbwLHd4rXstyX7bC3qswXPyA8.&URL=http%3a%2f%2fwww.tncoalition.org) .

**HARASSMENT & DISCRIMINATION**

Tennessee State University is firmly committed to compliance with all federal, state and local laws that prohibit harassment and discrimination based on race, color, national origin, gender, age, disability, religion, retaliation, veteran status and other protected categories.  TSU will not subject any student to discrimination or harassment and no student shall be excluded from participation in nor denied the benefits of any educational program based on their protected class.  If a student believes they have been discriminated against or harassed because of a protected class, they are encouraged to contact the Office of Equity and Inclusion at McWherter Administration Building, Ste. 260, 615-963-7494 or 963-7438, [www.tnstate.edu/equity](https://mail.tnstate.edu/owa/redir.aspx?C=ByOMTH-G20GuPAMW872yHVsp4Av0ytMIeQ-9hHPtI3lDAAmxTvvbwLHd4rXstyX7bC3qswXPyA8.&URL=http%3a%2f%2fwww.tnstate.edu%2fequity).

Honor, Dress & Decorum

College of Business, Tennessee State University

In creating a professional culture, the following Code of Honor, Dress and Decorum has been developed and established by College of Business constituents, including significant input from students. It is generally accepted by the College of Business student body, faculty, and staff that we will treat our colleagues with courtesy, respect, and collegiality, and treat the classroom as a business meeting.

**I will maintain a level of decorum that best represents this professional setting**.

**I will respect my classmates, faculty, and College of Business visitors by:**

 Observing rules of attendance and punctuality

 Not using my cell phone in class or allowing it to ring

 Refraining from loud conversation and profanity in classrooms and hallways

 Observing generally accepted rules of professional attire

**Plagiarism is:** Using someone else's ideas or phrasing and representing those ideas or phrasing as our own, either on purpose or through carelessness, is a serious offense known as plagiarism. "Ideas or phrasing" includes written or spoken material, of course — from whole papers and paragraphs to sentences, and, indeed, phrases — but it also includes statistics, lab results, art work, etc. "Someone else" can mean a professional source, such as a published writer or critic in a book, magazine, encyclopedia, or journal; an electronic resource such as material we discover on the World Wide Web; another student at our school or anywhere else; a paper-writing "service" (online or otherwise) which offers to sell written papers for a fee.

**I will respect myself by:**

 Providing my best effort to the course

 Not cheating by giving or accepting materials, copying, stealing, deception, or plagiarism.

 Doing my assigned part in group work

 Coming to class prepared

 Asking questions

**I will observe the following:**

 Understanding that loose clothing is a current style, “super-sag” and low-rise pants that reveal undergarments are inappropriate in the business setting. The College of Business at Tennessee State University considers this style of clothing unprofessional and unbecoming for members of this community.

 As for other forms of revealing clothing, high hem-lines and deep-cleavage revealing blouses and tops are unprofessional and in the College of Business at Tennessee State University, this style is also considered unprofessional and unbecoming for members of this community.

 Head rags, hats and caps are not considered a part of professional attire and in the College of Business at Tennessee State University, are considered unprofessional for members of this community.

 Loud conversation and profanity are unprofessional and unacceptable. In the College of Business at Tennessee State University, it is unacceptable in the classroom setting and strongly discouraged in hallways between classes. By observing this code I understand that I am a member of the College of Business at Tennessee State University whose guiding principles and core values include:

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| --- | --- | --- | --- |
| Accountability | Excellence | | Service |
| Continuous improvement | Global Perspective | | Shared Governance |
| Diversity | | Mutual Respect | |
| Ethical Conduct | | Scholarship | |