





**ECO 4421- 002 (CRN 00000)**  
**Introduction to Econometric Methods**

W F 11:00am-12:20pm BU 308/BU 401  
3 credits

Semester: \_\_\_\_\_

Prof. Neela Manage

Office Hours: Via Zoom TH 1:00PM – 4:00PM and by appointment

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### Course Description

Decision-making requires knowledge of real-world data and of the interconnections between participants in different sectors of the economy. Economists use the core concepts and techniques developed in this course to analyze economic data and conduct empirical research in economics. Topics include estimation of simple and multiple regression models, statistical inference, prediction, and hypothesis testing. Learning how to use Stata, a modern econometrics software, is an integral component of the course.

### Course Prerequisites and Credit Hours

3 credit hours

Prerequisites: ECO 2013 & ECO 2023, AND STA 2023

### Instructional Method

This course is designated as “Primarily Classroom” and meets on W F 11:00am – 12:20 pm. The course has two components: Lecture and Computer Lab. The computer labs will be held on Fridays in BU 401. The lectures will be held in BU 308 on Wednesdays.

### Required Text and Materials

1. James Stock and Mark Watson, *Introduction to Econometrics*, Fourth Edition, 2019, Pearson.  
ISBN: 9780-134461991

2. Econometric software: Students are required to use Stata software for course assignments and projects. Limited licenses (6 month or 12 month) are available for students at a discount.

To order Stata at student discounted prices use the link below and select the “Stata/BE” option:

<http://www.stata.com/order/new/edu/gradplans/student-pricing/>

If you choose Electronic Download, the software will be delivered within a few hours or the next day. For download details go to <https://www.stata.com/order/download-details/>

If you choose the DVD option there is likely an additional charge for DVD/shipping.

**Note:** The syllabus is subject to change at the discretion of the instructor. All revisions will be announced during lecture and will be posted on Canvas. Students are responsible for being familiar with any revisions to the syllabus.

## Course Learning Objectives

After successfully completing this course students will be able to:

- Model the relationship between two or more economic variables using both simple and multiple linear regression models
- Estimate a linear regression model using the Least Squares estimation technique, interpret the estimated model and its parameters, and generate predictions based on the model
- Test econometric hypotheses based on the estimated regression model by applying statistical hypothesis testing using the Normal,  $t$ ,  $F$ , and Chi-square probability distributions
- Describe different types of data and collect data from alternative data sources
- Utilize time-series and cross-section data to estimate regression models using Stata (an econometrics software), interpret and analyze the empirical results of the estimated model, and perform diagnostic tests to determine the adequacy of the model and its assumptions

## Course Resources

There will be an online course web page at the FAU Canvas site: <http://canvas.fau.edu>  
Student resources for FAU Canvas are available at <http://www.fau.edu/canvas/getting-started.php#Students>

## Course Grading Scale

A	93 and above	C+	77-79.99
A-	90-92.99	C	73-76.99
B+	87-89.99	C-	70-72.99
B	83-86.99	D	60-69.99
B-	80-82.99	F	<60

## Course Evaluation Method

The final grade will be based on three exams (20% each), econometric research/data assignments (30%), and Stata exercises (10%).

*All exams will be administered in-person in the classroom (BU 308). The exam dates and times are:*

Exam 1: February 15, 11:00 am - 12:20 pm  
Exam 2: March 29, 11:00 am - 12:20 pm  
Exam 3: May 3, 10:30 am – 11:50 am

## Course Topical Outline

<u>DATE/LOCATION</u>	<u>TOPIC</u>	<u>CHAPTER</u>
Jan 11	Introduction & Methodology of Econometrics	1
Jan 13	Review of Basic Probability Concepts	2
Jan 18	Simple Linear Regression Model (Specification)	4
Jan 20	Data Exercise 1	
Jan 25	Simple Linear Regression Model (Estimation)	4
Jan 27	Data Exercise 2	
Feb 1	Simple Linear Regression Model (Prediction)	4
Feb 3	Data Exercise 3	
Feb 8	Simple Linear Regression Model (Measures of Fit)	4
Feb 10	Properties of Least Squares Estimators & Gauss Markov Theorem	4
<b>Feb 15</b>	<b>Exam 1</b>	
Feb 17	Review of Probability Distributions (Normal, $t$ , $\chi^2$ , F)	3
Feb 22	Hypothesis Testing in the Simple Regression Model	5
Feb 24	Data Exercise 4	
Mar 1	Multiple Regression Model	6
Mar 3	Data Exercise 5	
Mar 8, Mar 10	<i>Spring Break – No Classes</i>	
Mar 15	Hypothesis Testing in the Multiple Regression Model	7
Mar 17	Data Exercise 6	
Mar 22	Hypothesis Testing in the Multiple Regression Model	7
Mar 24	Multicollinearity	6
<b>Mar 29</b>	<b>Exam 2</b>	
Mar 31	Omitted Variables and Model Specification	6
Apr 5	Nonlinear Regression Models	8
Apr 7	Data Exercise 7	
Apr 12	Binary Regressors in a Regression Model	5, 8
Apr 14	Data Exercise 8	
Apr 19	Binary Regressors in a Regression Model	5, 8
Apr 21	Autocorrelation & Heteroskedasticity	16
Apr 26	<i>Reading Day (No class)</i>	
<b>Apr 29</b>	<b>Final Project due (via Canvas)</b>	
<b>May 3</b>	<b>Exam 3 (10:30 am)</b>	

## **Additional Course Policies**

### **Missing Exams**

Students are required to take all exams in-person in the classroom and at the time listed on page 3. There will be no make-ups for exams.

If a student misses an exam due to illness, job requirements, or other significant reasons, students may request a makeup exam. Documentation will be required on the missed exam. (Insufficient documentation will result in an "F" on the missed exam). Based upon the reason for the absence and the validity of the supporting documentation, the instructor will decide if the student qualifies for a make-up exam (also see the statement on University Approved Absences below)

### **Late Assignments**

All homework assignments (and their due dates) will be posted on Canvas. Late submissions will result in a 10% penalty for each day the assignment is late. There will be no make-ups or extra credit for missed assignments.

### **Attendance Policy**

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

### **University Approved Absence Policy Statement**

In accordance with rules of the Florida Atlantic University, students have the right to reasonable accommodations to participate in University approved activities, including athletic or scholastics teams, musical and theatrical performances and debate activities. It is the student's responsibility to notify the course instructor at least one week prior to missing any course assignment.

### **Anti-plagiarism Software**

Written components of any assignment or project may be submitted to anti-plagiarism software to evaluate the originality of the work. Any students found to be submitting work that is not their own will be deemed in violation of the University's honor code discussed above.

## Selected University and College Policies

### **Code of Academic Integrity Policy Statement**

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high-quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see

[http://www.fau.edu/regulations/chapter4/4.001\\_Code\\_of\\_Academic\\_Integrity.pdf](http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf)

### **Disability Policy Statement**

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses — Boca Raton, Davie and Jupiter — however disability services are available for students on all campuses. For more information, please visit the SAS website at <http://fau.edu/sas/>

### **Counseling and Psychological Services (CAPS) Center**

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

### **College of Business Minimum Grade Policy Statement**

The minimum grade for College of Business requirements is a “C”. This includes all courses that are a part of the pre-business foundation, business core, and major program. In addition, courses that are used to satisfy the university's Writing Across the Curriculum and Gordon Rule math requirements also have a minimum grade requirement of a “C”. Course syllabi give individualized information about grading as it pertains to the individual classes.

### **Policy on the Recording of Lectures**

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance

and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

### **Incomplete Grade Policy Statement**

A student who is passing a course, but has not completed all work due to exceptional circumstances, may, with consent of the instructor, temporarily receive a grade of incomplete ("I"). The assignment of the "I" grade is at the discretion of the instructor, but is allowed only if the student is passing the course.

The specific time required to make up an incomplete grade is at the discretion of the instructor. However, the College of Business policy on the resolution of incomplete grades requires that all work required to satisfy an incomplete ("I") grade must be completed within a period of time not exceeding one calendar year from the assignment of the incomplete grade. After one calendar year, the incomplete grade automatically becomes a failing ("F") grade.

### **Withdrawals**

Any student who decides to drop is responsible for completing the proper paper work required to withdraw from the course.

### **Grade Appeal Process**

A student may request a review of the final course grade when s/he believes that one of the following conditions apply:

- There was a computational or recording error in the grading.
- Non-academic criteria were applied in the grading process.
- There was a gross violation of the instructor's own grading system. The procedures for a grade appeal may be found in [FAU Regulation 4.002](#).

### **Disruptive Behavior Policy Statement**

Disruptive behavior is defined in the FAU Student Code of Conduct as "*... activities which interfere with the educational mission within classroom.*" Students who behave in the classroom such that the educational experiences of other students and/or the instructor's course objectives are disrupted are subject to disciplinary action. Such behavior impedes students' ability to learn or an instructor's ability to teach. Disruptive behavior may include, but is not limited to: non-approved use of electronic devices (including cellular telephones); cursing or shouting at others in such a way as to be disruptive; or, other violations of an instructor's expectations for classroom conduct.

### **Faculty Rights and Responsibilities**

Florida Atlantic University respects the right of instructors to teach and students to learn. Maintenance of these rights requires classroom conditions which do not impede their exercise. To ensure these rights, faculty members have the prerogative:

- To establish and implement academic standards
- To establish and enforce reasonable behavior standards in each class
- To refer disciplinary action to those students whose behavior may be judged to be disruptive under the Student Code of Conduct.