

AEB 6553 - ELEMENTS OF ECONOMETRICS

Spring 2026

Instructor:

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Class Location and Hours:

AEB 6553

Weekly online lectures and biweekly in-person meetings.

In-person meeting location:

Tuesday: 12:50 pm - 1:40 pm MCCB 3124

Office Hours:

Zhifeng Gao: Any time by appointment (emails)

Course Description:

AEB 6553 is the first-year MS-level graduate Econometrics course. This course starts with a simple two-variable classical linear regression model to discuss the assumptions, estimation, and inferences in Econometrics. Multiple regression analysis is discussed, and tools are introduced to test and remedy the violations of the assumptions in the classical linear regression models. Major emphasis is placed on applications of econometric methods to problems in economics and related fields.

Objectives:

By taking this class, students should be able to

- (1) Understand the basic concepts in Econometrics.
- (2) Apply econometric tools to modeling, estimation, inference, and forecasting in the context of real-world problems.
- (3) Use related econometric software (SAS / R) to estimate econometric models.
- (4) Evaluate and interpret the results of econometric models.
- (5) Build up the foundation for advanced econometric courses.

Prerequisites:

There are no prerequisites for this class, but students should have basic knowledge of statistics and derivatives.

Homework, Quiz, Exam, and Grading:

Homework:

Homework will be assigned across the semester. All assignments are due at the beginning of class on the due date (midnight if submitted online). Students are encouraged to work

together but each student should turn in their own homework, and no plagiarism is allowed.

The late homework will receive a discounted grade. The discounts are in the following table.

Item	Your Grade	Discounted Grade
One day late	X	90X
Two days late	X	80X
Three days late	X	60X
Four days late	X	50X
Five days late	X	0

In Class Quizzes:

Quizzes will be given out randomly at the beginning of the class. No makeup quizzes are available.

Exams and Group Project:

Exams:

There are two exams: the Makeup exam is unavailable for the midterm exams. Students should inform the instructor in advance if they are unable to attend the scheduled exam time.

Group Project:

Students will be divided into groups to work on the group projects. Each group will make two presentations and submit a final report.

The final report is no longer than 10 pages (single-spaced, excluding tables and figures) and should include the following components.

1. Title Page

Report title

Project group members and department

2. Abstract

A brief statement of the motivations, the methods, the main results, and key conclusions of the research project.

3. Report body

- a. Introduction: motivation of the research project, background, as well as the identification and the significance of the research problem

- b. Technical objectives

- c. Theoretical analysis (if applicable)

- d. Economic and econometric models

- e. Data collection method, data source, data type, and descriptive statistics of the data

- f. Results: key tests, key tables, and figures, interpretation of the results

- g. Conclusions: take-home message of the project, limitations of the project, future direction of the research

Grade:

The final grade is the weighted average of homework, quizzes, exams, etc. The point of each component is scaled to 100, and the weight of each part is in the following table.

Item	Weight	Point
Homework	15%	100
Lab Assignment	10%	100
Quizzes/	10%	100
1st Exam	15%	100
2nd Exam	15%	100
Presentation 1	10%	100
Presentation 2	10%	100
Self and Peer Evaluation	5%	100
Final Report	10%	100
Total	100%	900

Notes:

- 1) *Homework*: Weekly homework will be assigned, and points for each question are specified in the homework. Late assignments are unacceptable unless informed to the instructor in advance.
- 2) *Lab Assignment*: Weekly lab assignments will be assigned, and points for each question are specified in the lab assignments. Students need to use R to do data and regression analysis and answer a series of empirical questions.
- 3) *Quizzes*: Students need to take weekly quizzes. The quizzes contain multiple-choice questions to test students' understanding of the course materials. No makeup quiz is available.
- 4) *Exams*: Students need to take two exams. Both exams are open-book. Students need to use R to analyze the data and answer a set of questions.
- 5) *Presentation 1 and Presentation 2* are for the group project. Each group needs to record their presentation and submit a recording of it. Each students need to review and evaluate the presentations of other groups. Each group will receive the same score for their presentation, based on the average scores they received from other groups.
- 6) *Self and Peer Evaluation*: each group member will give a grade for him/her self and his/her peers in the group. The grade is based on each student's contribution to the group project (presentation and report).

Each student should give a percentage of the contribution of each group member. For instance, if there are 4 members in a group, the contributions of each group member should be X_1, X_2, X_3, X_4 , where $X_1+X_2+X_3+X_4=1$.

The student who has the highest contribution will receive the highest grade, 5, and the grades of other group members are based on the ratio of contributions between his and the student that have the highest contribution, such as $\frac{x_i}{\max x_j}$. For example, if the average contributions of students 1, 2, 3, and 4 are 0.2, 0.3, 0.3, and 0.2, then their grades are $\frac{0.2}{0.3} * 50 = 33.3, 50, 50, \text{ and } 33.3$, respectively, for persons 1, 2, 3, and 4.

The self and peer evaluation will be conducted online at the end of the semester. All the information is anonymous. The student who does not do the self and group peer evaluation will get zero grades for this part.

Course Grade	Letter Grade	Grade Point
90-100	A	4
87-89	A-	3.67
84-86	B+	3.33
81-83	B	3
78-80	B-	2.67
75-77	C+	2.33
72-74	C	2
69-71	C-	1.67
66-68	D+	1.33
63-65	D	1
60-62	D-	0.67
Less than 60	E	0

Recommended Textbook

Gujarati, Damodar N. and Dawn C. Porter. 2008. Basic Econometrics, 5th edition. McGraw-Hill/Irwin.

http://www.amazon.com/Basic-Econometrics-Damodar-Gujarati/dp/0073375772/ref=sr_1_1?ie=UTF8&qid=1294262018&sr=8-1

http://www.amazon.com/Basic-Econometrics-Damodar-N-Gujarati/dp/0071276254/ref=tmm_pap_title_0?ie=UTF8&qid=1294262018&sr=8-1

Griffiths, William. E., R. Carter Hill, George G. Judge.1993. Learning and Practicing Econometrics. John Wiley & Sons.

<http://www.amazon.com/Learning-Practicing-Econometrics-William-Griffiths/dp/0471513644>

Tentative Course Outline

The contents listed below are tentative. The actual lecture does not strictly follow the contents list. Based on the time left at the end of the class, the actual topics covered in this class may be more or fewer than those listed in the outline.

Topics

Statistics and Math Review

I. Introduction

Book Chapters

(Introduction, Chapter 1)

Part One- Single-Equation Regression Models	
1.1 Nature of Regression Analysis	(Chapter 1)
1.2 Two-Variable Regression Analysis-Basic Idea	(Chapter 2)
1.3 Two-Variable Regression Model- Problem of Estimation	(Chapter 3)
1.4 Classical Normal Linear Regression Model	(Chapter 4)
1.5 Two-Variable Regression: Interval Estimation and Hypothesis Testing	(Chapter 5)
1.6 Extension of the Two-Variable Linear Regression Model	(Chapter 6)
1.7 Multiple Regression Analysis: The Problem of Estimation	(Chapter 7)
1.8 Multiple Regression Analysis: The Problem of Inference	(Chapter 8)
1.9 Dummy Variable Regression Models	(Chapter 9)

Part Two- Relaxing the Assumptions of the Classical Model	(Chapter 9)
2.1 Problem of Multicollinearity	(Chapter 10)
2.2 Problem of Heteroscedasticity	(Chapter 11)
2.3 Problem of Autocorrelation	(Chapter 12)

In-person meeting dates (every two weeks)

Classes Begin	Tuesday, January 13, 2026
	Tuesday, January 27, 2026
	Tuesday, February 10, 2026
	Tuesday, February 24, 2026
	Tuesday, March 10, 2026
	Tuesday, March 24, 2026
	Tuesday, April 7, 2026
	Tuesday, April 21, 2026

Important Dates ([Link](#))

Classes Begin	January 13
Classes End	April 23
Drop/Add (11:59 pm of last day)	January 13-17
Withdrawal with no Fee Liability (11:59 pm of last day)	January 17
Reading Day	April 24 - 25
Final Grades available	May 7
Holidays - no classes	January 20: Martin Luther King, Jr. Day March 15 - 22: Spring Break

Tentative dates

Exam1	March 11 (Tuesday)
Exam2	4/27/2026 @ 10:00 AM - 12:00 PM

Project Presentation 1 (Online Submission)	Check Canvas
Project Presentation 2 (Online Submission)	Check Canvas
Final Project Due	Friday, May 1, 11:59 pm

Attendance Policy: Class attendance is expected. Students should inform the instructor of expected absences. Excessive unexcused absences will result in negative consequences.

Policy On In-Class Cell Phone Use And Text Messaging: Cell phones should be turned off or put on vibrate mode and should not be answered during the class period. Non-emergency, in-class text messaging is not acceptable.

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the [Disability Resource Center](#). It is important for students to share their accommodation letter with their instructor and discuss their access needs as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students are notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluer.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled.

The only allowable purposes are: (1) for personal educational use, (2) in connection with a complaint to the University, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation and are delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class, or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

University Honesty Policy

UF students are bound by The Honor Pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. [Click here to read the Conduct Code](#). If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regard to grades earned in courses and on individual assignments. For more information, please see the [Notification to Students of FERPA Rights](#).

Campus Resources:

Health and Wellness

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit [U Matter, We Care website](#) to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: [Visit the Counseling and Wellness Center website](#) or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or [visit the Student Health Care Center website](#).

University Police Department: [Visit UF Police Department website](#) or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; [Visit the UF Health Emergency Room and Trauma Center website](#).

Academic Resources

E-learning technical support: Contact the [UF Computing Help Desk](#) at 352-392-4357 or via email at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers.

Student Complaints On-Campus: [Visit the Student Honor Code and Student Conduct Code webpage for more information](#).

Online Students Complaints: [View the Distance Learning Student Complaint Process](#).