

AEB 6553 - ELEMENTS OF ECONOMETRICS
Spring 2019

Instructor:

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Class Location and Hours:

AEB 6553

Tuesday: 12:50pm- 1:40 pm MCCA 2186

Thursday: 11:45pm-12:35 pm MCCB 3086
 12:50pm- 1:40 pm MCCB 2186

Office Hours:

Zhifeng Gao: Tuesday, Thursday: 11:00 am -11:30 am
..... or by appointment

Teaching Assistant:

Rujin Zhao: Tuesday, Thursday: 9:30-10:30am

Course Description:

AEB 6553 is the first year MS level graduate Econometrics course. This course starts from a simple two-variable classical linear regression model to discuss the assumptions, the 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) to estimate econometric models.
- (4) Evaluate and interpret the results of econometric models.
- (5) Build up 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:

Number of homework will be assigned across the semester. All assignments are due at the beginning of class on the due date (midnight if through online submission). 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 begging of the class. No makeup quizzes are available.

Exams and Report:

Exams:

There are two exams: Makeup exam is available for the midterm exams. Students should inform the instructor in advance if they are not available at the scheduled time of the exams.

Report:

Students will be divided into groups to work on the group projects. Each group will make a presentation and submit a final report. The final report is no longer than 10 pages 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, 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, limitation of the project, future direction of the research

Grade:

The final grade is the weighted average of homework, quizzes, exams, etc. The weight of each part is in the following table.

Item	Weight	Point
Homework	20%	20
Class Participation	5%	5
Quizzes	5%	5
1st Exam	20%	20
2nd Exam	25%	25
Presentation	10%	10
Self and Group Peer Evaluation	5%	5
Report	10%	10
Total	100%	100

Notes:

1) The grade for class participation is for group. The students in the class will be divided into groups, each group is encouraged to participate in the class activities. The grade is calculated as $\min(\frac{n_i}{\bar{n}_j} * 5, 5)$, where n_i is the score that the group i received, \bar{n}_j is the average score of all groups. This formula means that if a group's score is higher than the average score of all groups, then the group will receive the maximum of 5 points for class participation.

For instance, if there are 4 groups, the score of group 1, 2, 3 and 4 are: 5, 6, 8 and 10, respectively, the mean 5, 6, 8 and 10 is 7.25, and the class participation grades for group 1, 2, 3 and 4 are $\frac{5}{7.25} * 5 = 3.45$, $\frac{6}{7.25} * 5 = 4.14$, 5 and 5, respectively.

If all the groups have the same score, then all the groups get 5.

2) The grade for presentation is for a group. Each student in the class will give a grade for the group that gives the presentation, the averages will be used as the presentation grade.

3) Self and group peer evaluation: each group member will give a grade for himself and his peers in the group. The grade should be based on his and his peers' contribution to the group project (presentation and report) and class participation.

Each student should give a percentage of 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 students that have 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 contribution of student 1, 2, 3 and 4 are, 0.2, 0.3, 0.3 and 0.2, then the grades are $\frac{0.2}{0.3} * 5 = 3.33$, 5, 5 and 3.33, respectively for person 1, 2, 3 and 4.

The self and group 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 grade 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>

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 class period. Non-emergency, in-class text messaging is not acceptable.

Academic Honesty, Software Use, UF Counseling Services, Services for Students with Disabilities

Academic Honesty

In 1995 the UF student body enacted an [honor code](#) and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

In adopting this honor code, the students of the University of Florida recognize that academic honesty and integrity are fundamental values of the university community. Students who enroll at the university commit to holding themselves and their peers to the high standard of honor required by the honor code. Any individual who becomes aware of a violation of the honor code is bound by honor to take corrective action. The quality of a University of Florida education is dependent upon community acceptance and enforcement of the honor code.

The Honor Pledge: *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*

On all work submitted for credit by students at the university, the following pledge is either required or implied: On my honor, I have neither given nor received unauthorized aid in doing this assignment.

The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating, plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior.

Student Responsibility: Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student Honor Council or Student Conduct and Conflict Resolution in the Dean of Students Office.

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course

Software Use: All faculty, staff, and students of the University of Florida 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 (<https://it.ufl.edu/policies/intellectual-property/copyright/>).

UF Counseling Services: Resources are available on campus for students having personal problems or lacking clear career and academic goals which interfere with their academic performance. These resources include:

- 1) Counseling and Wellness Center, 3190 Radio Road, Gainesville, FL 32611, 392-1575, <https://counseling.ufl.edu>
- 2) Student Health Care Center, Main Campus: 280 Fletcher Drive/ SHCC @ Shands: Health Science Center, Dental Towers, 2nd Floor, Room D2-49, 392-1161, <https://shcc.ufl.edu>
- 3) Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161, <https://shcc.ufl.edu>
- 4) Career Resource Center, UF Division of Student Affairs, J. Wayne Reitz Union, Suite 1300, 392-1601, www.crc.ufl.edu

Students with Disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352.392.8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodations. Students with disabilities should follow this procedure as early as possible in the semester.

Further information is available from the Disability Resource Center at <https://disability.ufl.edu/>.

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 less than those listed in the outline.

Topics	Book Chapters
Statistics and Math Review	
I. Introduction	(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)
2.4 Models Specification and Diagnostic Testing	(Chapter 13)
<i>Selective (depending on the progress of the class)</i>	
Part Three- Topics in Econometrics	
3.1 Qualitative Response Regression Models	(Chapter 15)
3.2 Panel Data Regression Models	(Chapter 16)
3.3 Dynamic Econometric Models	(Chapter 17)
Part Four- Simultaneous-Equation Models	
4.1 Simultaneous-Equation Models	(Chapter 18)
4.2 The Identification Problem	(Chapter 19)
4.3 Simultaneous-Equation Methods	(Chapter 20)

Important Dates

Classes Begin	January 7th
Classes End	April 24
Drop/Add (11:59 pm of last day)	January 7-11
Withdrawal with no Fee Liability (11:59 pm of last day)	January 11
Reading Day	April 25-26
Final Grades available	May 8
Holidays - no classes	January 21: Martin Luther King Jr. Day
	March 2- March 9: Spring Break

Tentative dates

Exam1	February 28 (Thursday)
Exam2	April 29, 5:30 p.m. - 7:30 p.m.
Project Presentation (in class)	April 16, April 18, April 23