Forman Christian College (A Chartered University)
Department of Economics

Course Name:	**Fundamentals of Econometrics Spring 2023**	
Course Code:300	**Course Type: (Economics Major Course)**	**Course Credits: 03**
Class Timings and Venue: Monday, Wednesday, Friday: 15:00- 15:50 E: 204	**Section: A**	**Student Meeting Hours/ Office Hours:** 14:00 – 15:00 hrs. (M, T, W, T, F)

Instructor Name: Dr. Muhammad Ali Bhatti

A Note from the Instructor:
 Dear students, I welcome you aboard for an enjoyable learning journey. It is my favorite course, and I have been teaching it for the last 25 years. It is a core course of BS Economics, and it will help you connect economic theory with the real world.

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Guidelines for contacting instructor: Please check your email and Moodle accounts regularly. You can also contact me via WhatsApp/ email.

Course Description:
Pre-requisites: 201,202 and 203
Mode of Instruction: Class room lectures
Empirical analysis has become an indispensable component of contemporary research in economics, and Econometrics is concerned with the empirical determination of economic laws. This course will provide an elementary but comprehensive discussion of single-equation regression models, focusing on the Classical Normal Linear Regression Model and its assumptions' violations, i.e., the method of ordinary least squares, multicollinearity, heteroscedasticity, autocorrelation, dummy variable regression models.

Program Objectives Addressed
   A. Demonstrate understanding of microeconomics, macroeconomics and econometrics
   B. Perform quantitative research skills to critically analyze economic issues
   C. Apply economic theory in wide range of real-life problems and suggest policy changes
   D. Effective communicate economic ideas in oral and written form
   E. Use their knowledge and abilities for the welfare of the people
   F. Practice ethical and moral values in their professional and personal lives
   G. Describe careers that apply economics in public, private, and international institutions.

Course Objectives or [Student Learning Outcomes](link) (SLOs)
Learning goals

The course will equip students with the fundamental concepts and techniques of econometrics to conduct a project and understand how economic theory and the natural world around us are connected.

Learning Outcomes

After the successful completion of the course, the students should be able to:

- Conduct basic empirical research
- Understand the basic concepts of Econometrics
- Understand Classical Normal Linear Regression Model

- understand the concept of the OLS Method of estimation and how does it work
- estimate the simple two-variable and multivariate regression models
- interpret and evaluate the regression results
- conduct hypotheses testing: individual versus joint testing of hypotheses, overall significance, linear restrictions, and omitted and redundant variables
- distinguish among the wide range of functional forms and understand the meaning and interpretation of their coefficient
- Incorporate ordinal information in regression analysis

- recognize and solve the problems due to the violations of the assumptions of CNLRM

Expectations from the Students
- Students are expected to read the lecture soon after the class.
- Students are expected to be regular and punctual. In case they get late, attendance shall not be marked.
- The students must attend at least 80% of the classes to qualify for the mid and final exams.
- No exam or quiz shall be retaken if a student misses an exam or quiz.
- Students must maintain discipline in the class.
- Students must switch their cell phones off during the class.
- Students are expected to submit their assignments on time. Common excuses like the pressure of other exams, sickness, or family obligations will not be accepted. Late submission will be penalized at the rate of a 25 percent deduction of marks per day. So, there is no need to submit an assignment after the fourth day of the due date. If someone cannot come on the due date, he should submit the due assignment in advance.
- Students are expected to observe academic integrity and be familiar with the FCC rules regarding unfair means in exams and preparation of assigned work. Unfair means cases will be strictly dealt with according to the FCC policy in this regard.

Calendar of Activities

Wk		Course Objectives/ **Student Learning Outcome**s (SLOs)	Topic/ Title	Reading Material	**Teaching-Learning Activities** **Assessment** & **Rubrics**
1	1	Conduct basic empirical research	**What is Econometrics, Methodology of Econometrics**	Gujrati: Introduction, Chapter 1 Studenmund: chap. 1 Asteriou & Hall: Chap. 1 & 2	Lecture/ class activity/Group discussion
	2	Conduct basic empirical research	**Types of data, Measurement scales, statistical requirements**	Gujrati: Chap. 2 Studenmund: Chap. 2Class Work	
2	3	Understand the basic concepts of Econometrics	**Regression Analysis? Population & Sample Regression Functions**	Gujrati: Chap. 3 Studenmund: chap. 3 Asteriou & Hall: Chap. 3 Gujrati: Chap. 3 Class Work	Quiz#1: Assignment #1
	4	Understand the basic concepts of Econometrics	**Simple Examples of Regression Analysis, An Overview of Regression Analysis**		Assignment #1
	5	Understand the basic concepts of	**Method of Ordinary Least Squares: concept**	Gujrati: Chap. 4 & 5	

3		Econometrics		Gujrati: Chap. 3, 4 & 5	
	6	Understand the basic concepts of Econometrics	**Derivation of OLS estimators**	Asteriou & Hall: Chap. 3	Quiz # 2:
4	7	Understand the basic concepts of Econometrics	**Numerical properties of OLS Estimators**	Gujrati: Chap. 7 & 8 Asteriou & Hall: Chap. 4 Schmidt: Chap. 8	Assignment #2:
	8	estimate the simple two-variable and multivariate regression models	**By using Excel, Numerical example for estimating the two-variable regression model**	Gujrati: Introduction, Chapter 1 Studenmund: chap. 1 Asteriou & Hall: Chap. 1 & 2	
5	9	Interpretation and evaluation of regression results	**Evaluating the quality of a regression equation: Goodness of Fit**	Gujrati: Chap. 2 Studenmund: Chap. 2Class Work Gujrati: Chap. 3 Studenmund: chap. 3	Assignment # 3 :
	10	Understand Classical Normal Linear Regression Model	**The assumptions of Classical Normal Linear Regression Model**	Asteriou & Hall: Chap. 3	
6	11	Understand Classical Normal Linear Regression Model	**The Sampling Distribution of OLS Estimators**	Gujrati: Chap. 3 Class Work Gujrati: Chap. 4 & 5	
	12	Understand Classical Normal Linear Regression Model	**The Gauss-Markov Theorem and Statistical Properties of OLS Estimators**		Assignment # 4:

7	13	Conduct Hypotheses testing	**Interval Estimation, Hypothesis Testing t-test**	Gujrati: Chap. 3, 4 & 5 Asteriou & Hall: Chap. 3	Quiz # 3
	14	Conduct Hypotheses testing	**Confidence Intervals, The F-Test**		
8	15	Interpretation and evaluation of regression results	**Multivariate regression: estimation, interpretation**	Gujrati: Introduction, Chapter 1 Studenmund: chap. 1 Asteriou & Hall: Chap. 1 & 2	
	16	Conduct Hypotheses testing	**Tests involving more than one parameter**		
9	17	distinguish among the wide range of functional forms	**functional forms of two-variable linear regression model: Regression through the origin, regression on standardized variables**	Gujrati: Chap. 6 Schmidt: Chap. 9	Midterm Exam
	18	distinguish among the wide range of functional forms	**functional forms of two-variable linear regression model: log-linear, semi-log, and reciprocal**		
10	19	distinguish among the wide range of functional forms	**functional forms of multivariate regression:** **Quadratic**	Gujrati: Chap. 9 Asteriou & Hall: Chap. 9 Gujrati: Chap. 6	
	20	distinguish among the wide range of functional forms	**functional forms of multivariate regression:** **Cobb-Douglass & Translog**		

11	21	Incorporate ordinal information in regression analysis	**Dummy Variable Regression Model: The nature of dummy variables, regression with a mixture of quantitative and qualitative regressors**	Schmidt: Chap. 9	
	22	Incorporate ordinal information in regression analysis	**Dummy Variable Regression Model: Interaction effects using dummy variables**		
12	23	recognize and solve the problems due to the violations of the assumptions of CNLRM	**Multicollinearity: Nature, consequences,**	Gujrati: Chap. 10 Asteriou & Hall: Chap. 5 Gujrati: Chap. 11 Asteriou & Hall: Chap. 6 Schmidt: Chap. 13	
	24	recognize and solve the problems due to the violations of the assumptions of CNLRM	**Multicollinearity: detection, and correction**		
13	25	recognize and solve the problems due to the violations of the assumptions of CNLRM	**Heteroscedasticity: Nature, consequences,**	Gujrati: Chap. 12 Asteriou & Hall: Chap. 7 Schmidt: Chap. 12 Gujrati: Chap. 10 Asteriou & Hall: Chap. 5	

	26	recognize and solve the problems due to the violations of the assumptions of CNLRM	**Heteroscedasticity:** **detection, and correction**		Quiz # 4
14	27	recognize and solve the problems due to the violations of the assumptions of CNLRM	**Autocorrelation** **Nature, consequences, detection, and correction**	Gujrati: Chap. 11 Asteriou & Hall: Chap. 6 Schmidt: Chap. 13	
	28		**Revision**		
15	**CULMINATING PROJECT**				

Students are required to attend study sessions, and go through study materials

- Attend in person and online Lecture sessions Take good notes of Lectures. Please check your emails and Moodle for downloading study material. 06 hours self-study is recommended for Econ 300.

Recommended Textbook

Gujrati,D., Basic Econometrics, 5th ed., New York: McGraw-Hill

Supplementary Text Books:

Studenmund, A.H., Using Econometrics: A Practical Guide

Asteriou, Dimitrios and Stephen G.Hall, Applied Econometrics,2nd ed., Palgrave Macmillan, 2011

Schmidt, Stephen J., Econometrics, New York: McGraw-Hill, 2005

Joshua D. Angrist and Pischke (2008), *Mostly Harmless Econometrics: An Empiricist's Companion,* 1st Edition, Kindle Edition.

Teaching-Learning Methodology

- Lectures
- Example-oriented approach
- Homework / Quizzes

Assessment

Final Grade will be determined as follows:

- Assignments, quizzes & class participation   35%
- Midterm Exam.   30%
- Final Exam.   35%

Attendance Policy:
-Student are advised to f*ollow University's attendance policy*
Classroom Participation:
- **Class Participation 5%**
Class participation shall be based; both on the presence and performance in class activities (in person/email, breakdown rooms)
Not using sell phones in the class room.
Grade Determination & Course Assessment as per FCC Policy:
- Relative Grading Policy for Econ-300
The late submission of the assignments would be penalized by deducting one mark per day.
Grading Legend
Below is the grading legend of FCCU (published in all catalogues and available on the FCCU website) as approved by the Academic Council and applies for Fall as well

Letter Grade	GPA	%	Letter Grade	GPA	%
A	4.0	93% - 100%	A-	3.7	90% - 92%
B+	3.3	87% - 89%	B	3.0	83% - 86%
B-	2.7	80% - 82%	C+	2.3	77% - 79%
C	2.0	73% - 76%	C-	1.7	70% - 72%
D+	1.3	67% - 69%	D	1.0	60% - 66%
F	0.0	Bellow 60%	W	Officially Withdrawal	

Student Conduct & Other Issues:
- Students are expected to not to you cell phones during class room lecture sessions. Pleas be civil, respectful, and supportive.

Student Support Services
Student Counseling Services
Writing Center
Mercy Health Center

Other Useful Policy Documents:

[Sexual Harassment Policy](#)
[Anti-Corruption Policy](#)
[Academic integrity](#)
[Plagiarism Policy](#)
[Academic Calendar](#)

I expect that you will strictly follow the core values of FCCU and put your entire efforts to learn as per the course requirements, attend classes, read the textbook(s)/other assigned reading material and do the assignments in the stipulated time period