Department of Economics

ECON-302: Research Methods and Computer Applications

Spring 2023

Instructor	Sumaira Lodhi
Office Room No.	E- 218(4)
Section	A
Timings	SECTION A: MWF 12:30PM TO 1:45PM
Office Hours	**Tues & Thurs** 11am to 12:30pm or by appointment
Email	sumairalodhi@fccollege.edu.pk

Main Mode of Instruction: *(Moodle, Zoom and MS teams.)*
Technology Requirements Have internet excess and Should be familiar with Moodle, Zoom and MS teams. **Considerations for Students with Limited Internet/Technology Access:** Recorded Lectures will be provided on Moodle.
Each lecture will be uploaded on the LMS (Moodle) well before class time. It is recommended to come to class with the lecture slides and having read them beforehand.

Course Distribution

Credit Hours	3
Prerequisite requirement	ECON 300
Open for student s	Junior & Senior majoring in Economics
Close for student s	Freshman & Sophomore

Course Philosophy

This course will give students the opportunity to apply methods and methodologies of research used in Economics. The techniques of research investigation, data collection methods, research design, sampling, report writing and use of econometric software are also taught.

Learning Objectives

The goal of this course is to provide students with rigorous research skills including hands on Stata software techniques for a better understanding of evolution in Economic research and to prepare them for research related jobs in Pakistan. Further, this course aims to provide a forum that helps students to formulate economic hypotheses, test them using econometric rigour and communicate the results orally and in writing.

Learning Outcomes

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

1.	Develop basic understanding of how to do economic research.
2.	Develop understanding of surveys, questionnaire and sampling design
3.	Get a grip on how to access/use a variety of data sources used in economic research and enter data in Stata sheet to estimate economic models.
4.	Conduct data manipulation and summarization to do descriptive statistics in Stata.
5.	Deduct the nature of problem in research modelling, its consequences and remedial measures.
6.	Replicate research methodology of published research papers.
7.	Conduct literature review of previous published researches in academic writing style.
8.	Learn writing references in APA style using APA citation guide.
9.	Write a good quality original economics research paper.

Grade Breakup

Assignments	10%
Quizzes	10%
Mid Term Exam	20%
Presentation of Initial Research Ideas	10%
Final Research Paper	25%
Final Exam	25%

Note1: The Final paper will be a research paper that should be 10-12 pages of text (APA format). The paper will report on original economic research that you perform over the course of the semester. You will have to present your research idea/ research proposal in front of the class and a group of economics faculty members before final decision of your topic.

The final paper will consist of the following sections: (I) An introduction that motivates the research topic/question (II) A review of the scholarly literature relevant to your topic/question (III) A description of economic model and hypotheses to be tested (IV) A description of data and sources (V) A presentation of statistical results (using graphs, summary statistics, correlation tables etc) (VI) A conclusion summarizing your findings, policy implications, and unresolved issues for future research.

Note2: Final exam will be comprehensive.

Study Materials

Primary focus:

Greenlaw, Steven A. *Doing Economics: A guide to understanding and carrying out economic research.* University of Mary Washington: Houghton Mifflin Company 2006. ISBN: 0-618-379835

Wooldridge, Jeffrey M. *Econometrics*. Michigan State University: Cengage Learning 2009. ISBN: 81-315-0960-5

Adkins, Lee and Hill Carter. *Using Stata for Principles of Econometrics, third edition*: Maloy, Inc. 2008 ISBN: 978- 0-470-18546-9

Secondary focus:

Acock, Alan. *A Gentle Introduction to Stata, Fifth Edition*. Oregon State University: Stata Press 2016. ISBN: 978-1-59718-185-3

Helpful websites:

https://www.stata.com/

https://stats.idre.ucla.edu/stata/

Course contents, Learning material & Activities schedule (TENTATIVE)

Week	Contents & Activities	Learning Material
1	**Research:** Introductory Session: What is Research? Creation of knowledge and evaluating arguments in research. Most common type of research done by undergraduate students.	Ch1: Greenlaw
2	**Research:** Overview of the research process in Economics; 6 steps of the research process. What is economic writing, steps and style.	Ch2 and 5 Greenlaw
3	Critical Reading of published empirical research. Finding a research topic by reading published research. Creating a valid research design; confounding variables; causal validity. [**Start discussing research ideas**]	Ch6 : Greenlaw
4 & 5	**Stata:** Introducing Stata: Starting Stata; opening display; opening Stata inbuilt data files; the variables window; opening data editor; summarizing and describing data. The Stata help system; saving work in Stata; Using and viewing a log file; translating log file into a text file; Using do file in Stata; Executing do file;	Ch1: Adkins and Hill; Sections 1.1-1.17

	Creating and managing variables: generating variables in Stata. Dropping or renaming a variable and labelling variables in Stata using command prompt. Using arithmetic operators and Stata math functions. Using Stata graphics (Bar chart, histogram scatter diagram and line graph). Using Stata density functions; cumulative distribution functions; using and displaying scalars (example of standard normal cdf, t-distribution cdf); computing percentile of the standard normal distribution. **[Quiz 1]**	
6	**Research:** Introduction to surveys; steps and life cycle of a survey; census versus sample surveys; survey frame and survey errors.	Handouts
7	**Research:** Data collection methods: self enumeration, interviewer assisted methods. Sampling chniques: simple random sample; stratified, cluster, multistage and snowball sampling techniques. Questionnaire design: Review of questionnaires HIES, PSLM, MICS; Open versus closed questionnaires; guidelines for drafting a good questionnaire. **[mid exam]**	Handouts
8	**Stata:** Types of data (cross-section, time series, panel) Setting data in Stata. Qualitative data analysis; creating dummy/ categorical variables in Stata. Merging and appending datasets in Stata. Review of national and international databases used for secondary data sources in Economic research and opening them in Stata. Putting together your dataset and data manipulation.	Ch: 7 Adkins and Hill Ch: 8 & 9 Greenlaw
9	**Stata:** Introduction to simple linear regression in Stata. Interval estimation and hypothesis testing in Stata. Multiple linear regression models. Prediction, goodness of fit and modelling issues. Correlation and R^2. Effects of scaling and transforming the data. Linear-log model. Analyzing the residuals (normality test) ; Chi square distribution critical values (Use UCLA regression basics' handouts)	Ch2, 3, 4, 5 & 6: Adkins and Hill; Wooldridge for reference
10	**Stata:** Testing and correcting for hetroskedasticity, autocorrelation, omitted variable bias in Stata. **[Quiz 2]**	Ch 8, 9, 10, 11 and 15: Adkins and Hill

11	**Research:** Conducting literature review; writing styles and guidelines; APA reference style.	Ch3 and 4 Greenlaw + Handouts
12	Presentation of initial research ideas (worth 10% of your grade)	
13	**Research:** Communicating the results of a research project. Empirical papers as examples in class.	Ch 12 Greenlaw + Handouts
14	Review and Revision	

Note: Wooldridge book is for reference.

Grade Determination & Course Assessment:

Letter Grade	GPA	%age	Letter Grade	GPA	%age
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	Below 60%	W	Official Withdrawal	

Student's Conduct & Other Issues

1.	You should follow all university guidelines established in your student handbook. Any student can be removed from the class where behavior is deemed inappropriate or disruptive.
2.	You are expected to be in each class. In case of absence you are responsible for the announcements made and material given during that missed class. Minimum class attendance to participate in final examination is 80%.
3.	Regularly coming to class late or leaving early is disruptive and shows a lack of respect for the rest of us. If you come later than 10 minutes after the class has started, you will not be allowed to sit in the classroom.
4.	Questions and comments are encouraged; your questions will not only help yourself, but others as well. Do ask questions and participate in class discussion actively.
5.	Problem sets/assignments have to be submitted on due date, no late submission. There will be no makeup quiz or examinations, therefore, don't miss any exam or quiz.

6.	Cheating or plagiarism in relation to any piece of work submitted for assessment shall be subject to the FCC's dishonest practice regulations. **Direct F grade will be given if case is proven.**