

ECON520: Applied Econometrics

Syllabus – Spring 2023

COURSE INFORMATION

Instructor	Dhari Alrasheed (dhari.alrasheed@ku.edu.kw)
Website	https://www.dalrasheed.com
Office Hours & Location	Sunday 4:00–4:45pm or by appointment; A3-1019
Lecture Time & Location	Sunday 5:00–7:50pm; D3-1001

COURSE INFORMATION

Description This course is for master students seeking to acquire advanced knowledge and skills in applied econometrics. Building on the theories and methods learned in ECON504, the course surveys a variety of advanced modeling and estimation methods through class lectures and reading empirical papers, with more emphasis on models than on theory. Student will also have an opportunity to apply some of these methods in an empirical term paper, thus transitioning from consuming research to producing it.

- Objectives**
- Survey advanced models and estimators relevant to various data structures.
 - Specify appropriate models, and formulate estimation and forecasting techniques.
 - Develop identification strategies for causal inference in policy evaluation.
 - Develop reading skills necessary for evaluating and synthesizing existing literature.
 - Survey a wide range of topics in the applied economics empirical literature.
 - Carry out an empirical research project and communicate findings effectively.

Pre-req. ECON504

- Material**
- The lecture notes are the primary material for the course.
 - No required textbook, but the following are recommended:
 - *Mastering 'Metrics* by Angrist and Pischke (Micro)
 - *Mostly Harmless Econometrics* by Angrist and Pischke (Micro)
 - *Causal Inference: The Mixtape* by Scott Cunningham (Micro)
 - *The Effect* by Nick Huntington-Klein (Micro)
 - *Discrete Choice Methods with Simulation* by Kenneth Train (Discrete Data)
 - *Principles of Econometrics* by Carter-Hill, Griffiths, & Lim
 - *Introductory Econometrics: A Modern Approach* by Wooldridge
 - *Econometric Analysis* by Greene
 - *Econometric Analysis of Cross-Section and Panel Data* by Wooldridge (Micro)
 - *Applied Econometric Time Series* by Enders (Macro)
 - In addition, I will occasionally assign supplementary material from other sources such as books, academic journals, news articles, blogs, YouTube, and podcasts.

Software Different softwares are applicable to different methods. Common ones are STATA, MATLAB, R, and EViews. I will provide support as best as I can, but you are responsible for learning the software you intend to use for the term paper analysis.

REQUIREMENTS

Participation: read the assigned papers and participate in class discussion.

Reading Briefs: summarize the assigned papers in short briefs to be turned in before class. They should be written in bullet-point style, covering the following: research question, motivation, contribution, data, econometric framework and identification strategy, main quantitative results and qualitative findings, policy implications, and your own thoughts and critiques about the paper's econometric methodology.

Presentations: each assigned paper will be presented by a student. The presentation should be 15-minute summary followed by 10-minute discussion. The presentation should cover the same points in the reading brief. Each student is expected to present at least 1 paper during the semester.

Research Ideas: think of 3 research ideas and write 1/2 page summaries about them covering the research question, motivation, data needs, and the econometrics. Grading will be based on completeness, and I will provide you with written feedback that points you in directions where you can develop the ideas further. The purpose of this exercise is to get you in the habit of generating ideas, help you develop empirical strategies to answer research questions of interest to you, and hopefully lead to a research proposal or term paper.

Proposal Outline: 2-page outline of a research proposal on a well-developed research idea. It should clearly and specifically formulate the research question, explain the motivation and policy relevance, identify which literatures it fits in, describe the ideal data and variables needed, and discuss econometric & identification challenges.

Proposal Presentation: present the research proposal in 15 minutes followed by a 5-minute discussion. The presentation is a more developed version of the outline, where your proposal is backed by some literature review, has a model and a convincing identification strategy, be logistically feasible. Presentations need not include data, quantitative analysis, or results, though having them is a plus. Grading will be half for the research idea and design and half for the quality of the presentation. In addition, this exercise is a chance for you to receive feedback from your classmates and me.

Written Proposal (optional): expand your proposal in writing with an introduction and motivation, complete literature review, identified data source and description of variables needed, a model, and a discussion of econometric challenges and identification strategy to overcome them. The proposal need not have data, quantitative analysis, or results, though having them improves it greatly.

Term Paper (optional): write a complete term paper that expands on the proposal with quantitative analysis, explains results, draws conclusions, and discusses policy implications.

* NOTE: Your proposal and/or term paper can be a continuation of a project you started in a previous class, in which case you must turn in the final version you submitted for that other class by March 9th (week 5)

DEADLINES & GRADING

Requirement	Deadline	Grade*
Participation	-	
Reading briefs	As assigned	
Presentations	As assigned	
Research Idea #1	Week 2: Feb. 16	
Research Idea #2	Week 3: Feb. 23	
Research Idea #3	Week 4: Mar. 2	
Proposal outline	Week 7: Mar. 23	
Proposal Presentation	Week 11: Apr 16	≤ B+
Written Proposal	Week 13: May 4	≤ A-
Term paper	Finals week: May 18	≤ A

* Grading in this course is generally based on effort and completeness, not on correctness. The promised grades are conditional on satisfactory performance based on these criteria.

COURSE OUTLINE*

Weeks	Topic	Reading
	Introduction; Linear & Matrix Algebra Review	
	Review of OLS & ML Estimation	
	<i>Part I. Systems of Equations</i>	
	Seemingly Unrelated Regression (SUR) Model	
	Simultaneous Equations Model	
	<i>Part II. Time Series</i>	
	ARMA; VEC; VAR; SVAR	
	ARCH; GARCH; Stochastic Volatility	
	State Space; Factor models	
	Structural Breaks; Time-Varying Parameters; Regime Switching	
	<i>Part III. Panel Data</i>	
	Pooled; Random Effects; Fixed Effects	
	Correlated Random Effects; Random Coefficient; Dynamics	
	<i>Part IV. Program Evaluation</i>	
	Difference-In-Differences	
	Regression Discontinuity	
	<i>Part V. Limited Dependent Variable</i>	
	Discrete Choice: Binary, Ordinal, & Multinomial	
	Censored; Count; Sample Selection	
	Discrete Panel Data	
	<i>Part VI. Other Topics</i>	
	Duration Models; Spatial Models; Missing Data;	

* This list is tentative and will unlikely be fully covered, depending on course progress and student interests. Additional topics may be added if desired by students.

OTHER POLICIES & GUIDELINES

Communication	All class communication will be via MS Teams. Assignment submissions will be on Moodle.
Research Resources	Use the KU library website to access the literature: http://kuniv.vdiscovery.org/ . Google scholar (https://scholar.google.com/) is also a great resource. If an item is not available or inaccessible, let me know.
Attendance	On-time attendance is expected. If you have to miss class, notify me by e-mail in a matter of professionalism and courtesy. You are responsible for information you miss while absent. In cases of persistent and unexcused absence, your participation grade will be adversely impacted and the university rules will be enforced (Student Guide §3.13).
Late Submission	Accommodation may be made for the written proposal and term paper in agreement with the instructor. All other assignments must be submitted on time and are subject to late submission penalties.
Class Etiquette	General rule: avoid distractions. If you are late, walk in quietly and take the first seat available. Refrain from using phones and other devices even if they are silent; they distract you, your classmates, and me. You can bring beverages, but not food.
Learning	This course is dense, and the best way to learn is by training your eyes, ears, and hands to collectively receive, store, and retrieve information. This is accomplished by reading in advance, paying attention in class, asking questions, and taking extensive notes. Refrain from taking pictures of the board as it is distracting and ineffective.
Disabilities	Inform me if you have a disability and need assistance or accommodation.
Academic Integrity	<ul style="list-style-type: none">- Stealing someone else's work is unfair to them, disrespectful to the instructor, and beneath the dignity of a respectable university. There will be a zero-tolerance policy regarding cheating and plagiarism as per §3.2 of the Student Guide. It is expected that material submitted for grading represents the student's own performance. As such, any case of academic dishonesty will result in failing the assignment/exam in question and/or the entire course.- Use the APA standard for citations: https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_style_introduction.html If still in doubt about attributing the work of others, seek my advice.
University Rules	You are responsible for familiarizing yourself with the rules in the Student Guide: http://www.dalrasheed.com/sg
Values	This syllabus is a contract between you and me. It is based on mutual trust, respect, and fairness. I reserve the right to make changes to it to ensure these values are upheld, in which case you will be given adequate notice.