Syllabus
ECON 2312: Empirical Methods in Economics II
Fall 2018

Instructor:	Rui Sun (rui.sun@uconn.edu)
Office Hours:	Monday 1:30pm – 3:00pm and by appointment, OAK 307
Lectures:	MMoWeFr 12:20pm – 1:10pm and FSB 216
Prerequisite:	ECON 2311

Course Description:

ECON 2312 is a semester long course in introductory econometrics. Econometrics is the art and science of the estimating and testing of economic models. These estimated models can then be used for causal inference and prediction. The course will focus on the endogeneity problem, instrumental variable method, panel data models, binary choice models, and quasi-experiments in economics and related disciplines. The objective of the course is for student to learn how to conduct and critique empirical studies in economics and related fields. Accordingly, the emphasis of the course is on empirical applications. The mathematics of econometrics will be introduced only as needed and will **not** be a central focus.

Course Webpage:

HuskyCT(http://lms.uconn.edu). Supplementary course materials will be provided on HuskyCT. Students should check this page regularly.

Required Textbook:

$\diamond$ Stock and Watson (2011), *Introduction to Econometrics*, 3rd Edition, Pearson.

In addition to the recommended textbooks, a series of lecture notes which follow the material presented in class will be posted on HuskyCT. The recommended textbooks and lecture notes are complements to the lectures, not substitutes.

Required Software:

STATA(https://www.stata.com/). Students can access it in the computer labs or online with UConn AnyWare or SkyBox. Eligible students can download STATA at https://software.uconn.edu/software/stata/.

Requirements:

Assessment of this course will be based on the following four components:

- **Participation:** students are expected to be active learners in this course. You are expected to attend class regularly, try your best on assignments, and ask questions in class. Attending office hours will also be considered part of the participation.

- **Homework:** there will be three homework assignments in this course. Homework assignments are STATA exercises and will serve as a way to learn and practice the software. Students are encouraged to discuss homework assignments, but must write up the solutions independently.

- **Two Midterms:** the two in-class midterm exams are in week 5 and week 10(subject to change), respectively.

- **Final:** the comprehensive final exam is scheduled by the University.

Grading:

- Option 1: participation (10%) + homework (20%) + two midterms (20% + 20%) + final (30%)

- Option 2: participation (10%) + homework (20%) + best midterm (30%) + final (40%)

The higher score between those two options will be used to decide your letter grade. I will generally follow the following grading scheme, however, I reserve the right to make adjustments as necessary. You will be notified if adjustments are made.

≥ 93.00	A	$73.00 - 76.99$	C
$90.00 - 92.99$	$A-$	$70.00 - 72.99$	$C-$
$87.00 - 89.99$	$B+$	$67.00 - 69.99$	$D+$
$83.00 - 86.99$	B	$63.00 - 66.99$	D
$80.00 - 82.99$	$B-$	$60.00 - 62.99$	$D-$
$77.00 - 79.99$	$C+$	≤ 59.99	F

If the class average on the final grades falls below 83, a curve will be added to bring the class average up to 83. For example, if the class average is 80, then a 3 curve will be added to bring the class average up to 83. The **class average** of this course is guaranteed to correspond to the lowest B.

Formula Sheets:
Two pages (single sided, 8.5×11 inches) are allowed for each midterm exam and four pages for the final exam. They can either be printed or handwritten.

Makeup Exam Policy:
Only students with legitimate excuses will be allowed to make up missed exams. The date and time for student to take a makeup exam will be arranged on a case by case basis.

Academic Integrity:
Academic honesty is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, or collaboration, consult the course instructor.

Disabilities and Accommodations:
In compliance with the University of Connecticut policy and equal access laws, I am available to discuss appropriate academic accommodations that may be required for students

with disabilities. Students in need of accommodations should go to the center for students with disabilities (see `http://www.csd.uconn.edu/`) to verify their eligibility for appropriate accommodations. If you are eligible for accommodations such as extra time during exams, please provide documentation and coordinate with me no later than a week prior to every exam.

Tentative Course Outline:

Topic	Section/Chapter(S&W)
1. Review of Probability&Statistics&OLS a) Random Variables b) Sample and Population c) LLNs/CLT and Consistency d) Correlation vs. Causality	2-4
2. Assessing Studies Based on Multiple Regression a) Internal Validity vs. External Validity b) Threats to External Validity: i) Omitted Variable Bias ii) Measurement Error Bias iii) Simultaneous Equation Bias	9
Exam One	
3. Instrumental Variable Regression a) IV Estimator b) Two Stage Least Squares Estimators(General IV Model) c) Validity of Instrument	12
4. Regression with Panel Data a) Panel Data b) Fixed Effects Estimation c) Time Fixed Effects	10
Exam Two	
5. Regression with a Binary Dependent Variable a) Linear Probability Model b) Probit and Logit Model	11
6. Quasi-Experiments a) The "as if" Randomization b) The Differences-in-Differences c) Regression Discontinuity	13
Final Exam	

Statistical Software:
The course will require use of Stata, one of the primary statistical packages used by economists. Stata is freely available to students at UConn through the computer labs or online with UConn AnyWare. Eligible students can also download Stata at `https://software.uconn.edu/software/stata/`. You are welcome to use other statistical software such as R, but I will only demonstrate how to use Stata in class. Here are some resources for learning Stata:

- Resources to help you learn and use Stata by UCLA Institute for Digital Research

and Education (IDRE): an extensive resource of Stata information, including FAQs, learning modules, a quick-reference guide, annotated output, textbook examples, and more. New users may want to visit the Stata Class Notes section of the UCLA site. Don't miss the Stata Web Books.

- Introduction to Stata by Carolina Population Center, University of North Carolina at Chapel Hill: this tutorial is function-oriented, focusing on data-management tasks. It works up from basic tasks, such as how to drop variables, to the tasks needed for complex file organization, such as how to reshape and merge data files.

- Stata Online Training Page by Princeton Data and Statistical Services: a series of pages giving a step-by-step instruction in Stata. Topics start from basic Stata usage, and progress through common data management tasks through to using Stata for a wide variety of analysis topics.

- Stata cheat sheets by Dr. Tim Essam and Dr. Laura Hughes: these compact yet well-organized sheets cover everything you need, from syntax and data processing to plotting and programming, making them handy references to download for quick use.

- Articles on Statistical Computing by Social Science Computing Cooperative, University of Wisconsin: a large collection of well-written and informative pages about a broad set of topics, including an in-depth Introduction to Stata for Researchers.

- Stata Tutorial by German Rodriguez, Princeton University: a brief and informative introduction to Stata.

RStudio is a *free and open-source* integrated development environment for R, a programming language for statistical computing and graphics. To install RStudio, first download and install R from `http://cran.r-project.org/`. Second, download and install RStudio by visiting `http://rstudio.org/download/desktop` and clicking the link listed under "Installers for Supported Platforms". While R is not required, these resources may be useful if you need some extra help learning R:

- Contributed Documentation by Comprehensive R Archive Network (CRAN): comprehensive list of freely available reference material for R.

- R Twotorials by Anthony Damico: ninety energetic, two-minute video tutorials on statistical programming with R.

- Google Developers R Programming Video Lectures: R Programming video tutorials from beginning to advanced.

- Econometrics in R by Grant Farnsworth.

- Resources to help you learn R by UCLA Academic Technology Services: a wealth of information about R, conveniently arranged in one place. The R Starter Kit is particularly helpful.

- R in a Nutshell by Joseph Adler: it provides a comprehensive reference guide to R.

- R-bloggers: a blog aggregator for R news and tutorials, with lots of applications.