

AEB 7572 Econometric Methods II - Spring 2020
SYLLABUS

University of Florida
Food and Resource Economics Department

Instructor:

Dr. Gülcan Önel
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Office Hours: Tu., Th. 11:00AM – 12:00PM, or by appointment

Class Meeting Times:

Tuesdays 1:55 PM - 2:45 PM, [MAEB 0234](#)
Thursdays 1:55 PM - 3:50 PM, [MAEB 0234](#)

Course Description and Objectives:

The course is designed for first-year Ph.D. students in food and resource economics department and graduate students from other majors who want to advance their econometrics knowledge. The course aims to provide a theoretical foundation for applied research in economics and related fields. The focus of the course will be on the specification and estimation of linear models, with particular attention to different estimators (including Least Squares, Maximum Likelihood, and Generalized Method of Moments), their finite sample and asymptotic properties, and hypothesis testing. Some advanced topics such as Nonlinear Estimation, Introduction to Time Series and Panel Data will also be discussed as time permits. The prerequisite is AEB 7571 - Econometrics I (or, “Mathematical Statistics”) in FRE, or its equivalent elsewhere.

Course Website:

Information related to the course, including announcements, homework assignments, and other course materials will be available through UF’s Canvas “E-learning” system (<http://lss.at.ufl.edu/>).

Materials:

The primary text for the class is W.H. Greene’s *Econometric Analysis* (8th Edition, by Pearson).

Other textbooks worth consulting (but not required!):

1. Davidson and MacKinnon’s *Econometric Theory and Methods* by Oxford U. Press.
2. Ruud, P. (2000) *An Introduction to Classical Econometric Theory*, Oxford University Press.
3. Wooldridge, J. (2010) *Econometric Analysis of Cross-Section and Panel Data*, MIT Press.
4. Kennedy, P.A. (2008) *A Guide to Econometrics*, Wiley (excellent as a less-technical supplement to the required text).
5. Bruce Hansen’s text: <http://www.ssc.wisc.edu/~bhansen/econometrics/Econometrics.pdf>

Policies:

- *Teaching Philosophy:* I want our section to be a friendly environment, where everyone is allowed to make mistakes and ask any questions they may have without feeling shy about doing so.

- *Grading:*

Homework Assignments	20%	
Exam 1	25%	February 11, in class
Exam 2	25%	April 14, in class

Final Project	30%	One-page proposal due: February 13th , Final files due via email: April 21st .
Bonus	5%	For those who present their term projects at the FRE Day of Research in April (Non- FRE students welcome).

Final course grading scale:

A	93 - 100	4.00	C	72 - 74	2.00
A-	87 - 92	3.67	C-	69 - 71	1.67
B+	84 - 86	3.33	D+	65 - 68	1.33
B	81 - 83	3.00	D	60 - 64	1.00
B-	78 - 80	2.67	D-	56 - 59	0.67
C+	75 - 77	2.33	E	<56	0.00

- *Attendance:* Please, review relevant sections in the textbook before coming to class. If you miss a lecture, make sure you get the lecture notes from a classmate. Please be punctual.
- *Cell Phones/ Tablets / Laptops:* Please refrain from using tablets/phones etc. during lectures.
- *Assignments:* I will regularly assign homework problems and discuss examples in class to encourage applying the material; but the more problems you can work on your own, the better. I do encourage study groups for homework assignments; however, each student must submit his/her own write-up, code, output etc. (carbon-copying code or write-up of assignments may be considered as plagiarism).

Homework assignments will be turned in at the beginning of the lecture on the day they are due. Late homework submissions will not be accepted, unless an extraordinary circumstance warrants it (these circumstances need to be communicated to me BEFORE the due date).

Some problems will require working with data. You may use any software supporting matrix programming (SAS/IML, GAUSS, MATLAB, R, etc.), but I will only provide support for SAS/IML. Whichever software you choose to use, you must provide all the code and the key output supporting your results.

- *Exams/make up:* No Make-up exam will be given for the exams. If you miss one exam, the second one will weigh 50% of your overall grade.
- *Software:* I will use SAS/IML for empirical exercises. Although some familiarity with statistical software is useful, you do not need to have prior experience with SAS/IML; I will be providing necessary tutorials to get you started.

You may purchase SAS 9.4 *Educational Analytical Suite* home-use license at a discounted rate through the Help Desk at the Hub #132, and keep a local installation on your PC. Another option is to use the same version through the [UF Apps](#). SAS version 9.4 is also installed on computers in the FRE graduate computer lab.

- *Final Project:*

OPTION 1: Original Research Poster (+Optional Presentation at the FRE Day of Research)

- This is an applied econometrics research project. The format of final submission for this option is a poster.

- This option may be preferable if you want to start working on analyzing data for your dissertation or a conference submission. FRE students can leverage this option for their required presentation at the FRE Day of Research. A poster is very brief version of a complete research paper.
- Examples of acceptable forms of contribution for Option 1, besides starting an original work, includes extending a previous work and data set (e.g., different industries, countries, regions), adding/testing alternative variables, conducting different specification tests, or using alternative conceptual/theoretical frameworks.
- Poster size is optional. But, I recommend creating your poster as a 36inch (H)x 48inch(W) Power Point slide (One .PPT slide can be as big as 56inchx56 inch). Here is a good set of tips for designing your poster in Power Point:
http://www.aaea.org/UserFiles/file/Poster_Powerpoint_AgEcon_Search.pdf
- Easiest way to design a poster is to use a PPT poster template. Google is your friend here. Here is one template from UF Help Desk :
http://helpdesk.ufl.edu/wpcontent/uploads/2012/11/Poster_Template_36X48.pptx
- UF has a cost-effective poster printing facility in the HUB 224.
- Your poster should have the following section headings:

Introduction: Give some background, describe the problem and tell the audience why it is an interesting one.

Model: The economic and/or econometric model behind your research question.

Methods and Data: Describe the econometric method you use and your data.

Findings: This section should only have graphs, charts, and tables with minimal text.

Discussion: What are your conclusions from the findings?

OPTION 2: Replication Paper

- The format of this option is a paper (~10 to 15 pages). The final paper should be written up in a manuscript format.
- Good alternatives for replications are seminal papers that allow you to become familiar with a method or a data set that you are considering using in your dissertation.
- The ideal final paper will describe the initial article, carefully delineate the ease with which the results replicate, and propose/carry out extensions or improvements to the research design.
- If your paper is well-done, it can be submitted for publication either as a comment in the original journal, or in one of several journals that accept replications. For example, the Journal of Applied Econometrics publishes replications of papers that were originally published in Econometrica, AER, JPE, QJE, REStat, Journal of Econometrics, Journal of Business and Economic Statistics, and Economic Journal. There are many other outlets for a well-done replication study.

Other things to consider, regardless of the option selected:

- ❖ The problem at hand must be empirical, using real data.
- ❖ The project must be distinct from other class projects you might have assigned, and it must be feasible so that it can be completed by the end of semester.
- ❖ Regardless of the option, you do not have to go beyond basic econometric methods that we will discuss in the course for a satisfactory grade. The main purpose of the project is to give you an overall experience in designing empirical research and using econometric methods appropriate for answering your particular research question. However, if you feel motivated to utilize your work for later submissions, you are welcome to go beyond the material covered in class.

- ❖ Do not use a class/homework data set verbatim, even for the replication assignment.
- ❖ To find an interesting topic for your project, I suggest getting in touch with faculty members working in the areas you find interesting. This is also an excellent time to identify a potential advisor, if you do not have one yet. Scanning recent empirical journals and working papers (e.g. Journal of Applied Econometrics, American Journal of Agricultural Economics, IDEAS, AgEcon Search, the NBER working paper series, etc) is another good way of finding an interesting research question.
- ❖ About a month into the semester (exact date on page 2), you will submit a **one-to-two page outline of your proposed project** with brief descriptions of the *research question*, the *econometric methods* you will employ, and the *data* you will use (data size, type, variables, source, availability etc.). If you are going to replicate or extend another paper, please attach the original paper to your outline.
- ❖ Regardless of the option you choose, you must submit 1) your poster or replication paper, 2) your own code for the analysis, 3) data used to run that code 4) the original paper (only if your project is replication or extension of a published paper).
- ❖ Unlike your homework assignments, the poster research can be done using canned software, such as STATA or SAS PROCs. Matrix language programming is not required for the final term project.

Tentative Course Outline

1. The Multiple Regression Model

Least Squares (LS) and the Gauss-Markov Theorem
 Sampling distributions induced by normality and tests of linear restrictions
 Inverting test statistics to obtain confidence regions
 Specification analysis, the algebra of ellipsoids, and the value of information
 The method of maximum likelihood (ML) and the Likelihood Principle

2. Asymptotic Approximations to Sampling Distributions

Convergence concepts (in probability and in distribution)
 Asymptotic properties of LS and ML

3. The bootstrap

4. Nonspherical Disturbances

Generalized Least Squares (GLS) and the Feasible GLS - asymptotic properties
 Heteroskedasticity
 Serial correlation

5. Endogeneity

Errors in variables
 Instrumental variables and endogeneity testing
 Full information estimation (3SLS and FIML)
 Generalized Method of Moments
 Simultaneity and the systems of equations

6. Nonlinear Regression Models

Nonlinear Least Squares Estimator
 Large Sample Properties of the Nonlinear Least Squares Estimator
 The case of Structural Breaks

7. Introduction to Time Series Econometrics (as time allows)

Stationarity, and ARIMA processes
 Unit Roots and Cointegration

Disclaimer:

The syllabus is a general plan for the course; deviations may be necessary. I hold the right to make changes to this syllabus anytime during the semester as circumstances warrant

UF POLICIES AND GUIDELINES

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor within the first two weeks of the semester.

Course Evaluation

Students are expected to complete online course evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, students will be notified of the specific times they are open.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor.

Software Use

All faculty, staff, and students of the University 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.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.