

University of Massachusetts Amherst
Department of Resource Economics

ResEcon 797E Experimental Economics II—Spring 2021

Tue 1:30-2:30PM and Thur 1:30-3:00PM

<https://umass-amherst.zoom.us/j/99957273524>

Fully Synchronized Lecture

Professor: Dr. Rong Rong

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Office hours: Please make an appointment by email

Course Objective:

The aim of this course is to provide graduate students with a solid understanding of experimental methodology. It starts with a short survey of experiment design issues and common games. The main emphasis then turns towards examining various econometric tools that researchers use to analyze experimental data. These include non-parametric and parametric treatment testing, regressions, discrete choice analysis, panel data analysis, structural estimations, etc. students will (1) read, summarize and present papers that apply the econometric techniques under discussion; (2) practice STATA coding, replicating previous research findings; and (3) acquire the skill of selecting proper econometric tools and formulating optimal experiment designs to address different types of research questions.

Prerequisites:

- Basic understanding of econometrics (summary statistics, sample comparisons, OLS regression, etc.)
- Basic proficiency in STATA
(Here is a catch-up video: <https://www.youtube.com/watch?v=YAVq99iUTTI>)

Required Material:

- *Experimetrics*, Peter Moffatt, Macmillan, 2016, ISBN: 978-0-230-25023-9
- Access to STATA software. Graduate students can access it on the computers located at the department graduate student office.

Optional Material:

1. *Nonparametric Statistics for the Behavioral Science*, Sidney Siegle and John Castellan, McGraw-Hill Education, 1988, ISBN: 9780071003261
2. *Microeconometrics using STATA*, Colin Cameron and Pravin Trivedi, STATA Press, ISBN-13: 978-1597180733

Grades:

Grades will be calculated according to the following percentages:

	Percentage	Notes
Class Participation	10%	Every lecture
Referee Report	10%	Almost every week
STATA Assignments	20%	
Presentation	10%	Three each person
Midterm	20%	Mid semester. Date: TBD
Final	30%	TBD
Total	100%	

Notes on Class Participation and Attendance

- The course is fully synchronized. That is, we meet two times a week at the designated course hours on Zoom.
- If you have some reasons that prevent you to attend, please email me ahead of time.
- I have not decided whether the lecture will be recorded or not. I think it should be a decision we make together at the first class.
- To achieve the learning outcomes, **you are required to read the textbook material and assigned research paper prior to the lecture.** I will ask questions related to the reading during the lecture. You are expected to produce some intelligent (but not necessarily correct) responses. This goes into the “Class Participation” grade.

Notes on Referee Report

- Write a one-page referee report based on the assigned research paper of the week. The first paragraph summarizes the research question and experimental design. The second paragraph lay out the main findings. The later paragraphs can contain your opinions (critiques and/or potential extensions of the study). A sample referee report can be found on Moodle course page.
- The report will be graded based on a rubric that evaluates the summary content (60%), the opinion content (30%) and the writing quality (10%).
- Please work on the writing independently. If you decide to read and discuss the paper with your fellow classmates, make sure you write alone. I randomly check on plagiarism.
- I will drop the lowest report score. Please use your drop wisely. There will be no make-up assignment once you used your drop.
- Late submissions are discounted by 20% for each 24 hours. It becomes 0% if you are late by 5 days.

Notes on Presentation

- Each student will be assigned three published research paper to present to the class. The presentation will be 30 minutes long followed by 15 minutes discussion and Q&A.

- Your presentation will be graded based on a rubric that evaluate the slides' content (70%) and the presentation style (30%)

Notes on STATA Assignments

- STATA assignments are hand-on manipulation of dataset. The dataset comes from a previously published paper.
- You may find it beneficial to compare your codes or help each other debugging. That is fine with me. But please work on coding independently FIRST. If you cannot code proficiently by the time of midterm. Your grade may suffer.
- The STATA assignment will be graded based on a rubric that evaluates the output (80%) and the efficiency and clarity (20%) of your STATA code.
- Late submissions are discounted by 20% for each 24 hours. It becomes 0% if you are late by 5 days. An answer key will be posted on Day 5, or when I receive everyone's submission, whichever is earlier.

Notes on the Exams

- Midterm will be 2.5 hours long. The Date is to be determined.
- Final exam will be held on TBD. Final is comprehensive.
- There will be no make-up tests given for the midterm and the final, except under extenuating circumstances as defined in section VIII of the Academic Regulations available at <http://www.umass.edu/registrar/sites/default/files/academicregs.pdf> . I will provide a make-up exam only to eligible students according to the university rules. These rules apply to students for whom exams conflict with another exam or class. Please have the Registrar's Office or the instructor from the other class verify the conflict and bring me this verification at least one week before the exam.

Exam Protocol

- Both midterm and final are open-book-open-notes tests. But be prepared to tackle questions that are not to be found in the textbook.
- No discussion or teamwork is allowed during exams.

Communication Channel:

I post all reading materials and make class announcements (assignment due date, exam time and location, class cancellation, etc) using Moodle throughout the semester. It is your responsibility to make sure that your account is activated and that you check it regularly.

Accommodation Statement

The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS), you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first two weeks of the semester so that we may make appropriate arrangements.

Academic Honesty Statement

Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to: cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent (http://www.umass.edu/dean_students/codeofconduct/acadhonesty/).

Class Outline:

I would like to cover the topics presented below. I know that I may not cover all of them. I also may not follow the order presented here.

Topic 1: Syllabus, Introduction to Experimentetrics

- Syllabus
- Big pictures

Assignments:

- Read Moffatt Chp 1 and 2
- Read Brown and Healy (2018) EER

Topic 2: Statistical Aspect of Experimental Design (Chapter 2)

- Principles of Experimental Econ
- Popular games
- Design elements
- **Presentation: Brown and Healy (2018)**

Assignments:

- Read Moffatt Chp 3; Siegle and Castellan Handouts (Mann-Whitney Test)
- Read Brosnan and de Waal (2003)

Topic 3: Treatment Testing (Chapter 3)

- Basics of hypothesis testing
- Choose the correct test
- A manual example of Mann-Whitney Rank-Sum test
- **Presentation: Brosnan and de Waal (2003)**
- Simulating data using STATA

Assignments:

- Read Moffatt Chp 4
- Read Delluck et al (2011)
- Read Brands and Potter (2016) survey paper—IO
- STATA Assignment: Simulation and Monte Carlo exercise

Topic 4: Theory Testing, Regression and Dependence (Chapter 4)

- Regression Basics
- Fixed effects, random effects and mixed effects
- Auction data and contest data
- **Presentation: Delluck et al (2011)**
- Discuss: Brands and Potter (2016)
- More popular games, continue (time permitting)

Assignments:

- Read Moffatt Chp 6
- Read Andreoni and Sprenger (2012)
- Read List & Price (2016), Palm-Forster et al (2019) survey paper--Environmental
- STATA assignment: Replicate Delluck et al (2011) results

Topic 5: Discrete Data and Maximum Likelihood Routine (Chapter 6)

- Intro to Maximum Likelihood Method
- Example 1: program mylogit
- Example 2: program structural estimation of risk preference
- Example 3: Interval data and censored data
- **Presentation: Andreoni and Sprenger (2012)**
- Example 4: joint estimation of risk and time preference with CTB data

Assignments:

- Read Moffatt Chp 8 and 17
- Read Bosch-Domenech (2013)
- Read a survey paper on the topic of our choice-development? Health? Labor? Politics? Matching? Social Network? TBD

Midterm Exam

Topic 6: Individual Heterogeneity, Finite Mixture Models and Depth of Reasoning (Chapter 8 and 17)

- Intro to Finite Mixture Models
- The fmm command

- Public Good Data example
- Beauty Contest example, level-k reasoning versus Cognitive Hierarchy Model
- **Presentation: Bosch-Domenech et al (2013)**

Assignments:

- Read Moffatt Chp 15 (skip section 15.3)
- Read Della Vigna et al (2013)
- Read Levitt and List (2007) survey
- STATA programming: modify pg_mixture to 2 classes; modify beauty_mixture and cog_heir to include 6 classes

Topic 7: Social Preference (Chapter 15, exclude 15.3)

- Some lab facts
- Distributive social preference
- Conditional Logit approach to estimate distributive social preference
- Finite mixture approach to estimate distributive social preference
- Reciprocal social preference
- **Presentation: Della Vigna et al (2013)**

Assignments:

- Read Moffatt Chp 18
- Read Feltovich (2000)
- STATA assignment: program your own Myasclogit estimator using “program define” and compare the output with the one using STATA asclogit command

Topic 8: Learning Models (Chapter 18)

- Directional Learning
- Reinforcement Learning
- Belief Learning
- Experience Weighted Attraction Model
- **Presentation: Feltovich (2000)**

Assignments:

- Read Moffatt Chp 12 and 13
- Read Chuang and Schechter (2015) survey
- Read Anderson et al (2014)

Topic 9: Risk and Time Preference Elicitation: Theory and Econometrics (Chapter 12 and 13)

- Utility Models for risky choice
- Lottery Choice Models
- Simulation and Estimation
- **Presentation: Anderson et al (2014) Elicit Subject Probability**

Assignments:

- Read Moffatt Chp 16
- Read Yi (2005) (QRE models of ultimatum game)
- STATA assignment: Replicate Anderson et al (2014)

Topic 10: Repeated Game and Quantal Response Models (Chapter 16)

- Theory of QRE
- Estimation of QRE
- QRE Applied to Contest Data
- **Presentation: Yi (2005)**

Final Exam

Appendix A. Questions to Guide Your Mind When Reading Each Assigned Paper (or Thinking About Your Own Research Project)

For each assigned paper, I would like each member of the class to think about the following questions carefully. Your referee report is a written version of your answers to the following questions (in the order of 12578, then 3469 as part of critiques and comments). Your presentation is a spoken version of your answers (in the order of 123456789).

1. What is the question the paper intend to answer after the experiment? (Research Question. Your answer should be a single sentence with a question mark at the end.)
2. How important is this question to the world? Does it have policy implications? Does it influence the way we model human behavior? (Motivation)
3. What does the economic literature know already about the possible answers to the question you have stated above and/or to highly related questions? (Literature)
4. What are the various possible ways of finding an answer to the question you have stated above? Include both experimental as well as any other methods mentioned in the assigned paper. What are the advantages and disadvantages of using an experiment to find an answer? ((Advantage of Experimentation. This may not be discussed in the assigned paper. You need to come up with a response yourself if it is not discussed)
5. How is the experiment conducted? (Experiment design and implementation details)
6. Is the experimental design the simplest possible design to help answer the question? (Design Justification)
7. What are the possible outcomes of the experiment? (Hypotheses)
8. What is the actual observed outcomes of the experiment? (Results)
9. Can the design be modified to answer some other interesting questions? (Discussion and Future Research)