ECON 7025, Fall 2014
Empirical Research Methods

Theme: Micro-econometrics with applications in applied fields
Instructor: Pat McCarthy

Course Syllabus, Outline and Guidelines

Class time: Tue & Thurs [12:05 – 1:25] Location: Room 310

Information about the class including the detailed course syllabus, summary notes and assignments are on T-square. Class attendance and participation is important and will account for a significant part of the grade.

Required Reference Textbooks
All required textbooks should be on hold in the library
- *Research Methodology in Applied Economics (RMAE)*, Don Ethridge

Other Reference Materials
Note: Some of the other reference textbooks should be on hold in the library.
- *Microeconometrics: Methods and Applications*, A. Colin Cameron and Pravin K. Trivedi. (on reserve)
- *Microeconometrics Using Stata*, A. Colin Cameron and Pravin K. Trivedi. (on reserve)
- *An Introduction to Modern Econometrics using Stata*, Baum Christopher

Course description
The objectives of this course are to:
- provide you with guidance on how to organize and conduct research in economics. Your courses in econometrics have exposed you to core technical methods and procedures. This course focuses on using this knowledge in finding a good research topic and navigating the process of research from the questions you are interested in, to the literature review, conceptual framework, data, empirical strategy, results, conclusions and targeting a paper for publication;

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1 Subject to change as the semester progresses if I believe that this will enhance the overall quality of the course and learning.
• teach you how to critique an economic paper and provide guidance that should help you to write a referee report for applied papers. As an economist one of your obligations will be to review papers and write referee reports;
• expose you to modern econometric techniques that you may have seen before or may be new to you. These techniques are commonly used in many areas of applied economics. The purpose of going over these techniques is to guide you as you learn how to apply modern econometric techniques to answer real world policy related and subject matter research questions.

The course will focus on issues and techniques. Expected outcomes for this class are several: 1) that every student leave this class with a good understanding of the research process from beginning to end; 2) that every student know how to apply some modern econometric techniques to real world problems in applied microeconomics; 3) that every student be able to write a good referee report; and 4) that every student be able to prepare a working paper that with some improvement can be suitable as part of a thesis or be considered for possible submission journal in the future; and 5) that every student know how to tailor presentations for job market talks, seminars, and conferences.

Topics to be covered
• Week 1 [Aug 18-Aug 22] Introduction, Planning the Research
• Week 2 [Aug 25-Aug 29] The Research Problem and Objectives
• Week 3 [Sep 1-Sep 5] The Literature Review – Good writing sells!
• Week 4 [Sep 8-Sep 12] The Conceptual Framework
• Week 5 [Sep 15-Sep 19] Methods and Procedures (M&P): Introduction, Data and its link to Methods
• Week 6 [Sep 22-Sep 26] Referee’s reports – Assessor (writing) and Assessed (responding)
• Week 7 [Sep 29-Oct 3] M&P: Linear Probability and Binary Outcome Models
• Week 9 [Oct 13-17] Fall break, Oct 14
• Week 11 [Oct 27-31] Referee’s reports
• Week 14 [Nov 17-Nov 21] M&P: Flexible Form Models
• Week 15 [Nov 24-Nov 28] Reporting your Research and Presentations
• Week 16 [Dec 1-Dec 5] Presentations

Class Website
Course materials and announcements will be posted on the course website on T-square
Grade Breakdown and Course Requirements

Class Participation 15%
Econometrics Assignments 15%
Econometric Paper Summaries 15%
Referee Reports 10%
Literature Review 10%
Research Presentations 10%
Research Paper 25%

Details

1. **Class Participation:** This class requires students being active in class discussions. Contributing to the discussion of papers in class is compulsory. Students need to be willing to share their knowledge and experience with the instructor and other students in class. Also, seminar attendance is helpful. Students are encouraged to attend seminars.

2. **Three Computer Assignments:** There will be two assignments, each is worth 10 points. Late assignments are unacceptable.
   - Homework 1, assigned October 9, due at 12:00pm, October 23
   - Homework 2, assigned November 6, due at 12:00pm, November 30
   - Homework 3, assigned November 20, due at 12:00pm, December 4

3. **Econometric Technical Summaries:** Every Thursday from week 2 to week 5, students will summarize one of the papers from the general readings for the week. These technical reports are one-two page summaries of the main econometric method used in the paper and the limitations of the method in the paper’s context. Everyone has to write this technical report and be prepared to contribute to class discussions. However, the choice of who formally presents the summarized paper in class will be determined a week prior to the class.

   From week 7 -13 two papers will typically be discussed in class and the same format as indicated above still applies but only one technical summary needs to be submitted. The choice of the paper for the technical summary will be announced a week or the Friday before the summary is due. The papers for the technical summaries are indicated on the course syllabus.

4. **Literature Review:** All students are required to prepare a 3 – 4 page literature review. The topics to write a literature review on will be assigned in class. Students are supposed to prepare a literature review that could easily become a part of a paper aimed for a journal or part of a thesis. The literature review is due at the end of week 5 (18th of September).

5. **Two Referee Reports:** A referee report is a critical evaluation of an article. The referee report will be a randomly assigned working paper from a list number of websites that have papers on applied economics. The referee report should be 3-6 pages. Instructions on how to prepare a referee report will be posted on the course website once the referee report is announced. The referee reports are due October 2 and October 30th.
6. **Research Presentations:** All students are required to present the results from their term papers. These presentations would take place during the last two weeks of class. Each student will be judged by their colleagues and the instructor. The allocation of point for the presentation will be based on presentation style, delivery of presentation, content of presentation and ability to answer questions based on presentation. Presentations must be good visually, contain at least a motivation, related literature, data description, methodology, results and conclusions. Students will be assigned to presentation times randomly during **weeks 14 and 15.** All students must be present at all presentations.

7. **Research Paper:** The research paper should be 14-20 pages, 12 point Times New Roman font, 1.5 line-spacing, 1” margins on all sides, and justified. The research proposal should have seven sections.

- Introduction.
- Literature Review.
- Conceptual Framework.
- Data and Descriptive Statistics
- Empirical Strategy or Methodology.
- Results and Robustness checks
- Conclusions and Limitations

All students must meet with me (during office hours) to discuss the choice of questions for their research paper latest by the 8th week of the semester. As mentioned above, research papers will be presented during the last two weeks of class. They are due on **December 5th.**

8. **Class Participation, Activities and Attendance:** It is important to participate in class activities and attend class regularly. Students who attend class regularly but do not participate in class activities and discussions would not get any of the 10% for participation.

**Statistical Software**
There is no required statistical software for this class. From prior courses, students may have knowledge of STATA, the software package that many research economists use. You can purchase your own copy of STATA for use on your personal computer or buy a one year license for the software from stata.com. Also, STATA is installed on the computers in the Old CE building computer room on the first floor.

Other software packages that economists use are SAS (often) and SPSS (less so). GT has site licenses each and both are installed on the computers in the Old CE building computer room on the first floor. LIMDEP and EVIEWS are also popular packages among economists, particularly for discrete response modeling (LIMDEP) and time series analysis (EVIEWS).
**Honor Code**
Students are expected to adhere strictly to GT’s Honor Code. Copying, cheating and plagiarism among others are totally unacceptable. Discussion of homework is acceptable and even encouraged, but answers to problems should be filled out by each person. Each student must sign all assignments, referee reports and research paper. Your signature indicates that you conform to the Georgia Institute of Technology Honor Code. See http://www.honor.gatech.edu/plugins/content/index.php?id=9 for details.

**Office hours**
Particularly for small classes, I have found that making individual appointments works best for office hours. Unless I have conflicting appointments, I can generally accommodate students’ schedules.

Office: Room 216, OLD CE Building.
E-mail: mccarthy@gatech.edu.
Detailed Syllabus (Recommended and Extra Weekly Readings)

- **Week 1: Introduction and Planning the Research (Aug 19, 21)**
  - DSI, Chapter 1 (required)
  - RMAE, Chapter 5 (required)
  - Read chapter 1-4 of RMAE on your own as it provides a good overview of the conceptual and philosophical basis of research methodology.
  - Introduction to Stata by Jeroen Weesie, on T-square
  - UCLA Stat lab is also a very helpful resource for guiding you as you work with Stata, SAS, SPSS, and R ([http://www.ats.ucla.edu/stat/sas/](http://www.ats.ucla.edu/stat/sas/))
  - An Introduction to the SAS System, Phil Spector, on T-square and at [http://www.stat.berkeley.edu/classes/s100/sas.pdf](http://www.stat.berkeley.edu/classes/s100/sas.pdf)
  - SAS Tutorial, M. Marashinge
  - A Quickstart Introduction to NLOGIT and LIMDEP by W. Greene

- **Week 2: The Research Problem and Objectives (Aug 26, 28)**
  - RMAE, Chapter 6 (required)

- **Week 3: The Literature Review (Sep 2, 4)**
  - Literature Review, RMAE, Chapter 7 (required)
  - EW, Chapters 1 – 9 (required)
  - Sowell, T., Some Thoughts about Writing (recommended)

- **Week 4: The Conceptual Framework (Sep 9, 11)**
  - The Conceptual Framework, RMAE, Chapter 8 (required)
  - EW, Chapters 10 – 19
• Week 5: Methods and Procedures [Data and its link to Research Methods] (Sep 16, 18)
  o Methods and Procedures, RMAE, Chapter 9 (required)
  o DSI, Chapter 2 (required reading)

**Literature Review Due September 18**

• Week 6: Observation-Based Research, Referee’s reports – Assessor (writing) and Assessed (responding) (Sep 23, 25)
  o Cockburn, I. and A. Jaffe, “A Project of the NBER Productivity Program” (required)
  o Feldstein, M. “The NBER-Sloan Project on Productivity Change” (with comments), 2000 (required)
  o Gordon, R. “Reflections on Pin Factory Visits” (required)
  o Helper, S. “Economists and Field Research: "You Can Observe a Lot Just by Watching” (required)
  o EW, Chapters 20-31 (required)
  o DSI, Chapter 3 (required)
  o Cochrane, J. Writing Tips for PhD Students (required)
  o Paul, R. and L. Elder, Critical Thinking (recommended)
  o Choi, K. “Being a Good Referee” (required)
  o JME, “Guide for Referees” (recommended)
  o Cowen, T. “How to be a good referee” (recommended)
  o Writing Tutorial Services, Indiana University, “Examples of Plagiarism, and of Appropriate Use of Others’ Words and Ideas” (required)

• Week 7: Methods and Procedures-[LPM and Binary Outcomes Models] (Sep 30, Oct 2)
  o DSI, Chapter 4, pp. 115-24 (required)
  o A. Colin Cameron and Pravin K. Trivedi, *MICROECONOMETRICS: Methods and Applications* Chapter 14, pp. 461-474 (required)
  o McCarthy, Notes

**First Referee Report Due October 2**
• Week 8: Methods and Procedures  [MNL and Discrete Choice Models, RUM] (Oct 7, 9)
  o Kenneth Train, *Discrete Choice Methods with Simulation* (2nd Edition), Chapter 3 (required)
  o A. Colin Cameron and Pravin K. Trivedi, *MICROECONOMETRICS: Methods and Applications* Chapter 14, pp. 475-478, Chapter 15, pp. 490-507 (required)
  o Train (1st edition), Chapter 3, pp. 15-23, 38-46
  o McCarthy, notes

**Assignment 1 Assigned, Oct 9 – LPM, BRM, MNL/DCM, RUM**

• Week 9: Methods and Procedures  [IIA, GEV Models] (Oct 14 (Fall Break), 16)
  o Kenneth Train, *Discrete Choice Methods with Simulation* (2nd Edition), Chapter 3 (1st edition), 46-56, Chapter 4, pp. 80-92 (required)
  o Colin Cameron and Pravin K. Trivedi, *MICROECONOMETRICS: Methods and Applications*, Chapters 15, pp. 507-512 (required)
  o McCarthy, notes

• Week 10: Methods and Procedures [Mixed Logit Models] (Oct 21, 23)
  o Kenneth Train, *Discrete Choice Methods with Simulation* (1st Edition), Chapter 6 (required)
  o A. Colin Cameron and Pravin K. Trivedi, *MICROECONOMETRICS: Methods and Applications*, Chapter 15, pp. 512-515 (required)
  o McCarthy, notes

**Assignment 1 Due, Oct 23**
Week 11: Methods and Procedures [Bivariate Probit, Fractional Models] (Oct 28, 30)
- Referee’s reports – Assessor (writing) and Assessed (responding)
- McCarthy, notes

Second Referee Report Due October 30

Week 12: Methods and Procedures [Selection Models] (Nov 4, 6)
- DSI, Chapter 4, 124-49 (required)
- McCarthy, notes

Assignment 2 Assigned, Nov 6 – IIA, GEV, Mixed Logit/Selection Models

Week 13: Methods and Procedures [Structural Models] (Nov 11, 13)
- DSI, Chapter 5 (required)
- Kenneth Train, *Discrete Choice Methods with Simulation* (2nd Edition), Chapter 13 (required)
- McCarthy, notes.
• Week 14 Method and Procedures: Flexible Form Models (Nov 18, 20)
  o McCarthy, notes

  **Assignment 2 Due, Nov 20**

  **Assignment 3 Assigned, Nov 20 – Structural and Flexible Form Models**

  • Week 15: Reporting your research: *How to sell your paper and journal choices* / Presentations (Nov 25, 27 (Thanksgiving Break))
    o Shewchuk, J. “Giving an Academic Talk” (required)
    o Choi, K. “How to Publish in Top Journals” (recommended)

  • Week 16: Presentations (Dec 2, 4)

  **Assignment 3 Due, Dec 4**
  **Research Paper Due, Dec 4**