

**ECON 7020: Graduate Econometrics II - Microeconometrics  
WINTER 2019**

**Instructor:** Umut Oguzoglu

**Office:** 647 Fletcher Argue

**Office Hours:** W 10:30 – 11:30 (or by appt.)

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**Course Day, Hours, and Location:** M 14.30 -17.20, HUMAN ECOLOGY 304 (Occasionally at one of the computer labs at Machray Hall)

### **Course Overview**

This course will introduce you to a set of microeconomic (i.e. cross-section and panel data) methods routinely used in applied economic work. Some of the topics will be new, while others will be more advanced extensions of material you may have already learned in ECON 7010.

This is an intermediate level PhD course that has an applied focus. Although the course will teach the basic econometric theory behind the techniques, the focus will be on their empirical applications. You will be required to write a research paper and present your findings at the end of the semester. Part of the term work will also include a midterm test, critiquing articles, discussing other students' projects and doing assignments.

### **Course Materials:**

*There is no required textbook*, but many readings will come from the following text-books. I encourage you to read ahead (especially the lecture notes) before coming to the lectures. The primary text will be BB for panel data models and CT for everything else. Library has online and/or physical copies of all books in the list except [2]. You are welcome to borrow [2] from me for *short* periods of time. I can also recommend other books that are available in the library. The outline below will also reference additional materials where necessary.

[1] **(AP)** Angrist, Joshua D. and Jorn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton: Princeton University Press, 2009

[2] **(BB)** Baltagi, Badi. *Econometric analysis of panel data*. Wiley. com, 2008.

[3] **(CT)** Cameron, A. Colin and Pravin K. Trivedi, *Microeconometrics*. New York: Cambridge University Press, 2005.

[4] **(G)** Greene, William H. *Econometric Analysis*, 5/e. Pearson Education India, 2003. (or a newer edition)

[5] **(W)** Wooldridge, Jeffrey M., *Econometric Analysis of Cross-Section and Panel Data*, Second Edition. Cambridge: MIT Press, 2010.

In addition to textbook readings you will be expected to read journal articles before coming to class. I will assign roughly one article per week.

**Software:** For assignments and the research project students are expected to use STATA. I will give an introductory lecture on STATA, beyond that the students are expected to learn the software independently. There are many useful resources on STATA on the internet. These are just few I recommend:

#### *STATA Resources*

- UCLA Economics STATA tutorials: <http://www.ats.ucla.edu/stat/stata/default.htm>
- My old STATA tutorials: <http://home.cc.umanitoba.ca/~oguzoglu/4130/4130.html>
- STATA is available in our Grad Lab and other computer labs across the campus. You can contact me if you would like to purchase your own copy.

**Website:** For assignments, answer keys, lecture notes, and other supplementary material see *UMLEARN*.

## **EVALUATION**

**Grading Scheme:** Evaluation of student performance in the course will be based on:

	Weight (%)	Date
Research Proposal	10	Feb 8 <sup>th</sup>
Presentations	10	
Class Participation	10	
Extended Proposal	15	March 8 <sup>th</sup>
Midterm Tests	20	TBA
Research Paper	35	April 15 <sup>th</sup>

*Grade conversion will be:*

**A+ 100-93, A 92.9-83, B+ 83.9-75, B 74.9-70, C+ 69.9-65, C 64.9-55, D 54.9-50, F 49.9-0**

## **RESEARCH PAPER**

### **Topic & Methodology:**

The research paper can be on **any economics topic** as long as it uses micro or macro data (cross-sectional or panel) and employs one or more of the techniques that are introduced in this course. **You cannot use time series methodology. I strongly advise you to discuss your topic and methodology with me before submitting your research proposal (Feb 8<sup>th</sup>) so that you do not choose an unacceptable or unfeasible topic.** Given that you have only one semester to complete the project you should choose a topic that you are familiar with or at least have a strong interest in.

You are not allowed to use a research paper previously written (or currently being written) for another course or a project.

### **Data source:**

Data set(s) for your project should be publically available (or obtainable via University Library) for replication purposes.

A variety of Canadian (public used versions only) and international microdata sets are available from a data delivery services called **ODESI** and **ICPSR**, which are available from the University Library. (Visit <http://libguides.lib.umanitoba.ca/statistics/surveys> for access).

Note that, you are not required to use data from ODESI or ICPSR; any micro or macro data from other sources would also be acceptable.

If you need a **smaller set to use for your data search**, I can recommend following datasets that I have used in various projects:

- *Canadian Surveys*: National Population Health Survey, Canadian Community Health Survey, Survey of Labour Income Dynamics.  
*(note that only public use versions of surveys above are available to you)*
- *US Surveys*: Health Retirement Study, Panel Study of Income Dynamics, National Longitudinal Surveys of Youth 1979, NLSY79 Children & Young Adult.
- *International*: Penn World Tables, World Bank Enterprise Survey.

**I strongly advise that you start looking for data and topic as soon as possible.**

## **MIDTERM TEST**

There will be two take home midterm tests based on the theoretical and applied topics we cover in class.

## **PRESENTATIONS**

There will be weekly presentations about published papers that use econometric methodology introduced in the lecture. You will also present your own research findings at the end of the semester.

## **A NOTE ON CLASS PARTICIPATION**

Students are encouraged to actively participate in the topics that are covered in the class. You are expected to comment on assigned articles, lecture material and in class presentations of other students.

## TIMELINE TO COMPLETE RESEARCH PROJECT

### 1. **Project Proposal:** should be submitted by **February 8<sup>th</sup>**

A two-page, single spaced proposal (excluding references) outlining the research project must include:

- Title of project
- Background (brief literature review), motivation and research question(s)
- Description of data source, sample, and variables that will be used.
- Econometric methodology.
- A statement of expected results.

In order to guarantee the feasibility of your project, your proposal should demonstrate that you have access to the data source(s), sample size is adequate, and key variables are present.

### 2. **Extended Proposal:** should be submitted by **March 8<sup>th</sup>**

A four-page, single spaced document (excluding references and tables) which include

- Updated proposal
- Preliminary data analysis (summary statistics, figures and a preliminary regression results)

### 3. **Presentation of Draft Paper (April 8)**

- Draft paper will be an almost completed version of your term work which requires only minor revisions before it is submitted as the Final Paper.
- At this point you should be ready to present your final result.

### 4. **Final Paper** should be submitted by **April 15<sup>th</sup>:**

- The final paper will be evaluated based on format, writing<sup>1</sup>, contribution to the literature, difficulty of the methodology and the extent to which it accomplishes objectives outlined in the research proposal. I will also evaluate the level of success the paper addresses concerns about the research that are raised by me and by other students throughout the course.
- You are expected to strictly follow Author guidelines of Canadian Public Policy (see <http://economics.ca/cpp/en/authors.php#accepted>)
- **Late submission will not be accepted.**

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<sup>1</sup> Academic Learning Center (<http://umanitoba.ca/student/academiclearning/>) provides many services to improve your writing. I strongly advise you to contact them if you feel that you require assistance.

- All supplementary material (e.g. do-files, data, .... etc) should be made available to review. Do-files should be clearly labelled to facilitate replication of findings reported in the paper.
- **While grading the final paper, I will roughly be thinking about following scheme: 95+ (Exceptional), 90-94.9 (Excellent), 85-89.9 (Very Good), 75-84.9 (Good), 65-74.9 (Satisfactory), C 64.9-55 (Adequate), D 54.9-50 (Marginal), F 49.9-0 (Failure)**

## TENTATIVE COURSE OUTLINE

I intend to cover the following topics. I may alter the content depending on research topics. You can download lecture slides from UMLEARN.

### Preliminaries

- Review of MLE [G Ch 17, CT Ch 5]
- Microeconometric Data Structures [CT Ch 3]
- Introduction to STATA

### Limited Dependent Variable Models

- Binary/Multinomial/Ordered Probit and Logit [CT Ch 14, 15; W Ch 15]
- Count Data Models [CT Ch 20; W Ch 19]

### **Articles:**

Horowitz, Joel and N.E. Savin. 2001. "Binary Response Models: Logits, Probits and Semiparametrics." *Journal of Economic Perspectives* 15(4): 43-56.

Evans, William, and R. Schwab. 1995. "Finishing High School and Starting College: Do Catholic Schools Make a Difference?" *Quarterly Journal of Economics*, 110(4): 941-974.

Breslaw and Stelcner 1987. "The Effect of Health on the Labor Force Behavior of Elderly Men in Canada" *Journal of Human Resources*, 1987. " Vol. 22, No. 4 (Autumn, 1987), pp. 490-517

Buchmueller, Thomas C., Mireille Jacobson, and Cheryl Wold. 2006 "How far to the hospital?: The effect of hospital closures on access to care." *Journal of health economics* 25.4 (2006): 740-761.

### Censored Data, Sample Selection, and Attrition [Wooldridge, Chapter 19]

### **Articles:**

Heckman, James. 1974. "Shadow Prices, Market Wages, and Labor Supply," *Econometrica*, 42(4): 679-694.

Vella, Francis. 1998. "Estimating Models with Sample Selection Bias: A Survey," *Journal of Human Resources*, 33(1): 127-169.

### Causal Inference [AP Ch 3-6; CT Ch2, Ch 25]

- Endogeneity
- Treatment Effects
- Regression Discontinuity Designs
- Difference in Difference Estimation

#### **Articles:**

Blundell, Richard, and Monica Costa Dias. "Alternative approaches to evaluation in empirical microeconomics." *Journal of Human Resources* 44.3 (2009): 565-640.

Angrist, Joshua D. 1990. "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records," *American Economic Review*, 80(3): 313-336.

Bound, John, David. A. Jaeger, and R.M. Baker. 1995. "Problems with Instrumental Variables Estimation When the Correlation between the Instruments and The Endogenous Explanatory Variables is Weak," *Journal of the American Statistical Association*, 90: 443-50.

Card, David, and Alan Krueger. 1994. "Minimum Wages and Employment: A Case Study of the Fast Food Industry in New Jersey and Pennsylvania," *American Economic Review*, September 1994: 722-794.

Abadie, A., A. Diamond, and J. Hainmuller (2007), 'Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program'. NBER technical working paper 335.

### Linear Panel Data Models I [Wooldridge Chapter 6 (6.5), Chapter 7 (7.8) and Chapter 10]

- Pooled Cross section
- Static Linear PD Models with Fixed and Random Effects [BB Ch 2, 3, 4]
- Dynamic Linear PD Models with Fixed Effects [BB Ch 8]

#### **Articles:**

Almond, D., Kenneth Chay, D. Lee. 2005. "The Costs of Low Birth Weight," *Quarterly Journal of Economics*, 120(3): 1031-1084

Judson, Ruth A., and Ann L. Owen. "Estimating dynamic panel data models: a guide for macroeconomists." *Economics letters* 65.1 (1999): 9-15.

Levine, Ross, Norman Loayza, and Thorsten Beck. "Financial intermediation and growth Causality and causes." *Journal of Monetary Economics* 46.1 (2000): 31-77.



## Panel Data Models II [CT Ch 23; W Ch 15; BB Ch 11]

- Static Discrete Choice Models with Panel Data
- Dynamic Discrete Choice Models with Panel Data

### **Articles :**

Heckman, J. J. (1981). The Incidental Parameters Problem and the Problem of Initial Conditions in Estimating a Discrete Time-Discrete Data Stochastic Process and Some Monte Carlo Evidence. *Structural Analysis of Discrete Data with Econometric Applications*. London : MIT Press.

Wooldridge, J. M. (2005). Simple solutions to the initial conditions problem in dynamic, nonlinear panel data models with unobserved heterogeneity. *Journal of Applied Econometrics*, 20(1), 39-54.

Prowse, Victoria. "Modeling employment dynamics with state dependence and unobserved heterogeneity." *Journal of Business & Economic Statistics* 30.3 (2012): 411-431.

## Matching Estimators [W Ch 21 (21.3) , Angrist and Pischke, Chapter 3]

### **Articles:**

Black, Dan A. and Jeffrey Smith. 2004. "How Robust is the Evidence on the effects of College Quality? Evidence from Matching." *Journal of Econometrics*, 121(1-2): 99-124.

Caliendo, Marco and Sabine Kopeinig. 2006. "Some Practical Guidance for the Implementation of Propensity Score Matching." *Journal of Economic Surveys* 22(1): 31-72.

GMM and System of Estimation [CT Ch 6; G Ch 14, 15] (if time allows)

- GMM
- Empirical Likelihood
- Linear Systems of Equations

**Articles:**

Newey, Whitney K., and Richard J. Smith. "Higher order properties of GMM and generalized empirical likelihood estimators." *Econometrica* 72.1 (2004): 219-255.

## **Additional Remarks**

I reserve the right to change the grade conversion if it will be beneficial to some students. Evaluative feedback will be provided by the voluntary withdrawal deadline which is Wednesday, March 16, for this term.

Students appealing any term work (including any test, assignments, final exam) whether it be an informal or formal appeal must appeal their term work within 10 working days of receiving their mark. All final grades are subject to departmental approval.

**Policy on Make-up Exams:** Students will not be permitted to write make-up tests or hand in assignments late except for documented medical or compassionate reasons. If the appropriate document is provided I will shift the weight of the missing assignment or midterms to the research paper.

**Academic Dishonesty:** All term work should be completed **independently**. It is my sincere hope that no student in this class will cheat or plagiarize. However, if you do so, this will be taken seriously and you will be punished according to the university rules. Hence, students should acquaint themselves with the University's policy on plagiarism, cheating, and examination impersonation (see p. 26 of the 06-07 University of Manitoba Undergraduate Calendar).

Note that evaluative feedback will be provided by the voluntary withdrawal date, March 20<sup>th</sup>, 2018.