Economics 342: ECONOMETRICS

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St. Lawrence University
Spring 2013

Class Schedule: Tuesday/Thursday 10:10-11:40 in HH112 (or computer lab)
Office hours: Wednesday: 1:00-4:00; Thursday: 11:45-12:45 (Econ 342 only); Friday by appointment
Teaching Assistants: Greg Kelly and Derek Delzer

Course Description: Econometrics is based on the application of statistical methods for estimating economic relationships, testing economic theories, and the evaluation and implementation of policy. Econometrics is distinct from mathematical statistics in that the former is primarily concerned with evaluating observational, rather than experimental data. While econometrics is often used to make macroeconomic forecasts, researchers also use econometric methods to evaluate causal relationships such as the effect of technology on classroom performance, the impact of immigration on labor wages, and the effects of incarceration rates on crime just to name a few. In fact, the vast majority of empirical research in economics utilizes econometrics.

Prerequisites: Economics 200 or Math 113; Economics 251; and Economics 252.

Text:

Required Text:
- “Econometrics by Example” 1e by Damodar Gujarati (2011).
The lectures will largely follow the discussion in Gujarati (2011) and Wooldridge (2013), "Introductory Econometrics." Additional readings will also be assigned throughout the semester.

Recommended Text:

Lab and STATA:
Throughout this semester we will be applying the tools discussed in class through the use of the STATA statistical package. STATA is a complete, integrated statistical package that provides everything you need for data analysis, data management, and graphics. It is currently one of the most widely used statistical packages among economists and many of the SLU faculty conduct their empirical work using STATA. Familiarity with STATA is a crucial element of this course and each of your problems sets will ask you to utilize STATA. Furthermore, you will also complete an empirical project in this course and will be asked to turn in your STATA programs and output with your paper.
The path to access STATA through the SLU network is: \saint\apps\netapps\depart\econ\Stata10
Class website: The class website is available through the Sakai. When you are enrolled in Sakai, you are able to access announcements, handouts, assignments, answer keys, and your grades. I will tell you when I post new material but you are responsible for checking the site regularly.

There is also a textbook website at http://www.palgrave.com/economics/gujarati/students/index.html
It would be a good idea to familiarize yourself with this website since it has some useful tools for students (such as chapter summaries and datasets).

Course Requirements, Exam Dates, and Grading: Grades for the course are based on 2 semester exams, a cumulative final exam, 8-10 problem sets, a group empirical project and in-class participation exercises. Your grade in the course is determined as follows:

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<th>Component</th>
<th>Weight</th>
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<tr>
<td>Semester exams</td>
<td>40% (20% each)</td>
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<tr>
<td>Problem Sets</td>
<td>10%</td>
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<td>Lab, quizzes, participation</td>
<td>10%</td>
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<td>Empirical project</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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<td><strong>Total</strong></td>
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Exams (60%): The semester tests focus on specific sections of the course, while the final is cumulative (covers all of the material in the course).

Make-up exams/Late Policy: There are no make-up exams. If you must miss one of the midterm exams, you must let me know in advance and your other exam will be given extra weight. Students who must miss an exam for an SLU sanctioned event may make arrangements with me in advance to take the test. Late assignments will be marked down a letter grade for each day late. Grades on assignments turned in late on the day they are due (e.g., more than an hour after the end of class) will be reduced one-third of a letter grade. Once the answer key is posted online, no credit will be given to late assignments. No exceptions will be made.

Problem Sets (10%): Problem sets will be assigned often throughout the semester. It is a vital part of learning to use tools developed in class and each assignment will involve problem-solving and STATA programming.

Participation (10%): Participation will be based on: 1) 5+ in-class quizzes; 2) solving book problems on the blackboard; 3) in-class group exercises; and 4) work submitted during in class lab sessions. Further details will be announced in class.

Attendance: Attendance is not required, but highly recommended. In my experience, student performance in the class is highly correlated with attendance. In order to do well on the in-class quizzes, labs and in-class group exercises, you must be present in class. You are expected to attend all classes. Students should also be aware that attendance and class participation are essential for successfully completing the course requirements. Missing class for any reason will have an adverse effect on your grade because you will miss important class work. Show respect.
for your classmates and your instructor by arriving prior to the start of each class. Excessive tardiness may result in an “absent” grade for that day. IMPORTANT: If you have a fever or think you may be contagious, please do not come to class or to your instructor’s office.

**Student Expectations:** You should be prepared to devote roughly 1-2 hours of your time for every hour of in-class time to studying, practicing techniques, and solving problems. This class is cumulative so it is essential that you do not let yourself get behind. I strongly encourage you to see me whenever you encounter problems. If you are unable to attend office hours, I am happy to make an appointment. You are also encouraged to form a study group. It helps in understanding the material when you are able to explain your thoughts to your fellow students.

**Empirical Project (20%):** You and a partner will conduct an empirical project, write an 8-10 page paper using the National Longitudinal Survey of Youth (NLSY), Nepal Living Standards Survey (NLSS), Current Population Survey (CPS) or Decennial Census and give a brief presentation on one of several recommended topics. However, if you would prefer to come up with an idea or your own, I am available to assist in formalizing an idea or finding data. The paper should include separate sections for each of the following: Abstract, Introduction, Data Description, Conceptual Framework, Empirical Methods, Results, Conclusion, and References. Detailed instructions will be discussed in class.

**Grading Scale:** The grading scale will be no stricter than:

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<tr>
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Student Learning Outcomes:

✧ Develop the ability to explain core econometrics concepts.
  o Derive ordinary least squares estimators.
  o Discuss properties of ordinary least squares estimators in small and large sample size.
  o Examine causes and consequences of relaxing the assumptions behind the ordinary least squares method. Know the limitations of models and of data sources.

✧ Demonstrate the ability to use the econometrics methods.
  o Calculate and interpret the mean and standard deviation of a variable. Define the difference between an independent and dependent variables.
  o Estimate and interpret the relationship between economic variables.
  o Formulate empirically testable hypotheses.
  o Describe and critically assess statistical analysis of other researchers.
Topics Included:
1. Introduction and Review
   - Introduction: Chapter 1, Section 1.1, 1.2 (G)
   - Chapter 1 (W)
   - Review of Probability and Statistics: Appendix 2 (G);
   - Appendices A, B, C (W)

*************** Exam 1 (Wednesday, February 27th, 2012 at 7pm)**************

2. Basic Regression Model
   - Simple Regression Model: Chapter 1 (G); Chapter 2 (W)

3. Multivariate Regression Analysis
   - Regression with Multiple Variables: Chapter 3 (W)

4. Specification and Functional Form
   - Functional Form: Chapter 2 (G)
   - Qualitative Variables: Chapter 3(G); Chapter 7(W)

5. Other Issues: Diagnostics:
   - Multicollinearity: Chapter 4 (G)
   - Heteroskedasticity: Chapter 5 (G); Chapter 8 (W)
   - Omitted/Instrumental Variables: Chapter 7 (G); Chapter 15 (W)

*************** Exam 2 (Wednesday, April 17th, 2012 at 7pm)**************

6. Cross Section Econometrics: Important Issues
   - Limited Dependent variable models: Chapter 8 (G); Chapter 17 (W)
   - Simple Panel Data methods: Chapter 17 (G); Chapter 13 (W)

***********Final Comprehensive Exam (Tuesday, May 7th, 2013 from 1:30-4:30)***********

Other Issues:

Electronics and Texting: You will be given a short (5-7 minute break) during class. This is your chance to use the restrooms and check your phone and text messages. Otherwise, please resist the urge to use any electronic devices in class (except for class work). It is my experience that laptops and other electronic devices provide more distractions than benefits for individual students and for the class as a whole. (There is also scholarly research that supports this conclusion. One study showed that students who spent class sessions multi-tasking had similar GPAs to those students who did not attend class at all! Other students in the class reported laptops and other electronic devices as the most significant impediment to their own learning.)

Classroom conduct: Arriving late, leaving early, and talking during class can be disruptive to the instructor and to other students and should be minimized. Any form of behavior deemed to be inappropriate to the instructor will not be tolerated. A student will be advised by the instructor that his/her behavior is inappropriate and, if necessary, the matter will be turned over to the Dean of Students.
**Academic misconduct**: Academic dishonesty includes plagiarism and cheating. Your work must be your own, and you must give credit for ideas from other sources. During an examination, looking at someone else’s paper or telling someone else the answer is considered cheating. Turning in identical assignments is also an example of academic dishonesty. Any evidence of cheating will be promptly reported to the Academic Honor Council.

**Calculator**: For exams, you will need a **simple** calculator. Graphing calculators, programmable calculators, and cell phones are not allowed. Sharing calculators is not permitted during exams.

**Students with special needs**: Students with special needs who require specific examination-related or other course-related accommodations should contact the Office of Academic Services for Students with Special Needs at 315-229-5104/5537. This office will provide the student with a letter for the instructor that will specify any recommended accommodations.

**Quantitative Resource Center (QRC)**: The QRC offers mentoring in all quantitative areas. The webpage for the QRC is [http://www.stlawu.edu/qrc/](http://www.stlawu.edu/qrc/). The Quantitative Resource Center is located Valentine 125 and will be open for students to drop-by. Office hours: Sunday: 2pm-4pm and 5pm-11pm; Monday - Thursday: 10am-11pm; Friday: 10am-3pm; Saturday: Closed

**The WORD Studio**: You will be writing an original empirical research paper and presenting it to the class. The Munn Center for Rhetoric and Communication maintains The WORD Studio in ODY Library—a place to get feedback from peers on assignments in Writing, Oral communication, Research, and Design of visual projects. You can come for a consultation to plan a paper or presentation; to find ways to improve the ideas, organization, and style of a draft; to videotape and review a presentation rehearsal; to design and run through your PowerPoint slides, and more. You may use The WORD Studio for consultations on assignments for any of your courses.

The WORD Studio is open in ODY Monday through Thursday, 8:30 a.m. to 11:00 p.m.; Friday, 8:30 a.m. to 4:00 p.m.; and Sunday, 1:00 p.m. to 11:00 p.m.