

**ECON 485**  
**Econometric Techniques**  
**Fall 2009**  
**Tuesday & Thursday 9:30am – 10:45pm**  
**REDC, Room 204**

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**Instructor:** Dr. Todd M. Nesbit  
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**Office Hours:** Tuesdays & Thursdays 10:45am – 12:00pm  
Wednesdays 3:00pm – 4:15pm  
And by appointment

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**Course Overview:**

This course is an introduction to the basic statistical skills used in empirical economic research. While the primary goal of this course is to teach you the methods of applied econometrics, you will also gain a working understanding of the theory of econometrics. This course will call upon many of the theories you have learned in your previous economics courses. The difference here is that we will apply data and econometric modeling to test the validity of the theory. For instance, economic theory suggests that as the price of gasoline rises, consumers purchase less of it. Thus, you could use econometrics to 1) test whether quantity falls as price rises, and 2) estimate by how much quantity changes based on a sampling of real-life data. The goal of this course is three-fold: provide you with the tools to conduct your own empirical research in economics, help you develop the ability to read and critique published research in economics, and to teach you how to apply what you learned in earlier economics courses to help answer practical business questions.

**Prerequisites:**

ECON 002 or ECON 004 and MS&IS 200 or STAT 200

**Course Resources:**

**Required Text:** *Using Econometrics" A Practical Guide* (5th edition) by A.H. Studenmund.

**Required Statistical Package: EViews** Version 6: This statistical package is available in all of our computer labs. If you would like to purchase a student version of your own, you can go to the following website to do so: <http://www.eviews.com/>.

**Textbook Website:** Your textbook has a companion website that provides supplementary materials to help you understand the concepts presented in this course. In particular, the website contains data sets, an instructional guide to replicate the tables in the text, and a user manual to EViews. The homepage for the text is below (it also appears in the back cover of the book):  
[http://wps.aw.com/aw\\_studenmund\\_useecon\\_5/](http://wps.aw.com/aw_studenmund_useecon_5/).

**ANGEL Course Website:** If there are additional course materials that can be electronically posted, they will be made available on the Penn State ANGEL website for this course. It can be accessed at: <http://cms.psu.edu>. You will need your PSU access account *user name* and *password*.

**Other Website Resources:**

<http://www.statsoft.com/textbook/stathome.html>

<http://www.oswego.edu/~kane/econometrics/>

<http://www.econometrics.org/>

### Grading Scale:

Final Weighted Average	Course Grade
92.5 – 100%	A
89.5 – 92.49%	A-
86.5 – 89.49%	B+
82.5 – 86.49%	B
79.5 – 82.49%	B-
76.5 – 79.49%	C+
69.5 – 76.49%	C
59.5 – 69.49%	D
<59.5%	F

Under no circumstances will the above grading guidelines be relaxed or changed.

More directly, **I DO NOT CURVE GRADES.**

### Grade Determination:

Each student's final grade will be determined as the average of two exams, a research paper, a set of quizzes, and a set of homework assignments. The grading weights appear below:

Exam 1	20%
Exam 2	20%
Research Paper	30%
Quiz Average	10%
Homework Assignments	<u>20%</u>
	100%

The tentative outline of the course can be found on the final page of this syllabus.

### EXAMS:

There will be two exams. The exact dates of the two exams can be found in the tentative outline at the end of this syllabus. The exams will cover only the material discussed in class, although the text will provide additional explanations of the covered topics. If it is in the book but I did not cover it in class, it will not be on the exam. If I covered it in class, but it's not in the book, it may appear on the exam. All illegible answers will be marked incorrect, so please write legibly. While the use of calculators is permitted on exams, cell phone calculators may NOT be used on exams.

It is your responsibility to be present for all exams. If you know that you will not be able to attend class on an exam day, you must notify the professor at least 1 week in advance. In such circumstances when the professor deems appropriate, **arrangements may be made to take the exam PRIOR to the scheduled exam.** Make up exams must be completed before the remainder of the class takes the exam on the scheduled exam day. In the event of an emergency, students must contact the professor immediately to notify him of the situation. In such cases, official documentation is required in order to make alternative arrangements for the exam.

### QUIZ AVERAGE:

There will be numerous announced and unannounced quizzes assigned throughout the semester. Given the unannounced nature of some of the quizzes, the exact number of quizzes is not predetermined. Rather, the number of quizzes will depend on overall student effort, as is determined by the professor. In the event a student misses a quiz, it may NOT be made up unless excused documentation is provided. All illegible answers will be marked incorrect, so please write legibly.

## HOMEWORK ASSIGNMENTS:

Homework assignments will be assigned and collected regularly. While most of these assignments will re-enforce the class material through written explanations and mathematical derivation, some of the assignments will employ EViews, the statistical package for this course. These assignments should provide you with some experience using EViews so that you can conduct the appropriate analysis for your research paper. All illegible answers will be marked incorrect, so please write legibly. Late submission of homework assignments is not permitted.

## RESEARCH PAPER:

Overview: Students are expected to use the econometric techniques taught in the course to answer an economic question. Each student will decide on a question individually—it must be a question that can be answered through the use of data and one that has been approved by the professor. Next, students will review the literature to determine what relationship is expected according to the theory. Based on the theory, an empirical model will be developed. Students will then collect their own data (from sources such as the BLS, BEA, Census, <http://www.econdata.net/>, etc.) so that they can test (using regression analysis) the validity of the theory. Often, this will require the recoding of the data so that it can be read by the statistical package. Finally, students will interpret the results of their regression results as they relate them back to the original theory.

The paper should include an abstract, introduction, literature review, discussion of theory/ methodology, your empirical results, and a conclusion. Papers should be 10-12 pages in length NOT including the cover page, reference list, and tables (1-inch margins, 12-point Times New Roman font). Students are required to follow the timetable presented at the end of this section to aid in the development of your econometric paper. The timetable should help you organize your time, minimize procrastination, and enhance final project performance. In addition to writing your own research paper, you are also required to serve as a referee (also known as a reviewer) to two other student papers. Your referee reports, which will also be returned to the author of the papers to help them improve their papers, will each be weighted as 2 homework assignments. **EVERY STUDENT MUST REVIEW TWO PAPERS. IF THIS REQUIREMENT IS NOT FULFILLED, YOUR FINAL DRAFT WILL NOT BE ACCEPTED.**

A detailed description of the requirements of the research paper will be provided in a separate handout, which will include a grading rubric. Keep in mind that the most important aspect of your econometric paper is your approach to the problem, not the results. The best papers are well-organized and include a thorough description of prior work in the area, a thoughtfully discussed theory/hypothesis, a clear presentation of econometric statistics and problems, and an understanding of how your paper could be improved had you begun with the econometric knowledge you possess at the end of your paper and had ample time to utilize that knowledge. A short description of the major components of this paper and questions I will ask related to each component are provided below:

Literature Review –How well do you identify and critique previous work with hypotheses related to your hypothesis? Is your critique organized in a way that helps the reader understand your model? Is the literature organized around themes instead of an article-by-article critique?

Theoretical Model –How well do you describe and understand the theory underlying your model, the variables you chose to include, the expected signs of the variables, and the variables you have excluded?

Data and Empirical Model –How compatible is your data and theory? How well defined and documented are variables and data sources? How limited is your variable selection? Include table(s) with variable definitions and summary statistics?

Estimation and Analysis –What method/estimation technique have you used? Did you explore multiple

models? How have you chosen your best model(s)? How have you identified, tested, and corrected for econometric problems (e.g. multicollinearity, serial correlation, heteroskedasticity, etc.)? How well have you analyzed the significance of individual variables and the entire model? How well do you identify implications of your statistical results? That is, what do the statistical results suggest about the theory or hypotheses you are analyzing?

Conclusion –Have you summarized what you learned? What policy conclusions might be indicated by your results? What surprises did you find and why might they have occurred?

Limitations and Possible Extensions –What problems did you encounter? How did these problems prevent you from getting the “best” results? How would you change your project if you could do it over again, starting with the econometric knowledge you now have? What could you, or others, do to extend your study?

Originality –How insightful is your hypothesis, model and interpretation? How well have you captured reader interest with the written presentation of your project? How much does your model and/or data differ from previous work in your selected area? How much of your idea was your own? How professional is your final report?

### **Major Research Paper Due Dates**

- **September 8:** Submit your paper topic in the form of a hypothesis (a claim that can be tested). Also provide 2 statements explaining why the issue is important or interesting and 2-3 statements about policy implications of your completed study. It would be helpful to have read some articles related to your topic at this point. (5pts)
- **September 15:** Submit a preliminary reference list with at least 5 sources that could possibly be used as background for your project. For each source, provide 1 sentence describing the relevance of that source to testing your hypothesis. (5pts)
- **October 1:** Submit a copy of a preliminary introduction and literature review for your paper. Include in the introduction a statement proclaiming the uniqueness or usefulness of your proposed study. Organize the literature review to describe results of prior analyses and their relationship to your analysis. (15pts)
- **October 22:** Submit a preliminary model (equation) that incorporates your research hypothesis. Explain your dependent variable, key independent variables, and relevant control variables. Explain and indicate expected signs for the variable coefficients. (15pts)
- **November 5:** Submit spreadsheet that contains the paper’s data. Include description of sample, variable definitions and sources of data. You should be thorough including source title, table number if necessary, pages, year, publisher, and so on. The citation should provide enough information so that any student (faculty member) can replicate (exactly) your data. (10pts)
- **December 3:** Submit 3 copies of a preliminary draft (one for me and each of your referees). The draft **MUST** include an abstract, introduction, literature review, discussion of theory/methodology, your empirical results, and a conclusion. **YOU MUST SUBMIT A PRELIMINARY DRAFT OF YOUR PAPER IN ORDER TO COMPLETE THIS PROJECT. NO PRELIMINARY DRAFT = NO FINAL DRAFT** (30pts)
- **December 14:** Submit 1 copy of the final version of your paper. (120pts)

**Remember, the professor will NOT accept your final draft UNLESS you fulfilled the earlier requirements of a preliminary draft on December 3 and two referee reports on December 8.**

### **Grade Discrepancies:**

Students should review each graded assignment thoroughly so that you can both learn from your mistakes and catch any errors that the professor may have made. **Students have ten (10) days from the date that an assignment is returned to the class (whether you are present in that classroom session or not) to voice any discrepancies in the grading.** After the ten days have passed, it is understood that the student agrees with the grading of the returned assignment and can no longer voice complaints concerning its grading.

### **Expectations of the Students:**

- Please TURN OFF YOUR CELLULAR PHONES WHILE YOU ARE IN CLASS!!
- I expect you to refrain from loud or excessive talking since it is distracting for me and for other students.
- Please arrive on time for class. If this becomes a problem, I reserve the right to start deducting points from your final grade for each class you are late.
- Please do not use the computers for anything unrelated to the class during class time.
- I wish to retain a relaxed atmosphere, however, I expect you to refrain from casual discussions unrelated to the class since it is distracting for me and for other students.
- Students are expected to have looked over the material prior to class.

### **How to do well in this course:**

- Absolutely NEVER miss class.
- Stay focused and attentive during class—listen carefully; take careful notes; and ask questions during and after class on the material.
- Actively read the book; use the data files provided on the textbook's website ([http://wps.aw.com/aw\\_studemund\\_useecon\\_5/](http://wps.aw.com/aw_studemund_useecon_5/)) and attempt to replicate the results in the book—instruction files are posted on the website.
- Collaborate productively with other students on assignments: attack problems together, but DO NOT just copy from one another.
- Stay on top of every deadline—do the homework on time and read what you're supposed to read.
- Be well organized—buy a binder and keep your notes, all handouts, and all returned assignments in order.

### **Attendance:**

While regular attendance is expected of every student, it will not (directly) count toward your grade. If a student misses a class, it is that student's responsibility to determine what material was covered and what assignments (if any) were issued. If an assignment is due on the day a student misses class, he or she should make arrangements to turn in the assignment early; otherwise, the assignment will be considered late and will not be accepted.

**Academic Integrity Policy:**

The following statement is from the Office of the Chancellor at Penn State Erie:

Penn State Erie puts a very high value on academic integrity, and violations are not tolerated. Academic integrity is one of Penn State's four principles to which all students must abide. This principle states:

*I will practice academic integrity. Academic integrity is a basic guiding principle for all academic activity at Penn State University, allowing the pursuit of scholarly activity in an open, honest, and responsible manner. In accordance with the University's Code of Conduct, I will practice integrity in regard to all academic assignments. I will not engage in or tolerate acts of falsification, misrepresentation, or deception because such acts of dishonesty violate the fundamental ethical principles of the University community and compromise the worth of work completed by others.*

Any violation of academic integrity will receive academic and possibly disciplinary sanctions, including the possible awarding of an XF grade, which is recorded on the transcript and states that failure of the course was due to an act of academic dishonesty. All acts of academic dishonesty are recorded so repeat offenders can be sanctioned accordingly.

More information on academic integrity can be found at the following website:

<http://www.pserie.psu.edu/faculty/academics/integrity.htm>

**Miscellaneous Information:**

The Career Development Center (CDC) can assist students with the process of career and life planning through a full range of programs and services. You may schedule appointments with the CDC staff to discuss issues including interests, skills, values, and goal setting, as well as how to find career information, internships, full-time jobs, and graduate schools. You are encouraged to utilize the services of the CDC every year from your first semester to graduation.

CDC Location: First Floor – Reed Building

CDC Phone: 898-6164

CDC Web Site: <http://pennstatebehrend.psu.edu/cdc>

**Tentative Course Outline (Due Dates & Test Dates are Firm)**

**I. Introduction and Overview of Regression Analysis (August 25 & 27)**

Studenmund, Chapter 1

**II. Ordinary Least Squares (September 1 & 3)**

Studenmund, Chapter 2

**III. Using Regression Analysis (September 8, 10, & 15)**

Studenmund, Chapter 3

EViews User Guide: [http://wps.aw.com/aw\\_studenmund\\_useecon\\_5/](http://wps.aw.com/aw_studenmund_useecon_5/)

**IV. Classical Model (September 17 & 22)**

Studenmund, Chapter 4

**V. Hypothesis Testing (September 24 & 29)**

Studenmund, Chapter 5

**VI. Model Specification (October 1, 6, & 8)**

Studenmund, Chapter 6

Studenmund, Chapter 7

**EXAM #1: Thursday, October 15**

Take-Home Section Due October 20

**VII. Multicollinearity (October 20 & 22)**

Studenmund, Chapter 8

**VIII. Heteroskedasticity (October 27 & 29)**

Studenmund, Chapter 10

**IX. Serial Correlation/Autocorrelation (October 29 and November 3)**

Studenmund, Chapter 9

**X. Dummy Dependent Variables (November 5 & 10)**

Studenmund, Chapter 13

**EXAM #2: Tuesday, November 17**

Take-Home Section Due November 19

**XI. Regression User's Handbook and Presentation of Results (November 19)**

Studenmund, Chapter 11

**XII. Time Series Models (December 1 & 3)**

Studenmund, Chapter 12

**Draft of Entire Paper Due: Thursday, December 3—Bring 3 Copies**

Referee Reports Due December 8

**XIII. Introduction to Simultaneous Equations (December 8 & 10)**

Studenmund, Chapter 14

**Final Draft of Paper Due: 10:30am Monday, December 14**

Bring to REDC, Room 271

10 percentage point reduction for every 15 minutes late  
(that means at 1:00pm, the maximum points earned will be zero!)