

LSC Use Only No:	LSC Action-Date:	UWUCC USE Only No.	UWUCC Action-Date:	Senate Action Date:
		06-8c	AP 11-21-06	App 12-5-06

**Curriculum Proposal Cover Sheet - University-Wide Undergraduate Curriculum Committee**

Contact Person James J. Jozefowicz	Email Address James.Jozefowicz@iup.edu
Proposing Department/Unit Economics	Phone 7-2640

Check all appropriate lines and complete information as requested. Use a separate cover sheet for each course proposal and for each program proposal.

<b>1. Course Proposals (check all that apply)</b> <input checked="" type="checkbox"/> New Course <input type="checkbox"/> Course Prefix Change <input type="checkbox"/> Course Deletion <input type="checkbox"/> Course Revision <input type="checkbox"/> Course Number and/or Title Change <input type="checkbox"/> Catalog Description Change	
<hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"><i>Current Course prefix, number and full title</i></div> <div style="width: 45%;"><i>ECON 456: Advanced Econometrics</i></div> </div> <hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"><i>Proposed course prefix, number and full title, if changing</i></div> <div style="width: 45%;"></div> </div>	
<b>2. Additional Course Designations: check if appropriate</b> <input type="checkbox"/> This course is also proposed as a Liberal Studies Course. <input type="checkbox"/> Other: (e.g., Women's Studies, Pan-African) <input type="checkbox"/> This course is also proposed as an Honors College Course.	
<b>3. Program Proposals</b> <input type="checkbox"/> New Degree Program <input type="checkbox"/> Program Title Change <input type="checkbox"/> Other <input type="checkbox"/> New Minor Program <input type="checkbox"/> New Track <input type="checkbox"/> Catalog Description Change <input type="checkbox"/> Program Revision	
<hr/> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"><i>Current program name</i></div> <div style="width: 45%;"><i>Proposed program name, if changing</i></div> </div>	
<b>4. Approvals</b>	
Department Curriculum Committee Chair(s)	Date
<i>David B. Yager</i>	8/16/06
Department Chair(s)	
<i>Bill KCP</i>	8/16/06
College Curriculum Committee Chair	
<i>Wanda R...</i>	9/06/06
College Dean	
<i>A. am</i>	9/16/06
Director of Liberal Studies *	
Director of Honors College *	
Provost *	
<i>Chad...</i>	7/10/07
Additional signatures as appropriate: (include title)	
UWUCC Co-Chairs	
<i>Gail Sedquist</i>	11-21-06

**Received**

**SEP 11 2006**

**Liberal Studies**

\* where applicable

**Received**

**NOV 14 2006**

**Liberal Studies**

**Received**

**NOV 27 2006**

**Liberal Studies**

## **Section A: Details of the Course**

- A1 How does this course fit into the programs of the department? For which students is the course designed? (majors? students in other majors? liberal studies?) Explain why this content cannot be incorporated into an existing course.**

Advanced Econometrics has been designed as a complement to ECON 356 Introduction to Econometrics. It provides students with an opportunity to acquire additional training in the application of statistical techniques to economic phenomena and the application of econometric analysis to a topic of their choosing.

The course would be an elective course for majors and an elective course for non-majors.

This course has not been proposed for inclusion into the Liberal Studies course list.

Econometrics is an extremely vast topic and a single semester is not sufficient to fully equip students with an appropriate toolkit, especially when they are simultaneously completing an applied research project. A second semester course provides a more ample opportunity for students to learn a more complete set of concepts while continuing to extend and refine their research projects.

- A2 Does this course require changes in content of existing courses? If catalog descriptions of other courses or department programs must be changed as a result of the adoption of this course, please submit as separate proposals all other changes in courses and/or program requirements.**

This course does not require changes in any other course in the department.

- A3 Has this course ever been offered at IUP on a trial basis (e.g. as a special topic)? If so, explain the details of the offering (semester/year and number of students).**

This class was first offered as a special topics course under the ECON 481 course designation in Spring 2003, and eight students registered for it. Based on the feedback of the students, some minor modifications were made. The course then was offered in Spring 2005, and nine students registered for it. Some additional minor fine-tuning is expected following feedback from students completing the course during the Spring 2006 semester. Each time the class has been offered, student comments have been positive. The students in the class tend to be economics majors (either primary or secondary) who are pursuing the Department of Economics Honors Track. All of the students have previously completed ECON 356 Introduction to Econometrics. Since the enrollment in the Department of Economics Honors Track has been steadily rising, it is anticipated that enrollment in Advanced Econometrics will increase with future offerings.

**A4 Is this course to be a dual-level course? If so, please note that the graduate approval occurs after the undergraduate.**

This course is not intended to be dual level.

**A5 If this course may be taken for variable credit, what criteria will be used to relate the credits to the learning experience of each student? Who will make this determination and by what procedures?**

This course is not to be taken for variable credit.

**A6 Do other higher education institutions currently offer this course? If so, please list examples (institution, course title).**

This course is unique in design because it combines classroom instruction and hands-on empirical research as a complement to the Introduction to Econometrics course. Typically, institutions offer only a single introductory econometrics course without a complementary second class. To my knowledge a similar course entitled Applied Econometrics is offered in Pennsylvania at the University of Pittsburgh.

**A7 Is the content, or are the skills, of the proposed course recommended or required by a professional society, accrediting authority, law or other external agency? If so, please provide documentation.**

No professional society recommends or requires the content or skills of this proposed course. There is no accrediting authority, law or other external agency for economics.

### **Section B: Interdisciplinary Implications**

**B1 Will this course be taught by instructors from more than one department or team taught within the department? If so, explain the teaching plan, its rationale, and how the team will adhere to the syllabus of record.**

This course will be taught by one instructor.

**B2 What is the relationship between the content of this course and the content of courses offered by other departments? Summarize your discussions (with other departments) concerning the proposed changes and indicate how any conflicts have been resolved. Please attach relevant memoranda from these departments which clarify their attitudes toward the proposed change(s).**

The content of this course does not overlap with any other at the University.

The Mathematics Department has been consulted to determine if there are any objections to this course. Gary Stoudt, Chairperson of the Mathematics Department, has indicated his Department supports the proposal for ECON 456: "The Mathematics Department supports the proposal for ECON 456. The content and its emphasis on applications to economic analysis does not significantly overlap with any courses that we offer. It will also reinforce concepts learned in an introductory statistics course. Thank you for sharing the course proposal with us."

- B3 Will this course be cross-listed with other departments? If so, please summarize the department representatives' discussions concerning the course and indicate how consistency will be maintained across departments.**

This course is not cross-listed.

- B4 Will seats in this course be made available to students in the School of Continuing Education?**

Continuing Education students may enroll, even though no seats are specifically available.

### **Section C: Implementation**

- C1 Are faculty resources adequate? If you are requesting or have not been authorized to hire additional faculty, demonstrate how this course will fit into the schedule(s) of current faculty. What will be taught less frequently or in fewer sections to make his possible? Please specify how preparation and equated workload will be assigned.**

The current resources of the Department of Economics are adequate to teach this course. No new faculty member is required to teach this course. This course will be counted as one preparation and three hours of equated workload.

- C2 What other resources will be needed to teach this course and how adequate are the current resources? If not adequate, what plans exist for achieving adequacy. Reply in terms of the following:**

**Space:** Current space allocations are adequate to offer this course.

**Equipment:** No special equipment is needed to offer this course.

**Laboratory Supplies, etc.:** No laboratory supplies are needed to offer this course.

**Library Materials:** Library holdings are adequate.

**Travel Funds:** No travel funds are necessary to offer this course.

**C3 Are there any resources for this course funded by a grant? If so, what provisions have been made to continue support for this course once the grant has expired? (Attach letters of support from Dean, Provost, etc.)**

None of the resources for this course are funded by a grant.

**C4 How frequently do you expect this course to be offered? Is this course particularly designed for or restricted to certain seasonal semesters?**

This course will be offered every spring semester.

**C5 How many sections of this course do you anticipate offering in any single semester?**

One section of this course will be offered in any single semester.

**C6 How many students do you plan to accommodate in a section of this course? What is the justification for this planned number of students?**

Up to 20 students can be accommodated in this course for which each student completes an individual applied research project.

**C7 Does any professional society recommend enrollment limits or parameters for a course of this nature? If they do, please quote from the appropriate documents.**

No professional society recommends enrollment limits or parameters for this course.

**C8 If this course is a distance education course, see the Implementation of Distance Education Agreement and the Undergraduate Distance Education Review Form in Appendix D and respond to the questions listed.**

This course does not involve the use of distance education.

#### **Section D: Miscellaneous**

**Include any additional information valuable to those reviewing this new course proposal.**

## I. **Catalog Description**

ECON 456 Advanced Econometrics	3 class hours 0 lab hours 3 credits (3c-0l-3cr)
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Prerequisite: ECON 356 or equivalent or permission of instructor

The purpose of this course is to gain a more thorough understanding of the theory and practice of econometrics introduced in ECON 356. Students will increase their proficiency in econometric analysis and improve their research skills by extending their research agendas begun in ECON 356 and through exposure to the scholarly literature. The students will learn about a variety of topics related to regression analysis including violations of the Classical assumptions, extensions of the basic regression model, and advanced techniques.

## II. **Course Objectives**

1. Students will explore how econometric analysis can be applied to research questions that they develop. A variety of areas in econometrics will be studied including extensions of the basic regression model, limited dependent variable models, and panel data models.
2. Students will diagnose econometric problems and correct them while refining the specification of their models in the context of their own research projects.
3. Students will implement advanced econometric analysis using econometric software to complete their research projects.

## III. **Course Outline**

- |    |  |                |
|----|--|----------------|
| 1. | Different Data Structures                                    | <i>2 hours</i> |
| a. | Time Series and Cross-section                                |                |
| b. | Pooled Cross-section   |                |
| c. | Panel Data   |                |
| 2. | General Review of the Classical Regression Model             | <i>2 hours</i> |
| a. | Classical Assumptions  |                |
| b. | Violations of the Classical Assumptions & their Consequences |                |
| 3. | Model Specification  | <i>4 hours</i> |
| a. | Further Discussion of Selection of Independent Variables     |                |
| b. | Further Discussion of Selection of Functional Form           |                |
| c. | RESET & F-tests  |                |

- |    |  |                |
|----|--|----------------|
| 4. | Additional Tests for Violations of Classical Assumptions               | <i>7 hours</i> |
| a. | Multicollinearity  |                |
| b. | Serial Correlation   |                |
| c. | Heteroskedasticity   |                |
|    |  |                |
| 5. | Extensions of the Basic Regression Model                               | <i>9 hours</i> |
| a. | Time Series Models   |                |
| b. | Limited Dependent Variable Models                                      |                |
| c. | Simultaneous Equations Models  |                |
|    |  |                |
| 6. | Advanced Topics  | <i>4 hours</i> |
| a. | Tobit Model  |                |
| b. | Panel Data Analysis  |                |
|    |  |                |
| 7. | Research Roundtable Discussions<br>(interspersed through the semester) | <i>8 hours</i> |
|    |  |                |
| 8. | Student Presentations  | <i>6 hours</i> |

**IV. Evaluation Methods**

The course will be a mixture of lecture, research roundtable discussions, and computer lab activities. Students are expected to read the material when assigned, participate in research roundtable discussions, and work continuously on their research projects. The final grade will be determined by the weighted average of their grades on the following activities: research paper, rough draft of the research paper, paper presentation, poster presentation, discussant report and presentation, research roundtable reports, and homework assignments. The paper presentation will be the terminating activity. Criteria for grading are 1.) evidence of critical thinking about topic; 2.) skill in applying econometric techniques; and, 3.) oral and written communication skills.

The weights are as follows:

- |                          |                                  |
|--------------------------|----------------------------------|
| Research Paper = 35%     | Discussant Report = 7%           |
| Rough Draft = 10%        | Discussant Presentation = 3%     |
| Paper Presentation = 10% | Poster Presentation = 15%        |
| Homework = 15%           | Research Roundtable Reports = 5% |

The course will use the following grading scale:

90 % - 100 %	A
80 % - 89 %	B
70 % - 79 %	C
60 % - 69 %	D
< 60 %	F

**Description of activities:**

Research Paper - Students are expected to complete an empirical research project on a topic of their choice. The study can either be a significant extension of their ECON 356 research paper or an econometric analysis of an entirely new research question. The paper topic must be approved by the instructor. Completing this project will entail formulation of a research question, a literature review, data collection, econometric analysis of the sample, and writing of the paper.

Paper Presentation - At the end of the semester, students will give oral classroom presentations of their research paper. The presentation must include visual aids and be 10-15 minutes in length. The order of presentations will be determined randomly.

Poster Presentation - In addition, students are expected to create a poster board presentation of their research paper. Using a visual approach, students will summarize their research project and its findings for a general audience. This poster presentation will be displayed during an on campus student poster session. See the attached sheet for details.

Discussant Report and Presentation - In the fashion of a professional conference, students will serve as discussants for one another. The instructor will make discussant assignments on the basis of common interest/area of study to the greatest extent possible. Discussants are expected to provide constructive criticism to their authors. Their comments will be delivered orally immediately following the classroom presentation of the paper. In addition to the discussant presentation, a written discussant report for the author is also required. See the attached sheet for details.

Research Roundtable Reports - On five separate occasions during the semester, the class will meet for research roundtable discussions. During the roundtables, students are expected to give an oral report of their research progress to the group. In addition, they are expected to meaningfully contribute to the discussion and problem-solving of common obstacles encountered by members of the class. there will be a number of short, in-class written assignments (e.g., reaction papers to readings and videos) to reward attendance and provide feedback for both the instructors and students.



Homework - There will be a series of assignments of different types given over the course of the semester. Examples include peer critiques of student research papers, computer lab applications of econometric techniques, textbook problem sets, and reading assignments and corresponding questions on articles from the scholarly literature. Late assignments will be accepted at the discretion of the instructor and penalized 10% of their point total per day late.

V. **Required Textbooks, supplemental books and readings**

Studenmund, A.H. (2006) *Using Econometrics: A Practical Guide*, 5<sup>th</sup> edition,  
Boston: Pearson Addison Wesley.

VI. **Special Course Requirements**

None.

VII. **Bibliography**

A detailed bibliography is attached.

Please note that although some of the articles listed are not very recent, they provide a better explanation of certain concepts than more recent articles. These articles would not be recognized as classics in the discipline, but they are articles that I have found to be most effective at conveying difficult concepts to students.

# ADVANCED ECONOMETRICS

## BOOKS

- Greene, William H. (2003) *Econometric Analysis*, 5<sup>th</sup> edition, Upper Saddle River, NJ: Prentice-Hall.
- Greenlaw, Steven A. (2006) *Doing Economics*, Boston: Houghton Mifflin.
- Griffiths, William E., et al. (1993) *Learning and Practicing Econometrics*, New York: John Wiley & Sons.
- Gujarati, Damodar N. (2003) *Basic Econometrics*, 4<sup>th</sup> edition, New York: Irwin/McGraw-Hill.
- Gujarati, Damodar (2006) *Essentials of Econometrics*, 3<sup>rd</sup> edition, Boston, MA: Irwin/McGraw-Hill.
- Hill, R. Carter, et al. (2001) *Undergraduate Econometrics*, 2<sup>nd</sup> edition, New York: John Wiley and Sons, Ltd.
- Intriligator, Michael, et al. (1996) *Econometric Models, Techniques, and Applications*, 2<sup>nd</sup> edition, Upper Saddle River, NJ: Prentice-Hall.
- Johnston, Jack & DiNardo, John (1997) *Econometric Methods*, 4<sup>th</sup> edition, New York: McGraw-Hill.
- Kennedy, Peter (2004) *A Guide to Econometrics*, 5<sup>th</sup> edition, Malden, MA: Blackwell Publishing.
- Lott, William F. & Ray, Subhash C. (1992) *Applied Econometrics: Problems with Data Sets*, Fort Worth, TX: Harcourt Brace Jovanovich.
- Maddala, G.S. (2001) *Introduction to Econometrics*, 3<sup>rd</sup> edition, New York: John Wiley and Sons, Ltd.
- Pindyck, Robert S. & Rubinfeld, Daniel L. (1998) *Econometric Models and Economic Forecasts*, 4<sup>th</sup> edition, Boston, MA: Irwin/McGraw-Hill.
- Schmidt, Stephen J. (2005) *Econometrics*, New York: Irwin/McGraw-Hill.
- Stock, James H. & Watson, Mark W. (2003) *Introduction to Econometrics*, Boston, MA: Addison Wesley.
- Wooldridge, Jeffrey M. (2006) *Introductory Econometrics: A Modern Approach*, 3<sup>rd</sup> edition, South-Western College Publishing.

## ARTICLES

Amemiya, Takeshi (1984) "Tobit Models: A Survey." *Journal of Econometrics*. 24 (1-2): 3-61.  
(Note: This is a recognized classic in the discipline.)

Grimes, Paul W. and Chressanthis, George A. (1994) "Alumni Contributions to Academics: The Role of Intercollegiate Sports and NCAA Sanctions." *American Journal of Sociology*. 53 (1): 27-40.

Chressanthis, George A. and Chressanthis, June D. (1994) "The Determinants of Library Subscription Prices of the Top-Ranked Economics Journals: An Econometric Analysis." *Journal of Economic Education*. 25 (4): 367-82.

Chressanthis, George A. and Grimes, Paul W. (1990) "Criminal Behaviour and Youth in the Labour Market: The Case of the Pernicious Minimum Wage." *Applied Economics*. 22 (11): 1495-1508.

Eisenhauer, Joseph G. (2005) "A Test of Hotelling's Valuation Principle for Nonrenewable Resources." *Empirical Economics*. 30 (2): 465-471.

Gius, Mark P. (2003) "The Effects of HMO's and Investor-Ownership on Hospital Length-of-Stays and Excess Capacity in the Hospital Industry: 1985-2000." *Pennsylvania Economic Review*. 12 (2): 76-80.

Chressanthis, George A. (1994) "The Demand for Chess in the United States." *The American Economist*. 38 (1): 17-26.

Grimes, Paul W. and Chressanthis, George A. (1997) "Assessing the Effect of Rent Control on Homelessness." *Journal of Urban Economics*. 41 (1): 23-37.

**Jim Jozefowicz**

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**From:** "Gary Stoudt" <Gary.Stoudt@iup.edu>  
**To:** "Jim Jozefowicz" <jimjozef@iup.edu>  
**Sent:** Tuesday, February 07, 2006 9:55 AM  
**Subject:** ECON 456

Jim,

The Mathematics Department Supports the proposal for ECON 456. The content and its emphasis on applications to economic analysis does not significantly overlap with any courses that we offer. It will also reinforce concepts learned in an introductory statistics course. Thank you for sharing the course proposal with us.

Gary

Gary Stoudt, Chairperson  
Mathematics Department