

LONG SIGNATURE SHEET



Proposal Number: ECON 02-27-09a

Proposal Title Establishment of a Graduate Course in
Cross Section and Time Series Econometrics

Originating Department Economics

TYPE OF PROPOSAL: UNDERGRADUATE _____ GRADUATE UNDERGRADUATE & GRADUATE _____

DATE RECEIVED	DATE CONSIDERED	DATE FORWARDED	ACTION	SIGNATURES
	2-27-09	3-11-09	Approved	<u>DEPARTMENT CHAIR</u> Robert A. Jones
	3-11-09	3-22-09	Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u> [Signature]
				<u>TEACHER EDUCATION COMMITTEE CHAIR</u> (Teacher Education Program proposals only)
				<u>COLLEGE FACULTY CHAIR</u>
3-23-09	3-27-09	3-30-09	Approved	<u>COLLEGE DEAN</u> [Signature]
				<u>UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR</u> (for undergraduate courses)
				<u>GRADUATE COUNCIL CHAIR</u> (for graduate courses)
				<u>FACULTY GOVERNANCE SECRETARY</u> (noting Faculty Council approval on Consent Calendar)
				<u>FACULTY EXECUTIVE COMMITTEE</u> (if decision is appealed)

New Graduate Course Proposal

Course and Curriculum Proposal from the Department of Economics

Establishment of a Graduate Course in Cross Section and Time Series Econometrics

A. Proposal Summary and Catalog Copy

1. Summary

The Department of Economics proposes to add a graduate level course in Econometrics as part of the Masters of Mathematical Finance program.

2. Proposed Catalog Copy

ECON 6113. Cross Section and Time Series Econometrics. (3) Prerequisite: Permission of the graduate program coordinator. This class introduces the advanced study of the theory and application of statistics to economic problems. Topics include derivation of the least-squares estimator; methods with which to detect and correct for potential problems with the classical regression model; maximum likelihood estimation; instrumental variables regression; the problems of multicollinearity, heteroscedasticity, and autocorrelation; introduction to time-series estimation including ARIMA models and basic forecasting tools. (*Fall*)

B. Justification

1. This will be a required course in the Master of Science in Mathematical Finance program. The statistical and computer skills taught in econometrics are increasingly valuable to both the private and public sector. The Master of Science in Mathematical Finance program currently lacks a course specifically focusing on introductory econometrics. Several Master of Science in Mathematical Finance or Master of Science in Quantitative Finance programs, such as those at Rutgers University and Vanderbilt University, have similar courses.

2. Prerequisite: Permission of the graduate program coordinator.

3. The 6000 level designation is consistent with the courses that are approved for graduate credit. Restricted to graduate students.

4. This course proposal will help fill a gap in the Master of Science in Mathematical Finance program and, therefore, will improve the quality of the program.

C. Impact

1. The course will serve all students in the Master of Science in Mathematical Finance program and many other graduate students with appropriate backgrounds who might seek to enhance their knowledge of econometrics.

2. What effect will this proposal have on existing courses and curricula?
 - a. The course will be offered once each year.
 - b. Its availability will not interfere with other offerings.
 - c. The anticipated enrollment is expected to be 25-35 students.
 - d. Its availability will not interfere with other offerings.
 - e. The course has been previously offered as ECON 6090 in Fall 2007 (35 students) and Fall 2008 (30 students).
 - f. The proposed course serves as a prerequisite for ECON 6219 (Financial Econometrics), so the catalog copy for ECON 6219 will need to be changed to reflect this new prerequisite.

D. Resources required to support proposal

1. Personnel

(a) No new faculty lines are required to offer the course.

(b) Current graduate faculty members who are qualified to teach it include: Craig Depken, Rob Roy McGregor, Stan Radchenko, and Jennifer Troyer, all from the Department of Economics, and Zongwu Cai from the Department of Mathematics and Statistics.

2. Physical facility

The current facilities are adequate.

3. Equipment and supplies

Current equipment and supplies are adequate.

4. Computer

Current computer resources are adequate.

5. Audio-Visual

Current facilities are adequate.

6. Other resources

None needed

7. Sources of funding

N/A

E. Consultation with Library and other department or units

1. Library consultation

The J. Murray Atkins library was consulted regarding general adequacy in Econometrics.

2. Consultation with other Departments

As this course will serve the Master of Science in Mathematical Finance program, the curriculum and objectives for this course were determined in consultation with the Department of Finance, the MSMF coordinator, and the Department of Mathematics and Statistics. Letters of support are attached.

F. Initiation and consideration of the proposal

1. Originating unit: Department of Economics, The Belk College of Business, UNC Charlotte.

The Economics Department approved this course on February 27, 2009.

2. Other considering units - None

3. Council on general education: n/a

G. Attachments

1. Library consultation

2. Sample syllabus

3. Letters of Support

TO: PROF. DEPKEN, DEPT. OF ECONOMICS
FROM: JEANIE M. WELCH, BUSINESS REFERENCE LIBRARIAN
DATE: DEC. 16, 2008
SUBJ: ECON 6113 CROSS SECTION AND TIME SERIES ANALYSIS

I have reviewed the course proposal for ECON 6113 and found library holdings to be adequate. As a rule the library does not buy required texts, but we have the first, third, and fourth editions of *Basic Econometrics* by Gujarati. The library also has the fourth edition of Greene's *Econometric Analysis*, the 1976 edition of Pindyck and Rubinfeld's *Econometric Models and Economic Forecasts*, and Wooldridge's *Introductory Econometrics*.

The online catalog lists 19 titles on time series analysis published within the last 5 years.

We currently have a subscription to the *Journal of Time Series Analysis*.

I checked the following electronic databases for citations to articles on time series analysis and econometrics published within the last five years. Here are the results:

Business Source Premier	709 citations in academic journals
	121 articles full-text within the database
EconLit	35 citations
	15 articles full-text within the database
MathSciNet (Amer. Mathematical Soc.)	24 citations

I also checked the same electronic databases for citations to articles on cross section and econometrics published within the last five years. Here are the results:

Business Source Premier	156 citations
EconLit	24 articles full-text within the database
MathSciNet	19 citations

ECON 6113-U90

Cross Section and Time Series Econometrics

Instructor: Dr. Craig A. Depken II
Office: 229A Friday
Phone: 704.687.7484
Office Hours: M, T 1-2:30PM and by appointment
E-mail: cdepken@uncc.edu
Web Page: www.belkcollege.uncc.edu/cdepken
Class Room: Uptown Campus
Class Meets: T 5:30 pm - 8:15 pm

Course Description: ECON 6113. Cross Section and Time Series Econometrics. (3)
Prerequisite: Permission of the graduate program coordinator. This class introduces the advanced study of the theory and application of statistics to economic problems. Topics include derivation of the least-squares estimator; methods with which to detect and correct for potential problems with the classical regression model; maximum likelihood estimation; instrumental variables regression; the problems of multicollinearity, heteroscedasticity, and autocorrelation; introduction to time-series estimation including ARIMA models and basic forecasting tools.
(Fall)

Course Objective: This class introduces the advanced study of the theory and application of statistics to economic problems. Topics include derivation of the least-squares estimator; methods with which to detect and correct for potential problems with the classical regression model; maximum likelihood estimation; instrumental variables regression; the problems of multicollinearity, heteroscedasticity, and autocorrelation; introduction to time-series estimation including ARIMA models and basic forecasting tools.

Lectures will be used to introduce the mechanics of econometric analysis and I will provide in-class examples of how to use Stata (which you will be able to follow if you wish to bring a laptop or thumb drive to class). Practical learning of econometrics is accomplished through several applied out-of-class exercises.

In order to complete the applied homework, use of a statistical software package which can perform matrix and/or regression operations is required. Stata Small is the recommended software package, which can be purchased at a discount (available at www.stata.com/order/new/edu/gradplans/gp2-order.html use course ID CD9NC4) and is available for free in the computer labs in the Friday Building. There are a number of alternative econometrics/statistical packages that can be used, e.g., SAS, Limdep, TSP, Rats, R, Microsoft Excel, NCSS, and SPSS. However, if you choose one of these alternatives I will not answer questions concerning it.

Text: The text used is *Basic Econometrics*, 4th edition, by Damodar N. Gujarati. A previous edition of the book should be sufficient for the class. I strongly recommend purchasing a used copy of the text and applying the savings to the purchase of STATA Small.

Alternative textbooks include William Greene's *Econometric Analysis*, or Jeffrey Wooldridge's *Economic Analysis of Cross Section and Panel Data*. Two undergraduate texts that provide good explanations of many topics covered in this class are Pindyck and Rubinfeld's *Econometric Models and Economic Forecasts* and Wooldridge's *Introductory Econometrics*.

Course Web Page: The course web page is linked from www.belkcollege.uncc.edu/cdepken. Note that many of the documents at the site are protected with the password _____. Also note that I am teaching two sections of econometrics this semester, so be sure to visit the page associated with this course.

Grading: Grading will proceed in the following manner:

<u>Assignment</u>	<u>Total Value</u>
6 Out-of-class assignments	150 points
1 Term Paper	100 points
1 Midterm Exam	100 points
1 Cumulative Final Exam	<u>150 points</u>
	500 points

Letter grades will be awarded as follows (after standard rounding):

A 500-438 B 437-388 C 387-338 U 337-0

Attendance: There is no attendance policy in this class. You are free to attend or not attend class, this is your decision. However, attendance is a major factor in how well you will perform in the class. No points are artificially added or subtracted based on attendance. I appreciate you arriving on time and not leaving class early. If you miss class, you should NOT ask me about what you missed. It is your responsibility to get this information from one of your classmates.

Academic Honesty: Please note that academic misconduct (cheating) will NOT be tolerated. In addition, students have the responsibility to know and observe the requirements of The UNC Charlotte Code of Student Academic Integrity. This code forbids cheating, fabrication or falsification of information, multiple submissions of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty. Academic evaluations in this course include a judgment that the students work is free from academic dishonesty of any type; and grades in this course therefore should be and will be adversely affected by academic dishonesty. Students who violate the code can be expelled from UNC Charlotte. The normal penalty for a first offense is zero credit on the work involving dishonesty and further substantial reduction of the course grade. In almost all cases, the course grade is reduced to F. Copies of the code can be obtained from the Dean of Students Office. Standards of academic integrity will be enforced in this course. Students are expected to report cases of academic dishonesty to the course instructor.

If in doubt when contemplating an action, ask me first!!

Make-up Projects: Make-up exams are generally not offered. Out-of-class assignments turned in late can only earn 60% of the original point value. The weight of any missed in-class assignments will be shifted to the final exam.

Cell Phones: All beepers, pagers and cell phones must either be turned off prior to class starting or placed in silent mode. The proliferation of cell phones and other communication devices does not mitigate the negative externalities imposed on others when they activate during class.

Laptops: The use of laptops and desktop computers in this class will be restricted to those times when we work through in-class examples using Stata.

Course Outline

1. Introductory Comments (Chapter 1)
2. Statistics Review (Appendix A)
3. Simple Regression Model (Chapters 2 and 3)
4. Classical Regression Model (Chapters 7 and 8, Appendix B and Appendix C)
5. Hypothesis Testing (Chapters 5 and 8)
6. Functional Forms and Dummy Variables (Chapters 6 and 9)
7. Possible Problems in Regression (Chapters 10 and 13)
8. Generalized Least Squares (Lecture Notes and Handouts)
9. Heteroscedasticity (Chapter 11)
10. Autocorrelation (Chapter 12)
11. Limited Dependent Variables (Chapter 15)
12. Time Series Analysis (Chapters 21 and 22)
13. A Practitioner's Guide/Review of Econometrics (Handouts)

Term Paper Guidelines

In this class, each student is required to write a short paper involving econometric analysis. The paper is an opportunity to apply the econometric tools learned in class to a real-world issue chosen by the student. I recommend that you choose a topic in which you are interested but also one with a narrow focus. A narrow focus increases the probability that the project will both be completed by the semester's end and be of sufficient quality. If you have trouble choosing a paper topic, I can offer suggestions.

I recommend you begin thinking about this project as soon as possible and to avoid putting off writing the paper until the last few days of class. A good strategy is to talk to me about your project early in the semester, to keep in contact with me concerning your data and estimations, and to have me review a rough draft before the final draft is submitted.

The final version of the term paper is due at the beginning of the final exam period: 5:45PM EST, December 16, 2008

There are a few guidelines that you must follow:

- Papers should be at least 10 double-spaced, single-sided pages printed no greater than 12 font;

- Papers should be generally structured in the following manner:
 - Introduction of the economic/econometric problem - what are you doing and why do we care?
 - Brief review of previous literature dealing with your problem (include standard academic references)
 - Introduction of your econometric model and data, including specific data source(s)
 - Review and interpretation of your estimation results
 - Concluding remarks
 - Reference list
 - Econometric Results in tabular form
 - Figures

- You must provide an electronic form of your data, programs, program output and paper. If I do not receive all required files, you will receive a zero on the term paper.

Letter of Support from the Department of Finance

From: Clark, Steven
Sent: Tuesday, December 30, 2008 2:16 PM
To: Sealey, Bill; Zuber, Rick; McGregor, Rob
Subject: RE: consultation request

These courses look fine.

My only comment is that "Cross Section and Time Series Econometrics" is a very broad title and may suggest more coverage, particularly for time series, than is actually promised in the course description. It doesn't really matter that much, but I would just throw out the suggestion that perhaps a title like "Advanced Econometrics with Time Series" may be more appropriate.

Steven

Steven P. Clark, Ph.D.
Associate Professor of Finance
and Director of the M.S. Program in Mathematical Finance
Department of Finance
University of North Carolina at Charlotte
9201 University City Blvd.
Charlotte, NC 28223
(704)-687-7689

From: Sealey, Bill
Sent: Wednesday, December 17, 2008 12:18 PM
To: Clark, Steven
Subject: FW: consultation request

Steven, do you have any problems with these courses? Bill

From: Zuber, Rick
Sent: Monday, December 15, 2008 1:02 PM
To: Sealey, Bill; Clark, Steven
Cc: McGregor, Rob
Subject: consultation request

Bill and Steve: Hello. Attached are proposals for two new graduate courses in economics: ECON 6206 (Game Theory and Experiments) and ECON 6113 (Cross Section and Time Series Econometrics). As I understand, we should have a consultation with both the Department of Finance and the M.S. in Mathematical Finance Program on these two course proposals. If possible, would you please send your consultation report to me by January 15, 2009? Please let me know if you all have any questions on either of these two course proposals. Many thanks, Rick

Rick Zuber
Chair and Professor of Economics
Department of Economics
9201 University City Blvd.
UNC Charlotte
Charlotte, NC 28223
704-687-7588
razuber@uncc.edu

Letter of Support from the Department of Mathematics and Statistics

From: Dow, Alan
Sent: Tuesday, January 06, 2009 4:24 PM
To: Zuber, Rick
Subject: Re: consultation request

Hi Rick,

Thanks for the courtesy of consulting the Mathematics and Statistics department regarding the course proposals

ECON 6206 Game Theory and Experiments

and

ECON 6113 Cross Section and Time Series Econometrics

I am pleased to be able to confirm that our department has no objections or concerns about the creation of these courses.

Sincerely,
Alan Dow

On Mon, 2008-12-15 at 13:01 -0500, Zuber, Rick wrote:

> Alan: Hello. Attached are proposals for two new graduate courses in
> economics: ECON 6206 (Game Theory and Experiments) and ECON 6113
> (Cross Section and Time Series Econometrics). As I understand, we
> should have a consultation with both the Department of Mathematics and
> Statistics on these two course proposals. If possible, would you
> please send your consultation report to me by January 15, 2009?
> Please let me know if you have any questions on either of these two
> course proposals. Many thanks, Rick
>
>
> Rick Zuber
> Chair and Professor of Economics
> Department of Economics
> 9201 University City Blvd.
> UNC Charlotte
> Charlotte, NC 28223
> 704-687-7588
> razuber@uncc.edu
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