

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM: BUSINESS/ENVIRONMENTAL SCIENCE AND RESOURCE MANAGEMENT

1. Catalog Description of the Course. *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

ECON 488. APPLIED MANAGERIAL ECONOMETRICS (4)

Three hours lecture and two hour lab per week.

Prerequisite: ECON 310 or 329; MATH 150, BIOL 202 or MATH 340 or MATH 342.

Emphasis on the collection and manipulation of economic data, and the application of econometric methods to business and resource management issues. Development of testable hypotheses, applications of estimation techniques and interpretation of regression results. Use of econometric software applications to estimate statistical relations.

2. Mode of Instruction.

	Units	Hours per Unit	Benchmark Enrollment
Lecture	<u>3</u>	<u>1</u>	<u>20</u>
Seminar			
Laboratory	<u>1</u>	<u>2</u>	<u>20</u>
Activity			

3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

This course is required for the Resource Management Emphasis in the Environmental Science and Resource Management Program and is an upper division elective for the minor in Economics. The purpose of this course is to provide an introduction to the applied quantitative and analytical skills necessary to decision-makers in many contexts including the private and public sectors. Emphasis is placed on learning-by-doing: students develop fundamental econometric skills through the use of empirical data and statistical software which augments lecture-based instruction. The use of econometric techniques draws a critical link between theoretical models and empirical application.

Students who successfully complete this course will be able to:

- Collect appropriate data for various types of analyses.
- Manage and prepare data for empirical analysis.
- Formulate testable hypotheses on the basis of economic or management theory.
- Employ econometric techniques to test hypotheses.
- Perform and interpret the results of multiple linear regression.
- Detect and correct basic problems in regression analysis.
- Generate forecasts from econometric results.

4. Is this a General Education Course YES NO
 If Yes, indicate GE category:

A (English Language, Communication, Critical Thinking)	
B (Mathematics & Sciences)	
C (Fine Arts, Literature, Languages & Cultures)	
D (Social Perspectives)	
E (Human Psychological and Physiological Perspectives)	

5. Course Content in Outline Form. [Be as brief as possible, but use as much space as necessary]

Introductory Concepts

Turning data into information: the purpose of empirical work

What is econometrics?: specialized techniques for economic data

Scope of applicability: management decisions related to business, natural resources and government

Working with Data

Data sources and reliability

Manipulation with spreadsheets, databases

Basic statistical programming: infilling, merging, sorting

Knowing the data: means, measures of dispersion, and correlation

Estimators and Estimates

Unbiasedness and efficiency

The concept of Least Squares

Applied Linear Regression

Key assumptions

Technique and interpretation: coefficients, measures of significance, goodness of fit

Hypothesis testing: single and joint hypotheses

Forecasting and simulation

Violations of the Key Assumptions: Detection and Correction

Non-linearities in economic data and log-linear conversions

Heteroskedasticity

Multicollinearity

Qualitative Explanatory Variables

Interpretation of categorical data

Developing meaningful interaction variables

Qualitative Dependent Variables

Logistic regression techniques

Interpretation of regression estimates as categorical probabilities

Polychotomous and ordered categorical dependent variables

Basic Time Series and Panel Analysis

Autoregressive Moving Average models

Fixed and random effects

Empirical Applications

Business: demand estimation, cost estimation, elasticity

Resource Management: resource depletion, pollution abatement, resource valuation, policy impact, I/O

Other potential applications

6. References. [Provide 3 - 5 references on which this course is based and/or support it.]

Bateman, Ian, Andrew Lovett and Julii Brainard. *Applied Environmental Economics*. Cambridge. 2003.

Berndt, Ernst. *The Practice of Econometrics: Classic and Contemporary*. Addison Wesley. 1996.

Gujarati, Damodar. *Basic Econometrics 4th Edition*. McGraw-Hill. 2003.

Manly, Bryan F.J. *Statistics for Environmental Science and Management*. CRC Press. 2000.

Wooldridge, J.M. *Introductory Econometrics: A Modern Approach*. South-Western College Publishing. 2003.

7. List Faculty Qualified to Teach This Course.

Dr. Dennis Muraoka

Dr. Paul Rivera

Dr. Ashish Vaidya

8. Frequency.

a. Projected semesters to be offered: Fall _____ Spring ___x___ Summer _____

9. New Resources Required.

- a. Computer (data processing), audio visual, broadcasting needs, other equipment

If not already available, this course may require statistical software to be determined by the instructor.

- b. Library needs
- c. Facility/space needs

10. Consultation.

Attach consultation sheet from all program areas, Library, and others (if necessary)

- 11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

Proposer of Course

Date