

**SACRAMENTO STATE UNIVERSITY  
DEPARTMENT OF ECONOMICS  
Fall 2010**

**ECON 140: Quantitative Economic Analysis**

**Class Information**

Fall 2010 Session: MWF 10:00 am – 10:50am, Mariposa Hall 1010/1011  
Lecture Dates: Aug. 30, 2010 – Dec. 10, 2010  
Call No.: 84909, Section: 01

**Professor**

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**Course Description and Overview:**

Examination of the basics of conducting quantitative economic analysis. Included are basic concepts and methods of data analysis and research. Students will examine economic data using spreadsheets, will develop presentation skills, and be introduced to career opportunities. **Prerequisite:** ECON 1A, ECON 1B; STAT 1. 3 units.

**Goals of this Class:**

This is a class that teaches you practical as well as theoretical skills. Accordingly, the goals of this class are:

1. Understanding how economists think and learning how to ask the right (research) questions.
2. Learning how to collect, analyze and interpret economic data.
3. Using statistical analysis to make sense of your economic results.
4. To develop some basic software and presentation skills.
5. To have fun as we learn all these skills.

**Required Materials:**

The textbook required for this course is “Analysis of Economic Data” by Gary Koop, third edition (Wiley, 2009, ISBN 978-0-470-71389-1), and it is available for purchase in the campus bookstore or online.

Besides the textbook, this class will benefit a lot from online sources. Since part of the aim of this class is to teach you what kind of questions do economists ask, we will be using online resources such as freakonomics blog and slate.com to discuss current issues.

**Grading:**

Problem Sets/Lab Exercises: 30%

Midterms (each): 25%

Group Project: 20%

Actual letter grade you earn in this course will be based on a weighted average of all the numerical grades you have will earn throughout the semester. In terms of letter grades, a grading scale will be determined *after the final exam*. This scale will probably not resemble the 10-point scale many of you are used to (e.g., 90-100% is some sort of A, 80-89% is some sort of B, etc...) because I curve the grades in every class I teach. I will provide more information throughout the semester about how to interpret your homework and exam scores. Also note that there is no class on the exam day. All exams are in-class.

**Other Important Information:*****Problem Sets/Lab Exercises:***

There will be problem sets posted on SacCT throughout the semester. They are very important for your learning and success in this class. Because this is a very hands-on class, learning-by-doing is the most efficient way to acquiring the skills I need you to. Classes on Fridays will be held in the computer lab (unless announced otherwise) which is in Mariposa Hall 1011. There, you will have the opportunity to work on your problem set/lab exercise with direct guidance from me. Besides the learning-by-doing aspect, problem sets are also a very good way to secure a good grade in the class. All assignments are due by the stated deadline. There will be no exceptions to this rule but I will drop your lowest one before I calculate your final assignment average.

***Exams:***

There will be two midterms in this class and no final exam. The first midterm exam will be **on October 15<sup>th</sup>** and the second midterm will be on **December 1<sup>st</sup>**. Midterms will be held in class during scheduled class time. If you miss a midterm due to a legitimate reason (illness documented by a doctor, family emergency such as loss of a family member, university related travel, etc..) and if you notify me of that fact **24 hours prior to the exam**, your letter grade will be determined upon 75 possible points. I will not give out any make-up midterms.

You are responsible for bringing a scantron form (882-E), a pencil, and a non-cell-phone calculator to all exams. Exams are all closed-book, closed-note, and closed-friend/neighbor.

Also note that you have one week after the return of your graded midterm to appeal for a grade change. I will only entertain appeals if they are due to a technical problem related to your midterm.

### ***Attendance:***

Attendance at lecture is left up to your discretion, although I obviously believe that coming to class will have a positive effect on how much you learn and your final grade. I will not take roll.

If you choose to attend, I do request that you be on time and also do not leave the class room before the lecture is over. If you are not on time or if you leave early (or if you don't come to class at all), you are likely to miss important material. It is **your responsibility** to get all the material you miss. I do not hand out or lend lecture notes under any circumstances, so I recommend you find a study-buddy in the class. Any handouts distributed in class will also be posted on SacCT, so check there frequently.

### ***Academic Honesty:***

All students are expected to adhere to the principles of Academic Honesty outlined in the *Sacramento State University Policy Manual*. You can review these principles and access the policy manual at: <http://www.csus.edu/umannual>

### **Tentative Course Outline<sup>1</sup>:**

#### *1. Introduction (Chapter 1)*

- Introduction to Quantitative Economic Analysis
- What kind of economic questions interest you?
- Review of some mathematical concepts

#### *2. Data (Chapter 2)*

- Types of economic data
- Obtaining and working with data
- Graphical Methods
- Descriptive Statistics
- Advanced Descriptive Statistics

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<sup>1</sup> I reserve the right to change the order or the content of this outline at anytime throughout the semester.

3. *Correlation and Causation (Chapter 3)*

- What is the difference between correlation and causation?
- Finding correlation in the data
- Correlation between several variables
- Mathematical explanation of correlation

4. *Hypothesis Tests and T-statistics (Chapter 5)*

- What affects the accuracy of an estimate?
- Calculating confidence intervals
- Testing whether  $\beta=0$
- The  $F$  statistic

5. *Ordinary Least Squares Regression (Chapter 4)*

- Best fitting line regression
- Understanding OLS estimates
- Measure of fit of the OLS model

6. *Multiple Regression (Chapter 6)*

- OLS estimates of the multiple regression model
- Interpreting OLS estimates
- Statistical aspects of multiple regression

7. *Regression with Dummy Variables (Chapter 7)*

- Simple regression with dummy variables
- Multiple regression with dummy variables
- Interacting dummy and non-dummy variables
- Dependent variable as a dummy variable

8. *Things to watch out for in regressions (Chapter 6)*

- Omitted variables bias
- Multicollinearity
- Using simple regression in a multiple regression context

9. *Regression with time lags and times series analysis (Chapters 8-9-10)*

- Selection of lag order
- Autocorrelation
- Nonstationary versus stationary
- Unit roots and spurious regression
- Regression with time series variables