COURSE OUTLINE

I. Catalog Description

EC 322/ EC 322A Economic Statistics (3/1)

Statistical methods and techniques in economic analysis. Analysis of time series, index number construction, regression and correlation analysis, probability and other statistical distributions; related economic topics. Prerequisite: STA 120 or equivalent MAT statistics. 3 lectures/problem-solving, 1 two-hour activity.

II. Required Background or Experience

Prerequisite: STA 120 or equivalent MAT statistics.

III. Expected Outcomes

Economics 322/322A the student will build on the statistical knowledge base and technical skill set acquired in EC 321/321A. In addition, EC 322/322A students will:

a) identify and perform appropriate statistical tests for independent and dependent samples,

b) calculate best linear unbiased estimators for simple and multiple regression models with and without the software programs,

c) define and describe basic problems with linear regression models,

d) refine and gather new data to extend their EC 321/321A statistics projects,

e) construct and test a multiple regression model using a data set of their, and

f) complete a inferential statistical analysis of their regression model in written and oral presentations.

IV. Text and Readings

Texts:


Readings:


Software:

Microsoft Office for Windows

V. **Minimum Student Materials**

Notebooks, required reading materials, access to personal computers equipped with EViews and Microsoft Office, and pocket calculators.

VI. **Minimum College Facilities**

Classroom equipped with blackboards/whiteboards, overhead projectors, and personal computer (PC) with "big screen" monitor for demonstration of interactive lessons/applications of course concepts. Pull-down screen for use of audio-visual equipment.

Access to "smart" computer lab, ie. 1-317, with instructor's console and linked PC workstations and printer. All workstations must be equipped with CD-ROM and disc drives, internet access, EViews and MS Office software.

VII. **Course Outline**

A.  **Regression and Correlation Analysis**

   1.  **Time Series and Cross Sectional Analysis**

      a.  Method of Ordinary Least Squares (OLS)
      b.  OLS: Residuals Analysis
      c.  OLS: Assumptions and Violations of Assumptions
      d.  Simple and Multiple Regression: Construction, Interpretation, Confidence Intervals and Hypothesis Tests of Regression Coefficients
e. Partial and Multiple Correlation
f. The Correlation Coefficient, $R^2$

B. Special Topics in Regression Analysis
1. Models with Polynomials
2. Dummy Variables
3. Logarithmic Form
4. Stepwise Regression
5. The Correlation Matrix

C. Time-Series Analysis
1. Estimation of Trend Component
2. Estimation of Seasonal Component

D. Cross-Sectional Analysis
1. Construction considerations
2. Estimation Problems

E. Index Numbers
1. Simple Price Indexes
2. Weighted Price Indexes
3. Major U.S. Price Indexes and Other Indexes

F. Analysis of Variance
1. One-Factor ANOVA
2. Two-Factor ANOVA

G. Introduction to Statistical Decision Theory
1. Payoff Tables and Opportunity Loss Tables
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2. Criteria for Decision Making
3. Utility Theory and the Expected Utility Criterion
4. Decision Tree Analysis
5. Revising Probabilities and Posterior Analysis

VIII. Instructional Methods

There are four methods of instruction.

1. Students will participate in lecture/problem-solving sessions pertaining to required readings in the text and lecture topics.
2. Students will perform weekly computer tasks coordinated with reading requirements in the micro-computer lab.
3. Students will complete written explanations of their weekly computer projects.
4. Students will complete written examinations on required topics.

IX. Evaluation of Outcomes

There are three methods of evaluation.

1. Students will be evaluated based on their completion of each computer assignment.
2. Students will prepare three 10 papers developed from date that they collect.
3. Students will have three written examinations that are problem-solving/essay.