Economics 200: Quantitative Methods in Economics

Fall 2001 - TT 2:40-4:00 – PAC 125

Professor Alberto Isgut
PAC 222, Phone: 685-3958
aisgut@wesleyan.edu
http://aisgut.web.wesleyan.edu

Office hours: M 1:30-2:30, W 3-4, or by appointment
Teaching assistants: Anthony Attiogbe and Arnab Bhattasali

Purpose: This course offers an introduction to the practice of statistics, with a special emphasis on applications to economics research. The approach followed emphasizes the hands-on exploration of diverse data sets through the use of spreadsheet and statistical software. Although the examples considered come from many fields, special consideration is given to the use of statistics in contemporary economics research. While the mastering of basic quantitative statistical techniques is an important objective of this course, an even more important objective is to gain a critical understanding of the uses and misuses of data.

Requirements: The final grade will be based on the following assignments. Class participation will be taken into account when computing the final grade.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Date and time</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short paper #1 (3 pp.)</td>
<td>Draft due 9/24 at 4:00 pm; final version due 10/1 at 4:00 pm</td>
<td>10%</td>
</tr>
<tr>
<td>Midterm test</td>
<td>10/18 in class</td>
<td>25%</td>
</tr>
<tr>
<td>Short paper #2 (3 pp.)</td>
<td>Draft due 11/5 at 4:00 pm; final version due 11/12 at 4:00 pm</td>
<td>10%</td>
</tr>
<tr>
<td>Project (5 pp.)</td>
<td>Outline due 11/26 at 4:00 pm; final version due 12/7 at 4:00 pm</td>
<td>15%</td>
</tr>
<tr>
<td>Problem sets</td>
<td>Wednesdays at 4:00 pm (exc. 9/5, 10/17, and 11/21)</td>
<td>10%</td>
</tr>
<tr>
<td>Final exam</td>
<td>12/17 from 2:00 to 5:00 pm</td>
<td>30%</td>
</tr>
</tbody>
</table>


Honor code: All the assignments and tests for this course are bound by the Wesleyan Honor code. Please read about Wesleyan’s honor system at http://www.wesleyan.edu/deans/honorsystem.html.

Policy on late assignments: All tests must be written and all assignments must be handed in at the dates and times indicated on this syllabus. Please do not request a personal exception from this policy, or an incomplete, except in the event of a grave medical or family emergency.
Topics and Readings

I- INTRODUCTION

Sept. 4 A road map to the course.

II- DATA

Sept. 6 Using graphs and numbers to describe distributions
- Moore and McCabe (1998), sections 1.1 and 1.2
Sept. 11 Normal distributions; Introduction to economic data
- Moore and McCabe (1998), section 1.3

**Sept. 12 (Wed) Problem set #1 due today at 4:00 (econ box)**

Sept. 13 Scatter plots and correlations
- Moore and McCabe (1998), sections 2.1 and 2.2
Sept. 18 Least squares regression
- Moore and McCabe (1998), section 2.3

**Sept. 19 (Wed) Problem set #2 due today at 4:00 (econ box)**

Sept. 20 Cautions on regression and correlation; Causality
- Moore and McCabe (1998), sections 2.4 and 2.7

**Sept. 24 (Mon) Short paper #1 - draft due today at 4:00 pm**

Sept. 25 Regression in practice #1; Functional forms and dummy variables in linear regression
- Moore and McCabe (1998), section 2.5

**Sept. 26 (Wed) Problem set #3 due today at 4:00 (econ box)**

Sept. 27 Two-way tables; Production of data
- Moore and McCabe (1998), sections 2.6 and 3.1 to 3.3

III- PROBABILITY

**Oct. 1 (Mon) Short paper #1 – final version due today at 4:00 pm**

Oct. 2 Introduction to statistical inference and elementary probability models
- Moore and McCabe (1998), sections 3.4, 4.1, and 4.2

Oct. 3 (Wed)  **Problem set #4 due today at 4:00 (econ box)**
Oct. 4  Random variables and general probability rules
  - Moore and McCabe (1998), sections 4.3 to 4.5
  - FYI Handout #1: More on expectations
Oct. 9  Sampling distributions for counts and proportions
  - Moore and McCabe (1998), section 5.1

Oct. 10 (Wed)  **Problem set #5 due today at 4:00 (econ box)**
Oct. 11  Review for the midterm
  - Moore and McCabe (1998), section 1.1 to 5.1

Oct. 16  **Fall break**

Oct. 18  **Midterm test**
Oct. 23  The sampling distribution of the sample mean
  - Moore and McCabe (1998), sections 5.2 and 5.3

Oct. 24 (Wed)  **Problem set #6 due today at 4:00 (econ box)**

  **IV- STATISTICAL INFERENCE**

Oct. 25  Confidence intervals and tests of significance
  - Moore and McCabe (1998), sections 6.1 and 6.2
Oct. 30  Use and abuse of tests; Power and inference as a decision
  - Moore and McCabe (1998), sections 6.3 and 6.4

Oct. 31 (Wed)  **Problem set #7 due today at 4:00 (econ box)**

Nov. 1  Inference for the mean of a population
  - Moore and McCabe (1998), section 7.1

Nov. 5 (Mon)  **Short paper #2 - draft due today at 4:00 pm**
Nov. 6  Regression in practice #2

Nov. 7 (Wed)  **Problem set #8 due today at 4:00 (econ box)**
Nov. 8  Comparing two means
  - Moore and McCabe (1998), section 7.2 and 7.3

Nov. 12 (Mon)  **Short paper #2 – final version due today at 4:00 pm**
Nov. 13  Inference for simple linear regression
  - Moore and McCabe (1998), section 10.1
Nov. 14 (Wed) Problem set #9 due today at 4:00 (econ box)

Nov. 15    More detail about simple linear regression
            - Moore and McCabe (1998), chapter 10.2
            - FYI Handout #2: More on the error term

Nov. 20    Multiple regression
            - Moore and McCabe (1998), chapter 11
            - FYI Handout #3: More on F tests

Nov. 22    Thanksgiving recess

Nov. 26 (Mon) Outline of project due today at 4:00 (econ box)

Nov. 27    Inference for proportions and two-way tables
            - Moore and McCabe (1998), sections 8.1, 8.2, and 9.1

Nov. 28 (Wed) Problem set #10 due today at 4:00 (econ box)

Nov. 29    Logistic regression
            - Moore and McCabe (1998), chapter 15 (CD)

Dec. 4     Endogeneity and instrumental variables
            - Wonnacott and Wonnacott (1990), chapter 25

Dec. 5 (Wed) Problem set #11 due today at 4:00 (econ box)

Dec. 6     Conclusions and review

Dec. 7 (Fri) Project due today at 4:00 (econ box)

Dec. 17    Final exam