



IDV 721
Statistical Methods
Syllabus
Fall 2005
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Please check www.usm.edu and www.usm.edu/international for information pertaining to University and the department, respectively.

Prerequisite

You must be admitted to IDV program.

ADA Syllabus Statement for Southern Miss at Gulf Park:

If a student has a disability that qualifies under the Americans with Disabilities Act and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA), for information on appropriate policies and procedures. Box 5128; voice telephone or TTY 214-3232.

Learning Objectives

Upon completion of the course students will be able to

- Use computer software to perform statistical analysis.
- Interpret statistical analysis.
- Explain the outcome of statistical analysis.
- Select appropriate statistics tool to perform analysis and to make inference.

Course Objectives

The primary objective of this course is to prepare students for research. It will provide the foundation for solid research necessary for your dissertation.

The course will progress at different paces. On simpler topics, such as descriptive statistics, the pace will be very fast. More time will be devoted to advanced and complex topics such as regression.

This is a method course. A topic is introduced, its uses are studied, and methods of obtaining the results are demonstrated, primarily via computer software.

- Descriptive statistics and graphs.
- Probability theory.
- Normal distribution.
- Central Limit Theorem.
- Confidence interval.
- Test of hypothesis.
- One-way ANOVA.
- Two-way ANOVA.
- Contingency tables, and tests of equality.
- Simple regression.
- Multiple regression.

Learning Outcomes

Successfully complete homework, pass tests, and write a 10-15 page paper using statistical tools acquired in the course.

Grade Distribution

Evaluation is based on mastery of the subject, which will be determined by formal testing, and on application of material, which will be demonstrated through a research paper on a topic in international political economy related areas such as poverty, inequality, international trade, and growth. The final grade will also depend on participation in discussions, and familiarity with current economic issues. Demarcations for the grades are 90%, 80%, 70% for A, B, and C respectively.

Grading Rubric

Participation	10%
Homework	20%
Paper	10%
Paper presentation	10%
Midterm	25%
Final	25%

Required Readings

Statistics on CD.

Anderson, Sweeney, and Williams, 2005. Statistics for Business and Economics, 11th ed. Southwest. ISBN 0-324-20082-X

George, D. and P. Mallery, 2003. SPSS for Windows Step by step: A Simple Guide and Reference 11.0 Update, 4th ed. Allan and Bacon. ISBN 0-205-37552-9

Huck, S. W. 2004. Reading Statistics and Research, 4th ed. Pearson, Allyn and Bacon ISBN 0-205-38081-6

Peters, L. H. and J. B. Gray. 1994. Business Cases in Statistical Decision Making Computer Based Applications, Prentice Hall. ISBN 0-13-285834-7

Tentative Schedule

The first and the last week will be on campus, the rest on line.

Week 1 Descriptive Statistics

Discussion about research paper. On line.

Download data for “george” from www.abacon.com/george.

During the first two weeks you should pick a research topic for your term paper. You are encouraged to choose a topic that is closely related to your eventual dissertation topic.

After you are done studying, make sure you not only know, but can explain the following:

Mean, variance, standard error, individual error, total error, mean squared error, covariance, and correlation coefficient. I will ask questions about these during the chat time.

- Read “descriptive statistics” from “cd.” From the directory
- Choose “table of content”
- Choose “introduction.”
- Scroll down to the table it has all the topics that is covered in a typical statistics text related to descriptive statistics. Each topic, however, is linked to related topics both forward and backward. Each topic or key word is linked to the main source for the topic. For example, “mean” is always linked to the “mean” file regardless of where it is mentioned.
- Read chapters 2 and 3 from “Anderson.”
- Read chapters 1 and 2 from “george.” These explain SPSS.

Week 2 Students are encouraged to meet with the instructor while on campus.

Probability theory.

Read combination of n things, x at a time. The only other thing you need to know, for time being, from probability topic is as follows:

Concept of distribution function

- Sum of probabilities for discrete distribution functions.

Normal distribution

- Read “above” topics from probability in “cd”, and in chapter 4 in “Anderson.”
- Read normal distribution from “cd” and from “anderson” (chapter 6 section 2).
- Read chapters 3, 4, and 5 from “george.” These explain SPSS.
- Read chapter 1 and 2 from “huck.” These related to journal articles and descriptive statistics.
- You may read the rest of the material in these chapters or you may want to catch up with last week’s assignment.

Central Limit Theorem.

- Read “Sampling” from “cd. Make sure to know sampling distribution of sample mean for different scenarios.

- Read chapter 7 from “Anderson.”
- Read chapters 6, and 7 from “George.” These relate to descriptive statistics.
- Read chapters 3 and 4 from “Huck.” These relate to correlation coefficient, and reliability. Most of the latter chapter relates to material that we have not covered yet, but it is better to be exposed to the concept so you will know how these are used when we cover them. We will re-read this later.

Week 3 Statistical inference (confidence interval)

Pay special attention to the concept of inference, type I and type II error, statistical significance, and probable outcome.

- Read “Inference” and “Confidence Interval” from “cd.”
- Read confidence interval, chapter 8, from “Anderson.”
- Read confidence interval topics from chapter 10 in “Anderson.”
- Read chapters 9 and 10 from “George.” These wrap up simple statistics.
- Read chapters 5 and 6 from “Huck.”
- Make sure to read confidence interval for variance, including the relevant parts of chapter 11 in “Anderson.”

Week 4 Statistical inference (confidence interval)

Continued

Week 5 Statistical inference (test of hypothesis).

Pay special attention to the concept of inference, type I and type II error, statistical significance, and probable outcome.

- Read “inference” and “Test of Hypothesis” from “cd.”
- Read test of hypothesis, chapter 9, from “Anderson.” Ignore the null and alternative hypothesis in this chapter. Instead depend on “note” for these concepts.
- Read chapter 11 from “George.”
- Read chapter 7, 8, and 10 from “Huck.”
- Make sure to read test of hypothesis about two variances, including the relevant parts of chapter 11 in “Anderson.”

Week 6 Statistical inference (test of hypothesis).

Continued.

Week 7 One-way ANOVA.

- Read one-way ANOVA from “cd”
- Read one-way ANOVA, chapter 13, from “Anderson”.
- Read chapter 12 from “George.”
- Read chapters 11 and 12 from “Huck.”

Week 8 SPSS

week 9 Two-way ANOVA.

- Read two-way ANOVA from “cd”
- Read two-way ANOVA, chapter 13, from “Anderson”.

- Read chapter 13 from “george.”
- Read chapters 13 from “huck.”

Week 10 Chi-square tests (Contingency Tables, Goodness of Fit).

Week 11 Simple Linear Regression Analysis.

- Read regression from “cd.”
- Read regression, chapter 14, from “anderson.”
- Read chapter 15 from “george.”

Week 12 Simple and Multiple Linear Regression Analysis.

- Read regression from “cd.”
- Read regression, chapter 15, from “anderson.”
- Read chapter 16 from “george.”

Week 13 Multiple Linear Regression Analysis.

Continued

Week 14 Students are encouraged to meet with the instructor while on campus.

Model building.

Paper presentation

Week 15 Finals