

**THE ANALYSIS AND DISPLAY OF DATA
IS/ECON 443
SUMMER FIRST TERM, 2010
JOURNALISM, RM 0220
MONDAY, TUESDAY, WEDNESDAY, THURSDAY, 4.00-5.48**

SYLLABUS

Lecturer: Dr. Omar Keshk
Office: 33 Townshend Hall
Office phone: 292-9657
Email: keshk.1@osu.edu
Class Web site: www.omarkeshk.com

Course Description and Objectives

The purpose of this course is to introduce students to the analysis and presentation of data. To this end, this class will first introduce students to the most common methods of summarizing or modeling data (*descriptive statistics*). An understanding of how data is and can be summarized is important for those wishing to analyze and present data. Second, the students will be introduced to how the analysis of data is used to *substantiate* opinions and/or judgments of phenomena of interest (*inferential statistics*). This is perhaps the most powerful and most important use of data. This class will hopefully lay the foundation for students to become capable consumers and users of data in the future.

Note to all students, the study of statistics is cumulative. That is, to understand the material in the second week of lectures, you must first understand the material in the first week of lectures. If you miss a class, you will fall behind. It is imperative that you attend every class session. It is a *statistical* fact that the more classes you miss, the lower your grade will be. So do not miss any classes. Furthermore, if you miss a class or more, do not ask the Professor to fill you in on what you missed. I cannot fill you in on material that took two hours to discuss and I will not spend two hours reviewing what you missed. Consider yourselves warned.

Course Readings

Recommended Readings

Peck, Roxy and Jay Devore. 2008. *Statistics: The Exploration and Analysis of Data*. United States: Thomson.

Instructions for buying the book:

Rather than buying the whole book for \$140.00 (you can if you want) you can obtain individual chapters for \$8.99. This is how you do it

- 1) Go to: www.ichapters.com
- 2) Type in the ISBN number in the basic search box: ISBN for the book is 0495390879 (make sure that gives you the book listed above!)
- 3) The chapters you need are: 1(available for Free), (2 is optional) , 3, 4, 6, 7, 8, 9, 10, 11, 13

OR

Levin, Jack & James Alan Fox. 2006. *Elementary Statistics in Social Research*. Boston: Allyn and Bacon.

These two books will be on reserve at the main library .

Read the chapters that coincide with the lecture topics under each listed week below.

Course Requirements and Students Responsibilities

Exams: One Final Exam (Cumulative) 40%.

Homework/Assignments: Four assignments: 1st = 10%, 2nd = 10%, 3rd = 20% 4th = 20%.

Warning

No make-ups for missed exams, papers or assignments will be allowed under any circumstances except for valid medical reasons. Students experiencing any medical problems necessitating that they miss an exam must contact me as soon as possible or else they will not be allowed to makeup the missed work. Finally, all makeup structure is left to the instructor's discretion and may be nothing like the work that was assigned to the rest of the class. No make-ups for papers will be allowed.

Instructor cannot accept any emailed work. All work must be printed and turned in during class.

NOTE: PROFESSOR RESERVES THE RIGHT TO CHANGE EXAMS DATES DEPENDING ON HOW THE CLASS IS PROGRESSING.

Legal Requirements

Academic Honesty

NO CHEATING WILL BE TOLERATED. All University rules regarding plagiarism and academic dishonesty will be enforced. All cases will be referred to the Committee on Academic Misconduct for adjudication and enforcement. Please note the above are very serious offense and by contract, I must report all instances to the Committee on Academic Misconduct. The University Rules on academic misconduct can be found at <http://acs.ohio-state.edu/offices/oaa/procedures/1.0.html> . The safest thing is to remember that if you take someone else's ideas, thoughts, opinion, etc. than you must cite them, i.e., give them credit. Always remember better safe than sorry.

Disability

Students with disabilities and requiring special assistance are responsible for making their needs known to instructor as soon as possible. Arrangements for students needing such aid can be arranged. An alternative point of contact is the Office for Disability Services in 150 Pomerene Hall. Their phone number is 292-3307.

Recording Lectures:

No student can record lectures without the consent of the professor. Furthermore, the recorded lectures cannot be distributed, sold, or exchanged without the written consent of the instructor. The student wishing to tape the lectures

will be required to sign a form affirming that they understand these restrictions, abide by them and accept liability if they violate them.

Miscellaneous

If students want their exams and their papers after the quarter has ended they must notify the Instructor within two weeks of the beginning of the following quarter. Otherwise, their exams, papers, etc. will be disposed off after the 2nd week of the following quarter

Class Schedule

WEEK 1

Introduction to Class, and Data Analysis

Topics: *Introduction to Class, Why Data Analysis & Begin Discussion of levels of measurement.*

Readings

Peck and Devore: Chapter 1 & 2.

Levin and Fox: Chapter 1.

Describing Data

A) Levels of Measurement, Organizing and Describing Data

Topics: *Types of Data (Qualitative and Quantitative), Levels of Measurement (Nominal, Ordinal, and Interval) and Organizing Data (Frequency Distributions, Proportions, Ratios, Cumulative Distributions, Bar Charts, Stem and Leaf Plots, Histograms, Frequency Polygons, and Pie Charts)*

Readings

Peck and Devore: Chapters 3 & 4

Levin and Fox: Chapters 1, pp. 8-12 (again), & Chapter 2

B) Summarizing Data: Measures of Central Tendency and Variability

Topics: *Mode, Median and Mean, Range, Mean Deviation, Variance and Standard Deviation*

Readings

Peck and Devore: Chapter 3 & 4.

Levin and Fox: Chapter 3 & 4.

WEEK 2

Making the Leap from Description to Inference

Topics: *Probability and the rules of Probability, Probability Distributions and what they allow us to do*

Readings

Peck and Devore: Chapter 6

Levin and Fox: Chapter 5 & 6

Topics: *The Normal Curve, Standard Normal Curve Sampling Distributions, Standard Errors and what they allow us to do*

Readings

Peck and Devore: Chapter 7 ,8 & 9.

Levin and Fox: Chapter 5 & 6 (Again).

WEEK 3

Inferential Statistics

Topics: *Hypothesis testing using the Normal Distribution*

Readings

Peck and Devore: Chapter 10

Levin and Fox: Chapter 7

Topics: *Hypothesis testing using the t-distribution*

Readings

Peck and Devore: Chapter 10

Levin and Fox: Chapter 7

Topics: *Difference between Means hypothesis testing*

Readings

Peck and Devore: Chapter 11

Levin and Fox: Chapter 7

WEEK 4

Topics: *Correlation: What is it and what does it tell us*

& Correlation: Testing the significance of the relationship

Readings

Peck and Devore: Chapter 13

Levin and Fox: Chapter 10

Topics: *Regression: What is it, what does it tell us and how to do it*

Readings

Peck and Devore: Chapter 13

Levin and Fox: Chapter 11

Final Exam July 22nd, 4.00-5.48

GEC STATEMENT

Quantitative and Logical Skills

Goals/Rationale:

Courses in quantitative and logical skills develop logical reasoning, including the ability to identify valid arguments, use mathematical models, and draw conclusions based on quantitative data.

Learning Objectives:

Data Analysis: Students understand statistics and probability, comprehend mathematical

methods needed to analyze statistical arguments, and recognize the importance of statistical ideas.