STAT 200
Basic Statistical Practice
On-Line Course, Fall 2003

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Web page on WebCT or
http://www.udel.edu/FREC/ilvento/ST200OL/

Office Hours: The Instructor can be contacted directly by voice mail. I encourage you to ask questions via e-mail for the quickest response.

Required Text: Mind on Statistics (with CD-ROM), Second Edition
Jessica M. Utts, University of California, Davis
Robert F. Heckard, Pennsylvania State University
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COURSE DESCRIPTION: Statistics are an important part of both physical and social science research. They enable us to examine and test important research questions concerning individual variables and relationships among a set of variables. The focus of this course is on understanding the basics of statistics. I would like you to gain an appreciation for how descriptive and inferential statistics are used in everyday life and in research; how to analyze a set of data; and how to critique the use of statistics by others.

STAT 200 On-Line is designed to give the students an appreciation and understanding of the use of descriptive and inferential statistics. This course assumes that the students have not had any prior exposure to statistics. This course will be very much a hands on course. We are going to get down and dirty with the data. I firmly believe in looking at univariate statistics, graphing and plotting data, and in students interpreting the results. I will encourage the use of Microsoft Excel for calculations, but I will also require some hand calculations (on small data sets).

COURSE OBJECTIVES:
1. Understand the use of statistics in analyzing data
2. Differentiate the descriptive versus inferential nature of statistics
3. Feel comfortable in taking a set of data and understanding how it might be described and analyzed using various statistical techniques
4. Gain an appreciation of the use of statistics in the research process
5. Have the ability to critically look at statistical analysis and objectively assess the validity of the analysis

College of Agriculture and Natural Resources
COURSE WEB PAGE: The course is now being taught on WebCT. This means that you will be able to get your information from the WebCT site, including seeing your grades. In addition, a web page with the syllabus and support materials is available at: http://www.udel.edu/FREC/ilvento/ST200OL/

Many of the handouts and notes are in Adobe pdf formats (you must use the free Adobe Reader). The Anonymous Suggestion Box on the web site will allow you to give me feedback on the course with some assurance of privacy. Please use this in the spirit it is intended. I will post messages and my response on the web page.

BASIC COURSE STRUCTURE
The course is developed around 15 learning modules. Each module will contain:
- An introduction from me;
- A written discussion section in html and pdf formats;
- Sample problems that demonstrate how to do problems;
- Additional problems recommended to try
- References to book chapters that you need to read;
- Handouts of additional material;
- Data files as needed;

You will be expected to read this material as well as the identified sections in the book. The previous format used streaming video and I will still make that available as supplemental material, along with the Power Point presentations from this format. However, you should note that the previous format was based on a different book.

The modules for the course are:

- Module 1: Statistics and Data
- Module 2: Exploring Data with Graphs
- Module 3: Measures of Central Tendency
- Module 4: Measures of Variability
- Module 5: Introduction to Probability
- Module 6: Probability and Tables
- Module 7: Discrete Probability and the Binomial Distribution
- Module 8: Continuous Random Variables and the Normal Distribution
- Module 9: Sampling Distribution: Means and Proportions as Random Variables,
- Module 10: Confidence Intervals of a Mean or Proportion
- Module 11: Hypothesis Tests of a Single Mean or Proportion
- Module 12: Difference of Two Means Test
- Module 13: Difference of Two Proportions
- Module 14: Correlation
- Module 15: Introduction to Regression
GRADING POLICY: The course grade will be based on 4 exams, 4 quizzes (on-line with immediate feedback, and 8 exercises. The four exams will be worth 17.5 points each. The exams will be spaced evenly through out the semester and focus on a section of the course. Students will be notified as to the exact time and location of the exams (see below). I will give you advanced notice if the date of an exam will change.

The exams will be a combination of True and False, multiple choice, definitions, and problem solving. The exams will not be cumulative. I will not require gross memorization of formulas for the exams, and will allow a single sheet of notes (both front and back) for each exam. You do not need to turn in the sheet of notes with the exam. I will not be returning the exams to you - past experience has shown that it is too difficult to do that is the time allotted for an on-line course. I will try to give you some feedback if there are real problems in your performance.

The quizzes are a new addition to the course. I have not used them before, especially using the automatic WebCT function for the quizzes. WebCT will grade the quizzes automatically and you will get instant feedback. The strategy will be to have one quiz, 10 questions, before each exam. This will give you practice for the exam. Each quiz will be worth 4 points each toward the final grade. You can have all your resources with you while taking the quiz - the book, notes, and handouts. I expect most people to do well on the quizzes.

I do not have traditional homework as part of this course, but I will use eight exercises to force you to try to work through problems. **The exercises are required and are not extra-credit.** The exercises are available on the web site. All you need to do is complete the exercises and mail or fax them to me BEFORE the following dates. If you complete the exercise you will receive 1.5 points toward your final grade for each exercise completed. Students will receive full credit for each exercise, regardless of whether their answers are correct as long as he/she made an honest effort to complete the problems. I will post the answers to each exercise after the due dates listed below on the web page. The exercises will count for 12 points total (1.5 points each) toward your final grade.

Finally, I will give you two free point toward your grade (out of 100) if you e-mail me in the beginning of class. I want to build an class e-mail list to keep in touch with you. Please e-mail me as soon as possible.

Your final grade will be based on the following:

- 4 exams @ 17.5 points each 70 pts
- 4 quizzes @ 4 points each 16 pts
- 8 exercises @ 1.5 points each 12 pts
- 2 free points if you e-mail me 2 pt

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100 pts
EXERCISE DUE DATES AND EXAM DATES:
- **Exercise 1** September 12  Answer posted September 14
- **Exercise 2** September 19  Answer posted September 21
- **Quiz 1** Take before September 24
- **Exam I** September 24
- **Exercise 3** October 3  Answer posted October 5
- **Exercise 4** October 17  Answer posted on October 19
- **Quiz 2** Take before October 22
- **Exam II** October 22
- **Exercise 5** November 7  Answer posted November 9
- **Exercise 6** November 14  Answer posted November 16
- **Quiz 3** Take before November 19
- **Exam III** November 19
- **Exercise 7** November 25  Answer posted November 28
- **Exercise 8** December 5  Answer posted November 16
- **Quiz 4** Take before December 10
- **Exam IV** December 10

SUPPLEMENTAL MATERIAL: I recommend that you have access to the following:
- A calculator which has multiple memory registers and the ability to take logs. This calculator need not include statistical functions or graphing and may be as cheap as $15 (you don’t need an expensive calculator). You will need the calculator for exams.
- Access to Microsoft Excel or another spreadsheet program. I do not require Excel or another spreadsheet, but I will demonstrate its use for statistics in class. If you do not have Excel, there is a free reader than you can download to at least see the Excel files and how they might be used.

ABOUT THE BOOK: I chose this book because I like the mix of traditional statistics with a healthy scepticism of how statistics are used. (Or abused) in research today. I think you will find the book to be friendly and easy reading. However, the book does not follow the order or flow I am used to using. My notes on the web will set the tone for the course, but I will reference the chapters and sections of the book that you should read. My strong recommendation is to read the book to help prepare you for exercises and exams.

PREREQUISITE SKILLS: Statistics necessarily require the use of math and the computer. The level of math will not be beyond basic algebra. If you have any concerns about your math skills I suggest you get a review book much like is sold for the SAT test to help you review basic algebra. I will use class time to show you basic approaches to analysis on Excel. If you feel weak in the use of a spreadsheet, there are tutorials and
short courses available to you. A spreadsheet is one of the more flexible computer programs for academic, business, and personal use and it is wise to feel proficient in its use.

OTHER POLICIES:

- The modular notes will be important in the course. I will cover other ideas and concepts than what is found in the book.
- I allow a single sheet of paper, printed on both sides, for each of the exams. I will include any and all statistical tables as part of the exam.
- I expect all students to do their own work. Let’s all follow the rules as outlined in the student handbook (http://www.udel.edu/stuhb/)
- If you have a certifiable disability that may affect your class performance, please inform me privately so that appropriate arrangements can be made.

ONE FINAL NOTE. Statistics often scare students, particularly if they don’t feel confident in their math skills. I personally feel it doesn't have to be that way as long as you commit to working at it. I will provide plenty of in-class examples to help take the mystery out of formulas and such. However, you will have to take good notes, do the assignments, and read the text. I don't require attendance, but the class lectures will be an important part of the course. I'm committed to working with you to help you learn the material. If you feel in trouble, by all means come and see me or contact me by phone or by e-mail.

IF YOU HAVE ACCESS TO E-MAIL:
Please e-mail me in the beginning of the course and I will build a course list to send out supplemental material to you.

IF YOU DO NOT HAVE ACCESS TO E-MAIL:
Call into my office and leave a contact fax or phone number so that I can get additional or supplemental material to you.
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