INTRODUCTION TO STATISTICS

Course Description and Objectives: This course focuses on using statistics to describe a set of data along with the fundamentals of probability theory and statistical inference. It is intended to help you develop an understanding of the strengths and weaknesses of various statistical concepts and techniques as well as what the results do and do not reveal. As such the course is not intended to be a "cookbook" approach to statistics. It is, however, not a math statistics course; no knowledge of the calculus is assumed.

Although the principal objective of the course is understanding statistics, a secondary objective is becoming familiar with the use of computers in carrying out numerical computations. Still, it is important that you also be able to carry out simple computations with the aid of a calculator since examinations will require some computations. For exam exercises, few observations will be used, or intermediate results will be provided, or computer outputs will be shown with you asked to interpret them.

I will be communicating with you via E-Mail and encourage you to use it to communicate with me if you find my office hours inconvenient for getting a short question answered.

Requirements and Evaluation: The class sessions will be modified lecture format. That is, I will lecture but will also ask you questions, so you should come to class prepared.

I will be preparing problem sets to help you apply what’s being presented in class and the text. These sets will include some of the problems in the texts along with some questions I’ve asked in exams during the (many) years I’ve taught this course. The problem sets will also give you the opportunity to use SPSS in order to become familiar with interpreting its output. There could even be a few quizzes interspersed during the course (although I will announce them in the class prior to administering a short quiz).

There will be two in-class exams given during the semester plus the final exam. The in-semester exams will not be cumulative except for the fact that statistical concepts themselves tend to be cumulative. No make-ups will be given for these exams. If you do not take a mid-term exam, its weight will be added to the final exam.

The final exam will, however, be comprehensive and will encompass topics taken from the entire course. The final exam is required for everyone.

You may bring the following to each exam: a calculator and one 8” x 11” sheet of paper on which you may write whatever “hints” you feel may be helpful in the exam. (You may write your crib notes on both sides of the paper!) Textbooks and notebooks will have to be placed
away from your desks. Any needed statistical tables will be supplied with the exam.

The following weights will be used to determine your grade for the course (the last page of this syllabus explains my grading practices):

First exam 20%
Second exam 25%
Final 45%
Problem Sets/Quizzes 10%

Problem sets must be handed in by the stated deadline; this deadline will be absolute.

Textbooks:


Study Suggestions: I strongly believe that you cannot learn statistics by "reading" it. You must work out problems. Probably the most effective of way of learning is to go through the assigned portions of the chapters prior to class, then reread those portions after class and then attempt to do the problems. (By the way, you are *not* restricted to do only those problems that have been assigned. Solving others can only sharpen your skills.) Try to do the problems without looking at solutions but, if you run into what seem to be insurmountable difficulties, then look at the solutions to help you. (I also found that rewriting notes taken in class shortly after class helped greatly in understanding the material.)

SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic and Assignments</th>
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</thead>
<tbody>
<tr>
<td>Aug 27</td>
<td>Describing data with graphs, pp. 1-19</td>
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<tr>
<td>Sept 1</td>
<td><em>No class (Labor Day)</em></td>
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<tr>
<td>Sept 3 &amp; 8</td>
<td>Describing data with numbers, pp. 30 -48</td>
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<tr>
<td>Sept 10</td>
<td>Scatter plots and correlation, pp. 83 - 105</td>
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1 Adjustments may be made to this schedule as necessary.
Sept 15 & 17  Least squares regression, pp. 108 - 136
Sept 22    Review
Sept 24    **First Exam**
Sept 29    Producing data & sampling, pp. 171 - 207
Oct 1 & 6   Probability concepts, pp. 258 – 266 and 289 - 303
Oct 8 & 13  Random Variables and their distributions, pp. 258 – 266 and 53 - 68
Oct 15    Mean & variance of a random variable, pp. 270 - 285
Oct 20 & 22 Sampling distributions, pp. 311 - 344
Oct 27    Review
Oct 29    **Second Exam**
Nov 3 & 5  Estimation with confidence, pp. 212 – 220 and 353 - 367
Nov 10 & 12 Tests of significance, pp. 372 - 399
Nov 17    Inferences for a single mean, pp. 417 - 428
Nov 19 & 24 Comparing two means, pp. 447 – 467 and 428 - 433
Nov 26    Thanksgiving, NO CLASS
Dec 1 & 3  Inferences for proportions, pp. 487 - 516

**FINAL EXAM**    **DATE AND TIME TO BE ANNOUNCED** (probably the morning of December 10).

**Please note:** The final exams will *not* be given early so please don’t make airplane reservations to leave town prior to the scheduled final!
STATEMENT OF WHAT YOUR GRADES MEAN TO ME

You should realize that employers of MPAs seldom spend long hours poring over graduate school transcripts; instead, they rely heavily on your performance in personal interviews and on your letters of reference. If asked to provide a letter or statement of reference for you, here is how I generally interpret the grades I assign:

A: A very strong performance; you apparently have an extremely good command of the subject and I can write a very strong letter of reference concerning your skills in the subjects covered in this course

A-: A strong performance; any reference letter can still be a strong, positive one concerning your command of the material in the course

B+: A good performance; one deserving a positive, albeit not glowing, letter of reference

B: Only an average performance; my letter would reflect that

B-: Below average; my letter cannot be very positive concerning your skills in the subject matter

C+: Not up to the level I expect from a Master's student in a professional program; you are advised not to request a letter

C: A dismal performance; but at least you tried!

Below C: Not only a weak performance, but the evidence also suggests that you did not put forth much effort

Exam Policy: Any student who is found cheating on an exam will be given a failing grade for the course in addition to any sanctions imposed by the School or University.