

Course: **Math 160 -- Introduction to Applied Statistics**

Spring '10

Text: Required: Math 160 Class Notes, 8<sup>th</sup> Edition (course pack)  
Optional: Introduction to the Practice of Statistics, 6<sup>th</sup> Edition, By Moore and McCabe

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Office Hours: MF: 10 - 10:30, 11:30 - 12, 2 - 3  
TT: 9:30 - 10:30, 2:30 - 3

***Or by appointment***

I am usually in my office when I am not in class (or not too far away), so feel free to stop by or give me a call. I am occasionally here on Wednesday as well, but no guarantee! ***If you cannot make it to the above hours, just let me know -- I can be around during other times as well.***

### Teaching Philosophy:

- Mathematics is learned by *doing*, not watching.
- To become proficient in the skills, they must be practiced, and students need feedback on their attempts.
- Learning mathematics is more than memorizing formulas and learning how to use them -- it is also about learning how to present your solutions so that a reader can follow the work. This applies to homework, worksheets, exams, and any other work that is done in the course.
- If you are willing to learn, I am willing to help you.

**Goals of Course:** By the end of the course, the student should be able to . . .

- Understand the complexities of designing a study, how to recognize bias in a study, and understand how the effects of bias can be reduced.
- Use multiple tools (both numeric and graphic) to analyze a data set (both univariate and bivariate), and write up the analysis in an understandable and informative way.
- Understand the basics of probability and how it is used in statistics, in particular how it is used in statistical inference.
- Understand the basic ideas of confidence intervals and hypothesis tests, and interpret the results.
- Complete a small study from beginning to end. This includes designing a data gathering system, collecting the data, analyzing the data using multiple tools, and writing a coherent report of what conclusions can be drawn from the study.

**Grades:** Assigned according to the percentage of total points earned, as follows:

**A:** 93% - 100%, **A-:** 90% - 92%, **B+:** 87% - 89%, **B:** 83% - 86%, **B-:** 80% - 82%, etc.

- The points opportunities are as follows:

4 in-class exams	400	
Final Comprehensive Exam	200	
Group Term Project	150	
Computer assignments	150 *	
Homework	100 *	* = Approx
Miscellaneous	100 *	

- **Exams:** See Homework List for due dates and exam dates.
- The **Final Comprehensive Exams** is scheduled for Monday, May 10, 8 - 10 am.
- **Group Term Project:** This project will allow you to see the statistical process in action by collecting and analyzing your own data. This will be a group project that you will work on throughout the term. More on this later.
- **Computer assignments:** We will be using one of many computer statistics packages called *Minitab*. It can be found on most of the campus computers. The purpose of the computer assignments is two-fold: First, to give you practice analyzing different aspects of data descriptions, without getting caught up in doing calculations or drawing graphs. Second, to give you practice in writing up analysis results.

- **Homework:** A list of homework problems is attached. I will look to see that each problem is attempted, and then grade one to three of the starred problems. The low score will be dropped.

You are encouraged to work together on homework, but the write-up should be your own work -- *copying will not be tolerated*.

A NOTE ON HOMEWORK WRITE-UP: There is more to solving a problem than just getting the correct answer. A large part is writing up your solution in an understandable and readable way. When I grade, I look at the write-up as well as the final answer.

A NOTE ON HOMEWORK PHILOSOPHY: Homework is just one piece of the learning puzzle. Not all homework problems will be representative of test questions, and sometimes homework is much harder, or easier, than potential test questions.

- **Miscellaneous:** Worksheets and other miscellaneous assignments that do not fall into any of the above categories!

### Odds and Ends:

- **Read the Class Notes:** The purpose of the notes is to provide a reference tool to clarify topics from class. Students have found them easy to read, and very useful, but not a substitute for missing class -- they may help you in the process of getting caught up if you miss class, but in most cases they are not complete enough to tell you everything you missed.
- **Graphing Calculator:** It will be necessary for you to have a graphing calculator with statistical functions for use during this course. You will be able to use them on exams and no sharing will be allowed. In fact, the TI-83/TI-84 is recommended -- it will do all of the numerical calculations, as well as most of the graphs we will cover. If you do not already have a calculator, it would be a good investment.
- **Minitab:** We will be using a software package called *Minitab* for our computer assignments. If you find it convenient to do your work on your computer in your room, you might want to consider purchasing the Student Version of Minitab from the bookstore, or downloading the 30-day free trial from Minitab.com, or rent it for the semester from Minitab.com.
- **Assignments are due on the due date.** If you find that impossible for some reason or another, then your grade will be penalized *10% per day that it is late (weekends included)*. No make-up exams will be given, except for University excused absences, and this must be arranged beforehand.
- **Answering questions in class:** Unfortunately, there is limited time to ask questions on homework in class. I will try to take time each day to answer questions, so please ask, *especially* if I forget! If I do not get to your question, please come see me during office hours. It is actually much easier to answer individual questions one-on-one, so take advantage of it!
- **Tutoring:** If you can't make my office hours, first try giving me a call to set up an alternate appointment. There are also tutors in TH 390, some of whom can help with statistics, or you can make an appointment with a tutor in the Center for Writing and Learning (x2960).
- **A note on group work:** This course lends itself very well to small group work, both in and out of class. For group projects, most of the work will be done outside of class. Here's how a group should work: Sit down as a group and work on the problem together. If some kind of research must be done beforehand, you may have individual group members do that. Group work **does not mean** that you split the work between individuals and then simply compile everybody's work to one paper. Often times this latter method means that work is shared unevenly and each group member does not learn all that is meant through the assignment. If you do parcel out work, before compiling it in a final report, you should sit down as a group and talk about it. If you are having problems getting your group to work together, let me know and I will try to help.
- **A note on written work:** There will be many assignments in this class that involve writing. I will grade these on mathematical content as well as grammatical content. Typo's, incorrect spelling, incomplete sentences, etc. can be very distracting in the reading of a paper. You should type all papers and proofread them carefully. In general, if you make a statement (ex: "the data is skewed left"), you should back it up with evidence.