

Introduction to Applied Statistics
MATH 160A
Spring 2010
MF 8:00–8:50 Thompson 399
TT 8:30–9:20 Thompson 399

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Course Overview This course provides an introduction to the use of statistics. Broad goals for this course are

- to help you become a better consumer of statistics and
- to lay a foundation for you to become a producer of statistics

After successfully completing this course, you should be able to

- give appropriate descriptions of data distributions;
- distinguish between an observational study and an experimental study;
- articulate the basic reasoning of inferential statistics, specifically with regard to confidence intervals and significance tests;
- select and use appropriate statistical tools to make an inference about a population using data from a sample; and
- make reasonable judgments about the validity and applicability of claims based on statistical evidence.

The course should also help you sharpen critical thinking, logical reasoning, and communication skills.

Class sessions In class, we will discuss new material, handle questions from reading the text, and work through assigned problems on which there are difficulties. When we discuss new material, the focus will be on “the big picture.” That is, we will look at new ideas in their simplest form and how these ideas fit together. Often, we will not consider details and variations in depth during a first pass through new material. Your mastery of the details will begin outside of class with a careful reading of the text and work on the assigned problems. We will address the details by responding to questions on the reading and problems that you bring to class. You are expected to participate in class by being present (and alert), by responding to questions I pose, and by asking the questions that you have. I will often ask for ideas on how to proceed in a given problem or in developing a new concept. You should develop the habit of contributing ideas even if you are not fully confident your idea will work out.

Text The text for this course is *Introduction to the Practice of Statistics*, 6th ed., David S. Moore, George P. McCabe, and Bruce A. Craig (Freeman, 2009). We will cover the material in Chapters 1 through 8 and parts of Chapter 9 or 10. Outside of class, you should read the relevant sections of the text carefully. This will generally include working through the reasoning of arguments and filling in steps that are omitted in calculations. You should keep a list of specific questions from the reading and find answers to those questions.

Homework The text is also a source of problems that are essential in building understanding and skill. I will assign homework problems from the textbook on which I expect you to spend considerable time and effort. We’ll begin most class sessions by addressing questions from assigned homework and reading. In most weeks, I will designate a few homework problems to be submitted for grading. For full credit, the work you submit for these homework problems should be complete, clear, correct, and organized.

Exams In order to assess your learning, we will have five exams. The date for each exam will be given at least one week in advance. The fifth exam will be during the final exam period scheduled for this course (8-10 am on Friday, May 14).

Assignments We will have several assignments throughout the course. Each assignment will require a brief but carefully prepared written report that meets specific requirements. (Possible assignment topics include a descriptive statistics report on a given data set, an inferential statistics report on a given data set, or a summary/critique of a news report that has some statistical content.) Details and a due date for each assignments will be given as the course unfolds.

Course grades To determine your course grade, I will drop your lowest two homework problem scores and then calculate an overall homework percentage. If this homework percentage is greater than the lowest of your exam percentages, the homework percentage will replace that lowest exam percentage. (If not, homework will play no direct role in your course grade.) I will then calculate a total course score with assignments weighted at 15% and exams weighted at 85%. I assign a preliminary course grade based on an objective standard (93.3-100% for an A, 90.0-93.2% for an A-, 86.7-89.9% for a B+, 83.3-86.6% for a B, etc.). I then look at each student's performance subjectively. Occasionally I will assign a course grade that is higher than the objective standard. For example, if a student has a grade of B according to the objective standard but has shown steady improvement, I might assign a course grade of B+.

Office hours and appointments I am generally available in my office for help several hours each day. I am often in my office during the day in hours at which I do not have a scheduled class, meeting, or other activity. You can see my weekly schedule at

www.math.ups.edu/~martinj/schedule.html

Feel free to come look for me. To be (almost) guaranteed that I will be in, come during one of the hours labeled as an "office hour." You can also call, send e-mail, or stop me after class to schedule an appointment for a specific time.

Computing technology We will make use of *Minitab* for various aspects of the course. *Minitab* is software designed specifically for learning statistical analysis. It is available for your use on many computer around campus. You will also need a calculator capable of basic arithmetic operations. If you have a calculator with statistics capabilities, I might ask you to not use certain features for some exams.

Course web site and e-mail A web site for this course is located at

www.math.ups.edu/~martinj/courses/spring2010/m160A/m160A.html

You can get to this page by following links at www.math.ups.edu/~martinj. I will maintain a list of assignments and due dates on the main web page along with a list of daily topics and relevant sections of the text. I will also post announcements and comments about questions or issues that come up in class. Class handouts will be available to download in case you lose your copy or miss class. You are responsible for staying current with due dates and information posted on the course web site.

I will also occasionally send a class e-mail with updates or information. I will use the e-mail addresses provided on the class roster through Cascade. You are responsible for routinely checking the e-mail account you have listed on Cascade.

Important dates for Spring 2010 Please note the following important dates:

Tuesday, January 26 Last day to add a course

Monday, February 1 Last day to drop a course without record

Monday, March 1 Last day to drop a course with an automatic W

Note that University policy mandates a grade of WF if you drop a course after Monday, March 1 unless "there have been exceptional circumstances beyond the student's control and the student's work has been of passing quality." For full details, see the Academic Handbook (available on-line at <http://www.pugetsound.edu/academics/academic-resources/>).