

Math 117 - Probability and Statistics, Not Necessarily
in That Order
Block 3, 2014 - 2015

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Course web page: <http://faculty1.coloradocollege.edu/~dbrown/ma117/index.html>

Textbook: Moore, McCabe, and Craig, Introduction to the Practice of Statistics, 7th edition.

The class will meet M-F at 9:00. There will be an optional problem session Mon – Thurs from 1:30 - 3:30 and Friday from 1:00 - 2:30 in the classroom or computer lab. My office hours are by appointment. Please contact me if you have any questions or concerns during the class.

Course Overview

We will learn probability and statistics in three phases. First, we will cover basic topics in describing and gathering data. Next, we will learn the elements of probability theory, which allows us to handle uncertainty in a systematic way. Finally, we will use our understanding of probability to determine what conclusions can be drawn from data, and with what level of certainty. This process is called statistical inference, and it is fundamental to most scientific endeavors. Understanding statistical inference is essential for being able to think critically about claims made by anyone who cites data in support of their arguments. Statistics is a surprisingly young field, and it is constantly changing. We will only see a small sample of its breadth, but the central ideas in this class are at the core of all statistical reasoning. Try to see the underlying ideas behind what we do; this will allow you to continue to master new statistical techniques as you proceed in your chosen field.

Grading

Your grade will be based on five components:

1) Homework will be due each day at 4:30 pm. Turn it into the HW boxes in the lobby of the math department. The assignments are on the course webpage. Only some of the problems need to be turned in for grading. However, I strongly encourage you to do all of the recommended problems – these will be good practice for the quizzes and tests. Your homework must be stapled and legible, with your answers clearly indicated. **You will be graded not just on whether your answers are correct, but on whether you used the notation and terminology correctly.**

2) There will be approximately five short (20 minutes) in-class quizzes. They will be announced the day before. They will be closed book.

3) There will be two in-class, closed book tests, on the second Thursday and fourth Monday. They will be preceded by brief review sessions.

4) You will carry out a project in which you gather and analyze data relevant to a question that interests you. You will work with two partners, and turn in a brief paper. You will also present your findings to the class on the last day of the block. See the class web page for more details.

5) Class participation. I expect you to attend class and participate actively in discussions and activities. More than 2 unexcused absences will result in a penalty of one letter grade. Please do not come habitually late to class.

Your course grade will be based on the following breakdown:

Homework	15%
Quizzes	10%
Test 1	25%
Test 2	25%
Project	20%
Class Participation	5%

Resources

There are several resources that you can use to make this class more enjoyable, or at least tolerable. Each day we will have an afternoon problem session. This is a great chance to work with me, the paraprofs, and other students on homework problems. Attendance is recommended, but not required. To make the most of it, you should be sure to **try the problems on your own first**. Denali and Colter are excellent people for you to talk to when you have questions. The Quantitative Reasoning Center (in Tutt Library) offers drop-in tutoring, and is helpful for brushing up on basic math skills, reviewing tricky concepts, and getting started on homework problems. Please be sure to talk to me if you find yourself struggling with any aspect of the class. Don't suffer in silence! Not that I expect you to suffer at all. Well, maybe a little - it builds character.

Technology

Statistical inference is greatly aided by the use of technology, and there are many statistical software packages out there. We will be using Minitab, a general purpose program that offers a good compromise between power and ease of use. You will be doing much of your homework on Minitab, and you will use it in your project. There will be a mandatory introduction to Minitab on the second day of class. You will also find a calculator handy on the homework and exams. You do not need a calculator with a lot of built in statistical functions, since we will use Minitab to crunch data.

Honor Code

I expect strict adherence to the honor code throughout this course. On tests and quizzes, you may only use approved materials and you must respect turn-in times. On homework, I encourage you to work with each other, but you must write up your own work and should not turn in anything you do not understand. On the research project, you should participate fully in every aspect of the project, from design to final presentation. If you require extra time or other accommodations on assignments, please provide me with an accommodation letter from Jan Edwards as soon as possible.