Math 1070 Syllabus

Fall 2016

MATH 1070-003
Introduction to Statistical Inference
Fall 2016
Meeting time: MWF 2:00pm–2:50pm in JWB 335
Instructor: Daniel Smolkin
E-mail address: `smolkin@math.utah.edu`
Office: JWB 306
Office hours (tentative): WF 9:30am–10:30am
Course website: it's on Canvas

Course Description

Statistics is about designing experiments and drawing conclusions from data. For instance, statistics attempts to answer questions like "how mmany people do you need to survey to predict the outcome of an election?" and "if I flip a coin ten times and get heads each time, what's the likelihood that the coin is fair?" By the end of this class, students should be able to:

- Summarize the data using charts, graphs, histograms, and to calculate basic descriptive statistics like the mean, standard deviation, median and quartiles.

- Work with the normal distribution and use table to find probabilities.

- Understand the difference between correlation and causation.

- Perform regression analysis and compute correlation.

- Understand the Central Limit Theorem and the normality assumption.

- Understand the basics of tests of significance and confidence intervals including z-tests, t-tests, proportion tests, Chi-square tests, ANOVA and non-parametric tests.

- Perform simple statistical analysis of large data sets using spreadsheets (throughout the whole course).

Prerequisites

In order to take Math 1070, you need one of the following:

- A grade of C or better in Math 1010, or

- A score of 50 or greater on the Math Placement exam given thorugh the Testing Center.

Please see me if you do not meet any of these requirements. Note that these prerequisites are in place for the students' benefit—a solid understanding of basic algebra is crucial for success in Math 1070.

Course materials

The course text is *The Basic Practice of Statistics*, 6 ed, by Moore, Notz, and Fligner. You will also want a scientific calculator (i.e. the kind that sells for about $10). Please bring your calculators to class.

Grading and Course Policies (the important stuff)

Grading will be based on homework, quizzes, exams, and a term project. Each student's grade for the course will be broken down in the following way:

Homework	Quizzes	Exam 1	Exam 2	Project	Final
20%	20 %	15 %	15 %	5 %	25 %

Homework

Homework will be due (almost) every Monday at the start of class and will come from your text book. **Late homework will not be accepted!** Accepting late homework becomes a logistical nightmare very quickly.

There are many resources to help you with homework. The first is **office hours**. I'll have office hours every Wednesday and Friday. If you can't make these office hours, feel free to e-mail me and we can set something up ad hoc. Another resource is the tutoring center. The math tutoring center is a great place for (free!) student help. The tutoring center is located in room 155 of the T. Benny Rushing Mathematics Center, adjacent to the first floors of LCB and JWB. Their website is `http://www.math.utah.edu/ugrad/tutoring.html`

Keeping up with the homework is crucial for success in this class and all math classes—you learn math by doing it!

To get full credit on any homework assignment assignment, you must

- show your work,

- have the correct answers, and

- present your content in an organized, legible manner.

The first two bullets should be pretty self-explanitory. Presenting your content in an organized, legible manner means:

- write your name and "Math 1070-003" on your assignment

- if your homework is written on two or more piece of paper, *staple* them together. (that means no paper-clips!)

- clearly label each problem you're working on

- leave a blank line or two between each problem

- if you hand-write your homework, write legibly

Quizzes

We will have a quiz (almost) every Friday at the end of class. The quizzes will be based primarily on the homework due at the beginning of the same week.

I will drop everyone's two lowest quizzes. This is to account for days you were absent, days you weren't feeling well, or maybe just days you were unlucky. If you have a planned absence on the day of a quiz, you can e-mail me to take the quiz ahead of time. However, **there will be no late quizzes**, which means you must take the quiz a few days ahead of time if you have a planned absence.

Course notes

From time to time, I'll refer to some notes during class. I'll make sure to upload these notes to canvs the night before I refer to them. Make sure to check canvas before coming to class so that you have all the notes you need.

Cell phones, etc

During quizzes and exams, any internet-connected devices in your posession must be turned **OFF**. If you use your phone during an exam, you get a zero on that exam.

The grading scale

A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
≥ 93	90–92	87–89	84–86	80–83	77–79	74–76	70–73	67–69	64–66	60–63	< 60

I'll probably curve the class a little in your favor at the end of the semester, but I can't promise that.

Important dates

- **Friday, September 2:** add/drop deadline

- **Friday, October 7:** Exam 1

- **Friday, October 21:** Withdraw deadline

- **Friday, November 18:** Exam 2

- **Wednesday, December 7:** Projects due; last day of class

- **Friday, December 16 at 1pm sharp:** Final exam

ADA Statement

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, 801-581-5020. CDS will work with you and the instructor to make arrangements for accommodations.

All written information in this course can be made available in alternative format with prior notification to the Center for Disability Services.

Course schedule (tentative)

Friday, August 26	Quiz 0
Wednesday, August 31	HW 1 due: Ch. 1:22,27,30,31;Ch. 2: 19,22,25,28,30,44,52
Friday, September 2	Quiz 1; Last day to add or drop classes
Monday, September 5	Labor Day holday
Wednesday, September 7	No homework due
Friday, September 9	No quiz
Monday, September 12	HW 2 due: Ch. 3: 16,28,29,30,32,35,36, 45,47; Ch. 4: 16,17,18,19,20,21,26,34
Friday, September 16	Quiz 2
Monday, September 19	HW 3 due: Ch. 5: 19,20,21,32,33,37
Friday, September 23	Quiz 3
Monday, September 26	HW 4 due: Ch. 8: 17, 18, 20, 21, 24, 38; Ch. 9: 20, 21, 22, 25, 29, 36
Friday, September 30	Quiz 4
Friday, October 7	**EXAM 1**
October 9-16	**Fall break**
Monday, October 17	HW 5 due: Ch. 10: 21, 24, 26, 38, 41, 43; Ch. 11: 14-20 (even), 26, 28, 36
Friday, October 21	Quiz 5; Last day to withdraw from classes
Monday, October 24	HW 6 due: Ch. 14: 11, 12, 15, 16, 17, 18, 24, 26
Friday, October 28	Quiz 6
Monday, October 31	HW 7 due: Ch. 15: 20, 21, 22, 23, 24, 30, 32, 41
Friday, November 4	Quiz 7
Monday, November 7	HW 8 due: Ch. 18: 16, 19, 29, 30, 33
Friday, November 11	Quiz 8
Monday, November 14	HW 9 due: Ch. 19: 16, 17, 25, 26, 32, 33; Ch. 20: 32, 34, 38
Friday, November 18	**EXAM 2**
Monday, November 21	Quiz 9
November 24-25	**Thanksgiving break**
Monday, November 28	HW 10 due: Ch. 23: 30, 32(b), 38, 42
Friday, December 2	Quiz 10
Monday, December 5	HW 11 due: Ch. 25: 15, 16, 28, 30, 37, 39
Wednesday, December 7	Project due; Last day of class
Friday, December 16, 1pm	**FINAL EXAM**