Math 80 Elementary Statistics (section 2)
Course Syllabus for Spring 2018
Instructor: Dr. Fred Park

Course Description

Descriptive Statistics: descriptive measures, probability concepts, discrete random variables, normal distribution. Inferential Statistics: sampling distributions, confidence intervals, hypothesis testing, Chi-square procedures, linear regression. Emphasis on methodology rather than theory. (Not open to those who have had 315.) Pre-req: MATH 76 or 79, or a score of 2 or higher on the Math Placement Exam.
Additional information: Not open to those who have taken 315. Math 80 does *NOT* satisfy the pre-reqs for Math 85. Pre-Req: C- or higher in Math 76 or 79 or 2 or higher on Math placement test

Instructor Information

Instructor: Dr. Fred Park
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OH's: TBA

Course Information

Times and Location: MWF 10:00-10:50AM SLC 509
Textbook: "Introductory Statistics" Openstax College
You can obtain a free pdf or purchase a hardcopy of the book at: `http://openstaxcollege.org`

Additional items needed:

1. A small stapler and staples.
2. **One** of the following calculators: Texas Instruments
   - TI-83 or TI-83+
   - TI-86
   - TI-89 or TI-89+

   No other calculators will be allowed and will not be supported.
3. Access to a laptop computer that can connect to the internet. You will need to know how to open a web browser.

4. A COCALC (Collaborative Calculation in the Cloud) account. This has a student rate of $14 for the entire semester. See: `https://cocalc.com/`
   More details later in the course. We will be using the R programming language via COCALC so a student account is mandatory. The R language is one of the standard computational languages in the statistical sciences. It is ubiquitous in both academia and industry.

Course Breakdown

Scheme #1:

- HW 10%
- MT #1 25%
- MT #2 25%
- Final 40%

Scheme #2 (Emergencies Only!!):

- HW 10%
- One Midterm 25%
- Final 65%

No makeup exams whatsoever. I highly recommend you taking both midterm exams since scheme #2 is only for emergencies. I will automatically take the higher of both schemes at the end of the course when determining your final grade.

Final Course Evaluations

Final Evaluations: 1% total bump in course grade. For example if your final total course average from the higher of scheme #1 and #2 is an 89% total (B+ grade), your final average gets bumped to 90% (Now an A- grade). I highly recommend that everyone does the final course evaluations.

Grading Scale

In this course, I will utilize an A-F scale with +/- grading. The percentage breakdowns based on the highest average from scheme #1 and #2 above are as follows:

- 90-100% A Range
- 80-89.9% B Range
- 68-79.9% C Range
- 58-67.9% D Range

The minimum grading guidelines in terms of percentage of the class are as follows:

- 20% of the class will be in the A Range
- 30% of the class will be in the B Range
- 35% of the class will be in the C Range
- 15% of the class will be in the D/F range

To obtain an "A" grade in my course, you will have to work very hard. In general, there are no easy "A's" in my courses or in the Math Department. There have been cases when no "A" grades have been awarded in math courses as well.

Exam Dates

The exam dates are set in stone and will not change. Please write these down in your scheduler ASAP.

- MT #1: Friday March 9th from 10-10:50AM in SLC 509
- MT #2: Friday April 20th from 10-10:50AM in SLC 509
- Final: Friday May 11th from 1-3PM in SLC 509

Homework

HW is due at the beginning of class each Friday no later than 10:05AM. No HW will be accepted after the deadline. Please do not walk up and attempt to turn your assignment in after the deadline since it will not be accepted. Moreover, such action would be deemed as disruptive to the class. There are roughly 10 assignments total. You are allowed to drop 2 of the assignments. Please make sure to keep up with the homework after each lecture. Some of the HW problems will be pencil and paper problem solving while others will be more in depth project related that can take up to 2 weeks to finish.

Computer Labs

This course will involve some computer work with the R programming language (see: `https://www.r-project.org/`), a high level language and industry standard in the statistical sciences. The class will be a Bring Your Own Device (BYOD) in regard to computers. If you have a laptop with wifi, you will be able to access the software from any location on campus. If you do not have a laptop, you can borrow one from library. I will specify days for you to bring in your computer.

Class Attendance

Class attendance is mandatory! If you will miss more than 2 total lectures throughout the course, you will be asked to drop the course. For excused sports travel, you must bring in the necessary forms ahead of time for me to sign or else your absence will be counted towards the two allowed. If you are absent during the first 2 lectures, you will be dropped from the course unless other negotiations are made prior to the first day of class.

Active Learning

Active learning will be a large component of the class time. You will be required to work in groups, challenged to think, and work problems out in class on a regular basis. There will roughly be a 50/50 split between lecture and group work.

Study Time and Class Expectations

For every 1 hour of lecture you should be studying 3 hours outside of class. That is at least 9 hours a week outside of class of studying and HW. Math is a difficult and time consuming subject. Please keep up with the work and do not 'Cram' for any exams or HW deadlines since this usually results in very poor results. I recommend at least 12 hours a week of study outside the classroom for this course. The skills you will obtain are well worth the time and effort, especially in this quantitative age we now live in.

Cheating

Cheating will absolutely not be tolerated in any way, shape, or form in this course!! I have not had any issues in the past and do not plan on starting. Cheating in any form will be recorded and the student will be sent to the Dean. The student will receive an automatic failing grade ('F' grade) in the course. Cheating has far reaching consequences that can affect your future career path. Quite simply put: Don't Do It!

Group Work

I encourage group work and you may work together. But you must have your own write ups of your HW and only if you completely understand the problem being solved.

Disruptive Behavior

Disruptive behavior will absolutely not be tolerated in any way, shape, or form in this class! This includes cell phone use (talking, texting, email, etc), computer use unrelated to the course, internet browsing, talking, chatting, or any other general disruptions. If you are being disruptive in class to the instructor and/or your fellow students, you will receive a formal warning on the first offense. On the second offense you will be asked to leave the class and further disciplinary action involving the Dean will take place. I will not allow any disruptions to compromise the learning environment whatsoever.

Topics Covered

1. Sampling and Data
2. Descriptive Statistics
3. Probability Topics
4. Discrete Random Variables
5. Continuous Random Variables
6. The Normal Distribution
7. The Central Limit Theorem
8. Confidence Intervals
9. Hypothesis Testing with One Sample
10. Hypothesis Testing with Two Samples
11. Linear Regression and Correlation
12. Additional Topics Depending on time constraints may be added e.g. Chi-Square Distribution, non-linear regression etc.

(*** this syllabus is subject to change ***)