

Math 80 Elementary Statistics (section 4)
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. 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 11:00-11:50AM SLC 228

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+ or TI-84 or TI-84+
 - TI-85 or 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 11-11:50AM in SLC 228
- MT #2: Friday April 20th from 11-11:50AM in SLC 228
- Final: Thursday May 10th from 8-10AM in SLC 228

Homework

HW is due at the beginning of class each Friday no later than 11:05AM. 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.

Student Athletes

Academic Policies for Student-Athletes

The Whittier College Athletic Department is dedicated to the success of our student-athletes both on the field and in the classroom. As stated in the Whittier College Student-Athlete Policy Guide, student-athletes are expected to attend all classes and will not miss class for practices [and/or conditioning]. Student-athletes will, however, have a minimal number of athletic contests scheduled at times which conflict with regularly scheduled academic classes. The Whittier College Athletic Department and SCIAC conference make every attempt to minimize these conflicts while still complying with NCAA and conference guidelines and bylaws. At the beginning of each semester, student-athletes must complete the course conflict form with their professors. Students must identify all athletic contests, including championships, that conflict with their classes. Professors will attempt to accommodate reasonable class conflicts, so long as they do not compromise the integrity of the student-athletes academic experience. There is no guarantee that a student will be excused for an athletic competition. Completed forms must be submitted to the student-athletes coach.

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. Linear Regression and Correlation
11. Additional Topics Depending on time constraints may be added e.g. Hypothesis Testing with Two Samples, Chi-Square Distribution, Non-Linear Regression etc.

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