Course Outline

Prof. Abe Mirza

Course: Math 13 (Introduction to Probability and Statistics)

Email: amirza@sierracollege.edu (In emailing be sure in the subject line start with SS1 or SS2)

Course Prerequisite: Mathematics D with a grade of "C" or better.
Sta lab: Room V208 (free stat hep) **Office hours**: MW 4:00 to 4:30 Room V208

Text Book: Elementary Statistics by Navidi 1st Edition (Textbook is optional and not required)
Class website: http://amirza.sierracollege.edu/Math13/

YOU NEED TO GO TO MY WEBSITE,

1) TO **PRINT** COURSE MATERIALS
2) **CHECK** THE **ANNOUNCMENT** (on a **daily bases**) AND YOUR **CLASS REPORT** ON REGULAR BASIS.

Required Material:
1. A two- variable statistics calculator (TI-83/84).
2. Scantron: **882-E** (9 sheets) for tests and **815-E** (15 sheets) for quizzes
3. Regular Graph Paper **4**. A binder (yes a binder)

You are expected to work an average of **8 hours per week** outside of class.

The course is divided into 4 parts. **Important**: You need to go to my website and print the pages related to each part.

Part 1	Part 2	Part 3	Part 4
Descriptive Statistics Linear Regression Basic Probability	Probability Binomial Probability Normal Distribution	Central Limit Theorem Estimation	Test of Hypothesis
Q1-Q4	Q5-Q7	Q8-Q11	Q12-Q15
HW1 / Test 1	HW2 / Test 2	HW3 / Test 3	HW4 / Test 4

Attendance Requirements: Attendance **I**s **M**andatory! (**AIM**)

I expect each student to be fully prepared to participate in each class session. If your name appears on the roster as being enrolled in this course, it is your responsibility to follow the proper procedures, in a timely manner, if you decide to withdraw. Acquaint yourself with the dates for withdrawing and any associated financial requirements as detailed in the school catalog. The instructor may drop students for not attending class for a total of 2 unexcused absences during the summer term. Such drop is purely within the discretion of the instructor, if you decide not to continue at any time, you must officially withdraw, do not count on, nor ask the instructor, to drop you. An "**excuse**" is an official document from either your physician or the school Health Center attesting to your inability to attend class on the meeting date(s) in question.

Course Outcomes to Assess

1. Recognize, label and identify data by type and level of measurement.
2. Construct and interpret data using graphical and numerical methods of descriptive statistics.
3. Calculate and interpret problems involving basic elements of probability and sampling.
4. Conduct hypothesis tests and construct confidence interval estimates for population means and proportions; chi-square tests for goodness-of-fit and independence; linear regression and correlation; and one-way analysis of variance (ANOVA).
5. Logically present clear, complete, and sufficiently detailed solutions to demonstrate understanding and communicate reasoning of statistical methods using technology when appropriate.

Quizzes: There will be 15 quizzes, each for 10 points. If your absent is unexcused, **absolutely there will not be a make up for missing quizzes.** If you miss a quiz by any unexcused reason, then you will be receiving a **zero score** for that missing quiz. **Only for excused** absences a **make up** quiz will be given.

Project: Only 2 projects must be submitted (they are posted on my websites) Project # 1 and project # 2.
The due dates will be announced in class

Homework: All four homework are posted on my web. The due date will be announced in class or will be posted on the announcement link. YOU ARE STRONGLY ADVISED TO DO ALL THE HOMEWORK PROBLEMS. **Absolutely, after the due date no homework will be accepted** If you miss submitting homework on due date, by any unexcused reason, you will be receiving a **zero score** for late homework.

Tests: There will be a total of 4 tests given for the entire semester. Each weighs **100 points. Absolutely there will not be a make up for missing tests.** If you miss a test by any unexcused reason, then you will be receiving a **zero score** for that missing test. **Only for excused** absences a **make up** test will be given **at the end of last week**.

Lecture Video Notes: Optional to earn extra credit. You must watch the videos lessons posted on Lecture videos links and write (type) a summery for each one. They are also ***due on the same day that HW for each part is due.***
Part 1: lessons 1 through 25. For 10 extra credit points. A minimum of 2 pages single-spaced typed
Part 2: lessons 26 through 29. For 5 extra credit points A minimum of 1.5 pages single-spaced typed
Part 3: lessons 30 through 34. For 5 extra credit points. A minimum of 1.5 pages single-spaced typed
Part 4: lessons 35 through 37. For 5 extra credit points. A minimum of 1.5 pages single-spaced typed

Final will be comprehensive and will worth 200 points Last week of the semester Dec 11

Academic Honesty: Although I expect and encourage collaboration on homework, cheating of any sort will not be tolerated and is grounds for an F.

Classroom etiquette: Each student is expected to be respectful to their follow student and foster the learning environment through participation and encouragement. Please be punctual and avoid leaving before class has ended. When in class, turn off cell phones, etc. and refrain from irrelevant conversation. Absolutely **no cell phones** or **texting** in the entire class period. • Arrive on time; leave after class is dismissed.• Listen when others are speaking.

Points Distribution

Project	40 points
Homework	80 Points
Quizzes	150 Points
Tests:4@100	400 Points
Final	200 Points
Total:	**870** Points

Grading Policy:

A	90% - 100%	of possible points
B	80% - 90%	of possible points
C	70% - 79%	of possible points
D	60% - 69%	of possible points
F	0% - 59%	of possible points

The total counted points for the course will be **870** points,
Amendments: I reserve the right to alter this syllabus to conform to Sierra College Policies, state law, or to improve the quality of education offered by the class. Any changes will be announced in class.

CRITICAL DATES

Start Date: 24-AUG-2019
End Date: 14-Dec-2019
Last Date to add class: 08-Sep-2019
Last Date to drop with a refund: 08-Sep-2019
Last Date to drop without a "W": 08-Sep-2019
Last Date to drop with a "W": 05-Nov-2019
Census Date: 09-Sep-2019
Add Authorization Expiration 08-Sep-2019

COURSE COVREAGE

1.0 Introduction to Statistics

1.1 Overview
1.2 Types of Data
1.3 Critical Thinking

2.0 Describing, Exploring, and Comparing Data

2.1 Overview
2.2 Frequency Distributions
2.3 Visualizing Data
2.4 Measures of Center
2.5 Measures of Variation
2.6 Measures of Relative Standing
2.7 Exploratory Data Analysis (EDA)

3.0 **Probability**

3.1 Overview
3.2 Fundamentals
3.3 Addition Rule
3.4 Multiplication Rule: Basics
3.5 Multiplication Rule: Complements and Conditional Probability

4.0 Probability Distributions

4.1 Overview
4.2 Random Variables
4.3 Binomial Probability Distributions
4.4 Mean, Variance and Standard Deviation for the Binomial Distribution

5.0 Normal Probability Distributions

5.1 Overview
5.2 The Standard Normal Distribution
5.3 Applications of Normal Distributions
5.4 Sampling Distributions and Estimators
5.5 The Central Limit Theorem
5.6 Normal as Approximation to Binomial

6.0 Estimates and Sample Sizes

6.1 Overview
6.2 Estimating a Population Proportion
6.3 Estimating a Population Mean: σ Known
6.4 Estimating a Population Mean: σ Not Known

7.0 Hypothesis Testing

7.1 Overview
7.2 Basics of Hypothesis Testing
7.3 Testing a Claim About a Proportion
7.4 Testing a Claim About a Mean: σ Known
7.5 Testing a Claim About a Mean: σ Not Known

8.0 Inferences from Two Samples

8.1 Overview
8.2 Inferences About Two Proportions
8.3 Inferences About Two Means: Independent Samples
8.4 Inferences from Matched Pairs

9.0 Correlation and Regression

9.1 Overview
9.2 Correlation
9.3 Regression

10.0 Chi-Square and Analysis of Variance

10.1 Overview
10.2 Multinomial Experiments: Goodness-of-Fit
10.3 Contingency Tables: Independence and Homogeneity
10.4 Analysis of Variance

Fall 2019- Tentative Semester Calendar

The dates for HWs, projects and tests are tentative and may be changed due to the pace of covered materials or unforeseeable events.

Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	25	26	27	28	29	30	31
2	**September** 1	2 Labor Day Holiday (College closed)	3	4	5	6	7
3	8 Last day to enroll & to drop w/o notation on record (full semester)	9	10	11 **Project # 1**	12	13	14
4	15	16	17	18 **HW # 1**	19	20	21
5	22	23 **Test # 1**	24	25	26	27	28
6	29	30	**October** 1	2	3	4	5
7	6	7	8	9	10	11	12
8	13	14 **HW # 2**	15	16 **Test # 2**	17	18	19
9	20	21	22	23 **Project # 2**	24	25	26
10	27	28	29	30	31	**November 1**	2
11	3	4	**5** **Last Date to drop with a "W"**	6 **HW # 3**	7	8	9
12	10	11 Veteran's Day HOLIDAY *(College closed)*	12	13 **Test # 3**	14	15	16
13	17	18	19	20	21	22	23
14	24	25	26	27	28 **Thanksgiving** *(College closed)*	29 **Thanksgiving** *(College closed)*	30 **Thanksgiving** *(College closed)*
15	**December 1** **Thanksgiving** *(College closed)*	2 **HW # 4**	3	4 **Test # 4**	5	6	7
16	8	9	10	11 **FINAL Exam**	12	13	14