

Caution: This is a tentative syllabus. Items in *Italic* are especially likely to change with advanced notice.

**Math 10.12 - Elementary Statistics and Probability**  
**Winter2018**

**Meets:** MTWTHF 11:30-12:20

**Room:** G2

**Instructor:** Azar Sioshansi

**Contact:** sioshansiazar@deanza.edu

**Office hours:** F 12:20-1:20 or by appointment

**Prerequisites:** Math 114 or equivalent with a grade of “C” or better or a qualifying score on Placement Test.

**Required text/materials:** TI-83 Plus, TI 84 or TI 84 PLUS graphing calculator is required in class every day. Textbook: Understandable Statistics, by Brase & Brase 10th edition

### Course Description

Introduction to data analysis making use of graphical and numerical techniques to study patterns and departures from patterns. The student studies randomness with an emphasis on understanding variation, collects information in the face of uncertainty, checks distributional assumptions, tests hypotheses, uses probability as a tool anticipating what the distribution of data may look like under a set of assumptions, and uses appropriate statistical models to draw conclusions from data. The course introduces the student to applications in engineering, business, economics, medicine, education, social sciences, psychology, the sciences, and those pertaining to issues of contemporary interest. The use of technology (computers or graphing calculators) will be required in certain applications.

### Student Learning Outcomes:

1. Display sample data using histograms and other similar graphing techniques.
2. Analyze raw data, whether grouped or ungrouped, by calculating sample statistics such as the mean, variance, standard deviation, range, mode, and percentiles.
3. Apply the Law of Large Numbers and the Central Limit Theorem in solving problems related to the binomial and normal distributions.
4. Find confidence interval estimates and run hypothesis tests of population parameters such as the mean and proportion (and optionally, the variance and standard deviation) and compare parameters from different populations using differences of means and proportions and quotients of variances and standard deviations.
5. Plot scatter diagrams of paired data and use the principles of linear regression and correlation to analyze such data, predict information about an unknown variable from a known variable, and decide upon the utility of the linear regression approach.
6. Run Chi-square goodness of fit tests for independence in two-way tables and in multinomial experiments.
7. Use the basic concepts and laws of probability theory and the basic properties of the binomial, normal, uniform and Student's-t distributions (and optionally, the exponential, Poisson, Chi-square, or F-distribution).
8. Develop critical thinking and abstract reasoning skills by applying deductive and inductive reasoning in solving problems in statistics, including the observation and analysis of givens, discovery of patterns, recognition of useful quantitative features of a problem, selection from among the many techniques presented

appropriate methods of solution, expression of the steps of solutions in a logical way using the symbolic language of statistics, and recognition of completed solutions.

**Grades:** The following categories (with approximate point values) will be used to determine final grades:

Tests (3 tests worth 60 pt each)	180 pts
In class/ group assignments	40 pts
Homework	35 pts
Final exam	100 pts

**Grading scale:**

90% & above	A
80-89%	B
70-79%	C
60-69%	D
below 60%	F

**Exams:** No make –up exams will be given. You are allowed one sheet of handwritten notes one sided on an 8.5 x 11 inch paper on each test. No calculator command or example.

**Extra Credit:** During the course you will get extra credit problems. They will be included in on exams.

<i>Test 1</i>	<i>Week 3</i>
<i>Test 2</i>	<i>Week 6</i>
<i>Test 3</i>	<i>Week 9</i>
<i>Final</i>	<i>March 26<sup>th</sup> 11:30-1:30 pm</i>

**In class/group assignments:** During the last part of certain class, you will be completing some work in small groups. These assignments are worth 5 points and may not be made up due to absence.

**Homework:** Homework will be assigned daily and collected every Friday. All necessary work must be shown to receive full credit. No late homework is accepted.

**Attendance:** Regular attendance is essential for success in the course. It is YOUR responsibility to take care of the paperwork if you wish to drop this class. If you fail to attend class, you may be dropped REGARDLESS of athletic/insurance considerations.

### Academic Honesty and Discipline Policy:

Students are expected to abide by the DeAnza College Code of Conduct and not participate in academic dishonesty.

Academic dishonesty includes:

- Copying from other students (plagiarism)
- Using notes during a quiz or examination that do not meet permitted specifications
- Continuing to write or erase on a quiz or examination after the permitted time has ended
- Using any electronic device other than the approved TI calculator on a quiz or examination
- Sharing a calculator with another student for a quiz or examination

Academic dishonesty can result in a grade of ‘F’ for that quiz or examination or assignment, or a grade of ‘F’ for the course and referral to the Dean for academic discipline.

## Disruptive Behavior:

- The use of cell phones and other noise emitting devices is disruptive. Students must keep their cell phones and other noise making devices in the off-mode, and keep them off the desk and out-of-sight.

## Students with Disabilities

Students with disabilities who qualify for academic accommodations must provide a notification from the Disability Support Services (DSS) and discuss their specific needs with the instructor at the beginning of the quarter. For information or questions about eligibility, support services or accommodations to disability (physical or learning disability) please contact Disability Support Services (DSS). DSS is located in Student Community Services Building, Room 141. Phone number is (408) 864-8753; TTY (408) 864-8753.

Disability Support Services: <https://www.deanza.edu/dss/>

## Tutoring

The Math, Science and Technology Resource Center is located in S43 on the De Anza Campus, (408) 864-8683. Hours of operation: Monday-Thursday 8:30 am-6:30 pm, Friday 8:30 am-12:30 pm.

Student Success Center: <https://deanza.edu/studentuccess/mstrc/>

**Student Learning Outcome(s):**

\*Organize, analyze, and utilize appropriate methods to draw conclusions based on sample data by constructing and/or evaluating tables, graphs, and numerical measures of characteristics of data.

\*Identify, evaluate, interpret and describe data distributions through the study of sampling distributions and probability theory.

\*Collect data, interpret, compose and defend conjectures, and communicate the results of random data using statistical analyses such as interval and point estimates, hypothesis tests, and regression analysis.