Mathematics 10-01225
Elementary Statistics and Probability
Spring Quarter 2017
De Anza College

Instructor: Robert Ramsey

Phone: (408)864-8620(Office)
(510)479-4234(Cell.)

E-Mail: Ramseyrobert@FHDA.edu

Office Hours: Mon thru Thu, 12:30 pm to 1:30 pm
De Anza College, Main Campus
PSME Building, Room S33

Lecture: Mon and Wed; 4:00 pm to 6:15 pm
De Anza College, Main Campus
Bldg. MLC, Rm. 108

Text: **Elementary Statistics: Picturing the World, 5th e/**
Author: Ron Larson/Betsy Farber
ISBN-13: 9780321693624
Publisher: Pearson
Copyright: 2012

Prerequisites: Mathematics 114 or equivalent with a grade of C or better; or a qualifying score on the Intermediate Algebra Placement Test within the past twelve months.

Advisory: English Writing 211 and Reading 211 (or Language Arts 211), or English as a Second Language 272 and 273.

About the Course: Math 010 is an introduction to data analysis. In this course, we make 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 for 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, the sciences, and those pertaining to issues of contemporary interest.

The use of technology (computers and/or graphing calculators) will be required in certain applications; therefore, the use of a graphing calculator and computer for statistical analysis is required. Where appropriate, the contributions to the development of statistics by men and women from diverse cultures will be introduced.

Questions answered by statistics: Are state of the art, technologically advanced, and expensive pharmaceuticals superior to simple and less expensive home remedies? Is one inexpensive brand of bottled water inferior in taste to a more expensive brand? Can Wall Street bond traders and stock market analysts reliably predict the rise and fall of the Dow Jones Industrial Average or other international markets?

How do statistics and probability help us answer these questions? This course will introduce you to the world of statistics and its connection to probability. You will learn how to produce, interpret, and present data; as well as, draw conclusions from data.

Student Learning Outcomes:

A. Organize, analyze, and utilize appropriate methods to draw conclusions based on sample data by constructing and/or evaluating tables, graphs, and numerical measures of characterizations of data.
B. Identify, evaluate, interpret and describe data distributions through the study of sampling distributions and probability theory.
C. 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 analyses.

Course Objectives:

A. Explore statistical techniques and process statistical information; in order to, make decisions about the reliability of a statement, claim or "fact".
B. Examine the nature of uncertainty and randomness and set up data collection methods that are free of bias utilize appropriate methods to draw conclusions based on sample data by constructing and/or evaluating tables, graphs, and numerical measures of characterizations of data.
C. Organize, display, summarize, and interpret data using graphical and statistical techniques.
D. Use probability to model and understand randomness.
E. Examine distributions of data using graphical and analytical methods.
F. Describe data distribution through the study of sampling distributions.
G. Estimate parameters by constructing point estimates and confidence intervals.
H. Compose probability statements about how confident one can be about making decisions based on data and construct the Type I and Type II error probabilities based on this decision.
I. Compose conjectures about bivariate theoretical models.
J. Apply statistical concepts and methods to a variety of contemporary.

Study Group Information: Every student will be required to form a study group of two students. These groups will work together to complete their projects.

Projects: The purpose of the group projects is to place an emphasis on critical thinking, problem solving, and to expand every students' understanding beyond the mere mechanical aspects of mathematics. The projects will place an emphasis on expository writing, and making logical connections between topics while understanding the connection between algebraic, formulaic, tabular and graphical presentations of statistical concepts.

There will be a minimum of three technology based projects/activities that make use of graphing calculators, and or computers addressing randomness, variation, and simulation. These projects will be evaluated for their accuracy, completeness, and the proper use of techniques and methods

discussed in class. Questions may also require the student to communicate ideas and conclusions in short essay format.

Tests: We will cover chapters one through ten of the Larson/Farber Elementary Statistics: Picturing the World, 5th edition textbook. There will be three exams this quarter, after chapters 3, 6 and 9. The exams will be composed of both computational and concept based questions. Each exam will last approximately one hour. The questions on the exam will require the student to demonstrate his or her ability in integrating the methods, ideas and techniques learned in class. Many, but not all, questions will require the student to communicate ideas and conclusions in short essay format.

Finally, there will be no make-up exams unless arrangements are made prior to the date of said exam, and said exam is taken before the regular exam is scheduled. Should any exam be missed, without prior arrangement, that exam will count as zero.

Homework: Homework is intended as a means of increasing every students' understanding, and as a means of mastering the course material. Every student is required to register at www.coursecompass.com with the use of the course i.d. **ramsey34217**. Homework will be evaluated for accuracy and completion in order to assess every student's comprehension of material covered in lecture and to provide feedback to students on their progress. All homework is assigned and completed online.

Successful completion of every homework assignment should not be interpreted, in and of itself, as sufficient effort to pass Math 10. In addition, handouts passed out in class, and any in-class assignments not completed, should be considered additional home work.

Quizzes: There will be a quiz available online at the end of every chapter. The quizzes completed online are considered extra credit and can be used to improve your final grade.

All students are highly encouraged to complete the online quizzes.

Class Participation: Attendance during lecture is mandatory and leaving early is highly discouraged. Students are responsible for all announcements made in class, whether they are present or not. Successful performance in this course requires classroom attendance, completion of all in-class

assignments, as well as homework online, and serious effort on the exams, the project(s), and the final.

Final: There will be a comprehensive final exam which will contain material from all chapters covered over the course of this Spring 2017 quarter. The date of the final exam is **Wednesday, June 28, 2017** from 4:00 pm to 6:00 pm in MLC Room 108, our regular classroom.

Grading: 3 exams (3 @ 15% each)   45 %
            Homework   15 %
            Class Participation   10 %
            Project(s)   5 %
            Quizzes (Extra Credit)   10 %
            Final   20 %
     TOTAL   100 %

Grades will be as follows:

            A   =   93.00 to 100.00 %
            A- =   90.00 to 92.99
            B+ =   87.00 to 89.99
            B   =   83.00 to 86.99
            B- =   80.00 to 82.99
            C+ =   77.00 to 79.99
            C   =   73.00 to 76.99
            C- =   70.00 to 72.99
            D   =   60.00 to 69.99
            F   =   less than 59.99 %

Academic Integrity: Any credible accusation of academic dishonesty, no matter how minor, will be investigated, and if found to be meritorious, will be dealt with severely. Students caught cheating will receive an F for that assignment and notice of the offense will be forwarded to the chairman of the department of mathematics and the Vice President for Academic Affairs for further punitive action.

Disruptive Behavior: Unruly or disruptive behavior to include incessant talking, rude, profane, or vulgar language, threatening or violent behavior,

and\or any form of disrespect, directed at the instructor or fellow classmates will not be tolerated. Such behavior will result in the immediate and permanent removal of the offending individual from this course. In addition, students are expected to refrain from sending text messages during class.

Important Dates:

Monday, April 10 :: First day of Spring Quarter 2017

Saturday, April 22 :: Last day to add quarter-length classes. *Add date is enforced.*

Sunday, April 23 :: Last day to drop for a full refund or credit for all students (quarter-length classes only). Refund deadlines for all non quarter-length classes are in MyPortal, "View Your Class Schedule" link. *Drop date is enforced.*

Sunday, April 23:: Last day to drop a class with no record of grade. *Drop date is enforced.*

Friday, May 5 :: Last day to request pass/no pass grade. *Request date is enforced.*

Friday, June 2:: Last day to drop with a "W." *Withdraw date is enforced.*

Saturday - Monday, May 27-29 :: Memorial Day Weekend (no classes)

Monday - Friday, June 26-30 :: Spring Final Exams

Thursday, June 1 :: Last day to file for a spring degree or certificate

---

De Anza College

	Monday	Tuesday	Wednesday	Thursday	Friday
1	**April** 10 First day of Class Syllabus Timeline Introductions	11	12 Chapter One (Sampling & Data)	13	14
2	17 Chapter Two (Descriptive Statistics)	18	19 Chapter Two (Descriptive Statistics)	20	21 Apr 22 – Last day to Add Apr 23 – Last day to drop w/ refund Apr 23 – Last day to drop w/ no record
3	24 Chapter Three (Probability Topics)	25	(Project #1) 26 Chapter Four (Discrete Random Variables)	27	28
4	1 Review for Exam #1	2	**May** 3 Exam #1 (Chapter's 1, 2 & 3)	4	5 May 5 – Last day to request pass/no pass
5	8 Chapter Five (Continuous Random Variables)	9	10 Chapter Five (The Normal Distribution)	11	12
6	15 Chapter Five (The Normal Distribution)	16	(Project #2) 17 Chapter Five (The Central Limit Theorem)	18	19

7 22 Chapter Six (Confidence Intervals)	23	24 Exam #2 (Chapter's 4, 5 & 6)	25	26
8 29 Memorial Day Holiday	30	31 Chapter Seven (Hypothesis Testing: Single Sample)	June 1	2 June 2 - Last day to drop with "W"
9 5 Chapter Eight (Hypothesis Testing: Two Sample)	6	7 Chapter Eight (Hypothesis Testing: Two Sample)	8	9
10 (Project #3) 12 Chapter Nine (Linear Regression)	13	14 Review for Exam #3	15	16
11 19 Exam #3 (Chapter's 7, 8 & 9)	20	21 Chapter Ten (F- distribution and ANOVA)	22	23
12 Final Exams 26	Final Exams 27	Final Exams 28 Math 10 Final Exam 4:00 pm to 6:00 pm	Final Exams 29	Final Exams 30
13 First day of Summer 3 Vacation	July 4	5	6	7
	10	11	12	13 14