



Math 10: Elementary Statistics & Probability
Fall 2018, CRN 01523, Section 65, 5 Units
Tuesday and Thursday 6:30 PM to 8:45 PM
Classroom Location: E34 (E Quad, Room 34)

Instructor Information

Instructor:	Andrew Jianyu YU
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Office Location:	E37 (E Quad, Room 37)
Office Hours:	Tuesday and Thursday 4:00 PM to 6:00 PM

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 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, 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. Where appropriate, the contributions to the development of statistics by men and women from diverse cultures will be introduced.

Prerequisite

MATH 114 or equivalent with a grade of C or better; or a qualifying score on the Intermediate Algebra Placement Test within the past calendar year.

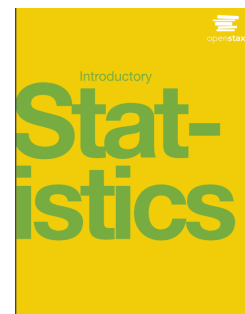
Textbook

Introductory Statistics from OpenStax by Illosky & Dean

This is an opened-source textbook and it is free.

This is the link to the PDF textbook.

https://d3bxy9euw4e147.cloudfront.net/oscms-prodcms/media/documents/IntroductoryStatistics-OP_bGvVITN.pdf

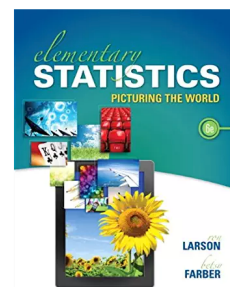


Recommended Materials

Elementary Statistics: Picturing the World 6th Edition by Ron Larson and Betsy Farber; Publisher: Pearson 6th Edition (January 12, 2014); 704 pages

ISBN-10: 0321911210 and ISBN-13: 978-0321911216

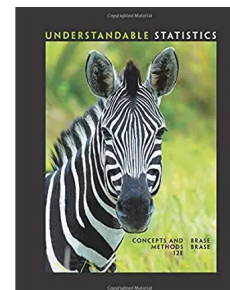
You are not required to purchase this textbook.



Understandable Statistics: Concepts and Methods by Charles Henry Brase and Corrinne Pellolo Brase; Publisher: Cengage Learning 12th edition (January 1, 2017); 839 pages

ISBN-10: 1337119911 and ISBN-13: 978-1337119917

You are not required to purchase this textbook.



Calculator

A TI-83 Plus (left), TI-84 CE (middle), or TI-84 Plus (right) graphing calculator is required for the course. You may rent a TI-83 Plus in the bookstore for about \$20 per semester/quarter. You are required to bring a physical



calculator to the exam, and sharing calculator is considered as cheating incident. Using the calculator apps on your phone is strictly prohibited. Do not purchase the TI-Nspire Graphing Calculator (around \$150) because it is too advanced for this course. Instructions will not be provided for TI-Nspire.

Technical Requirements

- **Your Email:** Please check your email regularly. If possible, connect your email with an app in your smartphone. I will send the homework, lecture notes, and announcement through email. You are welcome to ask me any questions through email.

Subject of my emails “Math 10: _____”

Please keep a record of all the email with the subject above until the semester/quarter is official finished.

- **Canvas:** We will not use canvas in this course.

Lectures and Expected Preparation

We will use a template for every section in the textbook. A template contains definitions, formulas, graphs, and examples. The answers to all the problems and examples are not included. Your instructor will solve each problem in class. You are expected to take notes in class. You should plan to spend a minimum of two hours outside of class for each hour spent in class to learn and make satisfactory progress in the class.

Attendance

Attendance will be taken each day using a sign in sheet. The instructor may drop a student who accrues 4 or more absences without notice.

Homework, 20% of the Course Grade

Problems will be assigned each section. There is no online homework in this class. You are expected to fully demonstrate all your work on paper. Homework will be assigned and collected in a weekly basis. It reflects everything you learned in a week. Scores for homework assignment will be based on completeness, clarity, promptness, and accuracy. The lowest homework grade will be dropped at the end of the course.

Quiz, 20% of the Course Grade

A quiz will be given in class at the due date on every homework assignment. You are expected to get 2 to 3 short problems on the quiz. Quiz questions are based on the homework due on that day. For example, if the first homework contains 4 sections, the quiz problems are based on those 4 sections. If the first homework is due next Thursday, then first quiz will be held on the next Thursday. Quiz is closed book and closed notes, but calculator is allowed.

Exams, 35% of the Course Grade (Two Exams in this Course)

There are two exams in this course. The exam date will be announced at least one prior the exam. Review problems will be provided, discussed, and solved in class. Exam problems are similar to the review problems. Although exams are closed book and closed notes, your instructor will provide a formula sheet during the exam. The formula sheet will be sent along with the review problems. You are not allowed to modify the content of the formula sheet. Sharing calculator during the exam is considered as cheating. Your exam will not be graded if cheating incident is found. Your lowest exam score will not be dropped. Both exams are individual assignments.

Final Exam, 25% of the Course Grade

The final exam will be comprehensive. The Final Exam is an individual assignment. Exam topics will be announced in advanced. A formula sheet will be provided during the review session. The same formula sheet will be provided during the exam date. You are not allowed to modify the content of the formula sheet. Please bring your own calculator to the exam. Sharing calculator, using a smartphone or tablet with internet access, looking at your neighbor's exam, or communicating with your neighbor are considered as cheating incident, which will not be tolerated. Assistant seeker will receive a zero on the exam, and assistant provider will be reported to the college.

Grading Rubrics

Your course grade will be assigned in the following standard:

A: 100% to 92%	A-: 91% to 90%	
B+: 89% to 86%	B: 85% to 82%	B-: 81% to 80%
C+: 79% to 74%	C: 73% to 70%	
D: 69% to 60%	F: below 60%	

Extra Credit Assignment

There are no extra credit assignments in this course to improve your grade. Please do not ask for any.

Academic Integrity

Academic dishonesty will not be tolerated. Any student attempting to defraud the instructor on a quiz, exam, final exam, or any other assessment item designated as an individual assignment will receive a zero on that assignment. This score is irreplaceable. If a cheating incident is detected on your work, the rest of your work in the course will be closely monitored and examined.

Available Support Services

The Math Tutorial Center in S43 has free tutoring for this course. If you need help in studying the class materials, please seek for a math tutor in the learning center immediately. Do not wait until the last minute to seek for help.

Academic Adjustments for Students with Disabilities

Please see instructor during office hours to discuss your situation confidentially if you have accommodations; see the instructor during the first week of class or as soon as you receive approval from the appropriate support service. For information about eligibility, support services or accommodations due to physical or learning disability see:

- Disability Support Service (DSS): www.deanza.edu/dss Location: SCS-141 (408) 864-8753; TTY (408) 864-8748
- Educational Diagnostic Center (EDC): www.deanza.edu/edc Location: LCW 110; (408) 864-8839
- Special Education Division:; www.deanza.edu/specialed (408) 864-8407

Course Content

The following topics will be covered in this course

- Introduction to Statistics
- Descriptive Statistics
- Elementary Probability Theory
- Discrete Random Variable
- Continuous Random Variable
- The Normal Distribution
- The Central Limit Theorem
- Confidence Interval (one-sample and two-sample)
- Hypothesis Testing (one-sample and two-sample)
- The Chi-Square Distribution
- Linear Regression
- Analysis of Variance (ANOVA)

Course Objectives

- A. Explore statistical techniques and process statistical information in order to make decisions about the reliability of a statement, claim or "fact"; Identify the standard methods of obtaining data and identify advantages and disadvantages of each.
- B. Examine the nature of uncertainty and randomness and set up data collection methods that are free of bias; Distinguish among different scales of measurement and their implications.
- C. Organize, display, summarize, and interpret data using graphical and statistical techniques; Interpret data displayed in tables and graphically; Calculate measures of central tendency and variation for a given data set.
- D. Use probability to model and understand randomness; Apply concepts of sample space and probability.
- E. Examine distributions of data using graphical and analytical methods; Calculate the mean and variance of a discrete distribution.
- F. Describe data distribution through the study of sampling distributions; Distinguish the difference between sample and population distributions and analyze the role played by the Central Limit Theorem.
- G. Estimate parameters by constructing point estimates and confidence intervals; Calculate probabilities using normal and t-distributions; Construct and interpret 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; Determine and interpret levels of statistical significance including p-values; Interpret the output of a technology-based statistical analysis; Identify the basic concept of hypothesis testing including Type I and II errors; Formulate hypothesis tests involving samples from one and two populations; Select the appropriate technique for testing a hypothesis and interpret the result.
- I. Compose conjectures about bivariate and ANOVA theoretical models; Use linear regression analysis and ANOVA for estimation and inference, and interpret the associated statistics.
- J. Use appropriate statistical techniques to analyze and interpret applications based on data from disciplines including business, social sciences, psychology, life sciences, health sciences and education.

Important Dates to Remember

Monday September 24	First day of Fall Quarter
Saturday October 6	Last day to add classes
Sunday October 7	Last day to drop classes with no record of "W"
Friday October 19	Last day to request "Pass/No Pass"
Monday November 12	Veterans Day – Campus Closed
Friday November 16	Last day to drop classes with a "W" No more withdrawal after this date, no exceptions.
Thursday to Sunday November 22 to 25	Thanksgiving Holiday – Campus Closed
Monday to Thursday December 10 to 14	Final Exams

College Policy: If the student chooses not to complete the class, it is the STUDENT'S RESPONSIBILITY to drop or withdraw by the college deadlines. If you stop attending but do not withdraw or drop you may fail with a grade of F.

The professor reserves the right to make changes to the syllabus, including project due dates and test dates (excluding the officially scheduled final examination), when unforeseen circumstances occur. These changes will be announced as early as possible so that students can adjust their schedules.

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.