

Math 140 — Introductory Statistics

Course Objectives and Topics

Math 140 is an introduction to statistical reasoning. Topics include methods for displaying, describing, and producing data, the normal distribution, correlation and regression, sampling distributions and probability, and statistical inference for means and proportions.

Instructor

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Office hours: TTh 3:00-4:15 in SN 427 and by appointment.

Prerequisite: Passing score on the ELM or credit in Math 093.

Required Textbook and Calculator

A.E. Watkins, R. L. Scheaffer, and G. W. Cobb,
Statistics in Action, 2nd Ed. Key Curriculum Press,
2008.

TI 83/84 or TI 83/84 Plus calculator

Statistical analysis requires a great deal of routine computation; thus, a graphing calculator with statistical functions is required. The TI-83/84 Plus will be demonstrated in class. Further instructions for these calculators may be downloaded at:

<http://www.keymath.com/x20391.xml>

Data sets may be downloaded from
<http://www.keymath.com/x7871.xml>



Course Requirements and Evaluation

Grades will be based on	quizzes (best 5)	60%
	final exam	40%

The grading scale will be: A: 90% and above, B: 80 - 89, C: 65 - 79, D: 50 - 64. Plus/minus grades may be used for borderline cases. Because all students will be graded in exactly the same way, there will be no "extra" credit.

Final The cumulative final exam will be given on Tuesday, December 15 from 5:15 to 7:15. A practice final is available at

<http://www.csun.edu/math/140samplefinal.pdf>

Quizzes There will be 7 quizzes, given every other Thursday: 9/10, 9/24, 10/8, 10/22, 11/5, 11/19, and 12/3. Each quiz will cover the homework assigned during the previous two weeks. For example, the quiz on 9/10 will cover the homework assigned 8/25, 8/27, 9/1, and 9/3 (but not 9/8). Your lowest two quiz grades will be dropped. There will be no make-up quizzes. If you miss a quiz, that will be the grade that is dropped. Quizzes, like the homework, will consist of a variety of questions: multiple choice, short answer, computations, and interpretations of the computations. They will cover material from the text, homework, and class activities, but mainly from the homework.

Homework Homework will be assigned almost every class period. Answers are in the back of the book. It will not be collected.

Math 140 Tutoring

Hours and location of tutoring for Math 140 will be announced soon.

Class Regulations

Please turn off cell phones during class time. If you must answer a call, please leave the room and do not return until class is over.

Talking is very distracting to the people sitting near you, so please be respectful of other students and refrain from talking while the instructor or another student is speaking. (The students near you are equally distracted whether you are talking about statistics or not.)

University Regulations

Please read the regulations about dropping a class in the CSUN catalog and schedule of classes. You can withdraw through SOLAR during the first three weeks of class. After that, it will be very difficult to drop (failing the class doesn't qualify).

Cheating will not be tolerated. If you cheat on a test (use unauthorized notes or your book, look at someone else's paper, etc.) or copy another student's homework or let them copy yours, you will receive an F in the course and the Dean of Students will be informed. Please read the pertinent pages in the CSUN catalog.

How to Do Well in Statistics

Most likely, you are taking this class because it is required for your major. If you want to graduate in a timely manner and not waste your time by having to take Math 140 twice:

- Never miss class.
- Do your reading and homework after every class session. This is necessary so you will understand the next lecture. Students who wait until right before a quiz to do their homework get D's and C's.
- Try to do the homework by yourself. Then get together with other students to compare solutions, checking each other's wording. Don't waste your time by allowing students into your study group who haven't tried the problems first.
- It is your responsibility to work through the assigned problems and get help on those you do not understand. Consult your study group, the instructor, or go to the Math Tutoring Lab if you get stuck or would like further explanation of a topic. A lot of help is available to you. Take advantage of it.
- Pay as much attention to wording, which can be tricky in statistics, as computation. This is not a mathematics class—it is a statistics class and statistics is about data in context (i.e. numbers that measure a real-life situation). Consequently, many problems will be graded like an essay in history or literature. A beautifully written answer that shows insight into the data will get more points than a poorly-written answer, even though both have correct computations.
- Keep in mind that the computations are done by the calculator. That means that your grade will be based largely on how well you interpret and explain the computations and concepts.

C: *Technical Expertise.* You know what computations need to be done and do them correctly. You know the basic vocabulary.

B: *Expertise in Application.* You can apply what you have learned in new situations, interpreting the results more or less correctly, but your choice of wording is often poor. However, you can select the correct interpretation of the computations or concepts in a multiple-choice question. You may have the right idea, but don't explain it correctly.

A: *Conceptual Understanding.* You understand how the concepts are connected and can explain concepts clearly. Your interpretations of the computations and concepts are in context, correct, and well written.

Course Objectives

Statistics can be defined as the science of reasoning from data. Data and statistical thinking abound in everyday life and in almost all academic disciplines, so the ability to reason with data is essential to educated citizenship. This course will focus on understanding statistical concepts and reasoning; organizing, interpreting and producing data; analyzing statistical arguments and communicating findings clearly; and appreciating the relevance of statistics to contemporary society. Specific course learning outcomes are listed below:

- Learn how to construct and interpret graphical and numerical summaries of data
- Understand many of the fundamental ideas of statistics, such as variability, distribution, association, sampling, sampling distributions
- Understand how the nature of data collection methods affects the scope of the conclusions that can be drawn from statistical studies (especially cause and effect); the role of probability in sampling and experiments
- Learn to use the normal distribution and the Central Limit Theorem
- Learn the basics of statistical inference: estimation, assessing statistical significance, statistical reasoning; apply and interpret the results of a variety of statistical techniques
- Analyze and assess statistical arguments, such as those found in the popular press and scholarly publications;
- Learn how to use and interpret correlation and regression
- Communicate knowledge of statistical ideas effectively