

Mathematics 11, Elementary Statistics – Summer 2023 Section # 52002

Instructor: Scott Endler

Class Times: M/T/W/Th 10:00 AM - 11:15 AM

Room: FEM 3 Lecture

Web-Based Instruction, WEB Lec Internet

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Required Text: Elementary Statistics, Picturing the World (Get MyLab Math)
7th Edition, Larson, Faber

Catalog Description: This course is an introduction to statistical methods and techniques for business, behavioral, and social science majors. Topics include descriptive measures of central tendency and variability, probability, binomial and normal distributions, random variables, sampling, estimating, hypothesis testing (parametric and nonparametric), correlation and regression.

Grading:	60%	Chapter Tests	Grading Scale:	90-100%	A
	15 %	Final Exam		80-89.9%	B
	15%	Classwork/Homework		70-79.9%	C
	10%	Quizzes		60-69.9%	D
				<60%	F

Chapter Tests: Nine tests will be given during the term. These will mostly include material from the most recent chapter but may also include some previous material as well. Tests must be completed within time allowed during class. **There are no make-ups for missed quizzes or tests.**

Final Exam: The material in this course is used in many courses that follow in both math and science. Because of this, it is not acceptable to just forget everything once you take a chapter test. So, a comprehensive final exam will be given during final exam week.

Classwork/Homework: “Practice makes perfect” is particularly true in mathematics. Generally, assignments will be collected during class or at the beginning of the next class. Each assignment will be checked for completeness, neatness, and effort. Certain specific problems will be marked in depth. **Problems should be written out, all work must be shown, and answers boxed or underlined.** All assignments should have your name, the date, the assignment (chapter, section, and page number), and be in order.

Late Work and Make-up Assignments: Homework should be submitted on time. Being absent does not extend the due date for an assignment. Late homework will not be given full credit. Occasionally, optional make-up assignments may be given for extra credit homework points.

Required materials: Textbook, binder, 8.5” x 11” college ruled binder paper, pencils, scientific calculator, ruler, and graph paper.

Attendance and participation: Your effort matters. Coming to class, turning in assignments, taking quizzes and tests, participating in discussions is your way of demonstrating your participation and **attendance** in class.

A student will be dropped if the work assigned the first week is not attempted and completed within the first two weeks of class and the student has not made any contact with me. A student may be dropped even if contact has been made depending on the nature of that contact and how much work including the quiz the second week has not been completed. In particular, a student may be dropped even though they completed the quiz, but have not completed the homework assignments.

Additionally, a student may be dropped if two units (chapters) or more have not been completed, especially if those units are consecutive. Failing to complete these units will not only affect your overall grade and jeopardize your chance of passing this course, but may make completing later units especially challenging when those units build on earlier ones. This course has been intentionally broken into smaller chunks. Quizzes and tests will generally be on just one chapter at a time. This is to make the material easier to focus on and minimize the overall effect of a poor performance on one quiz or test.

Cheating and/or plagiarism: Cheating and/or plagiarism will not be tolerated. A student will receive no credit for the assignment, quiz, or test if in the opinion of the instructor the individual has cheated.

Accommodations for Students with Disabilities:

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

Expected behavior: Please turn off cell phones before the start of every class period. **Do not use cell phones as calculators.** No one appreciates the distractions! Anyone that is disrespectful or disruptive to other students or the instructor may be removed from class for the day, and it will be considered an absence, or may be dropped from the class if the behavior is extreme enough.

Important Dates:

Holiday:	Monday, June 19 Tuesday, July 4	Juneteenth holiday (no classes, campus closed) Independence Day holiday (no classes, campus closed)
Final Exam:	Thursday, July 27	Online

Course Outline:

Unit A:	Introduction to Statistics	Chapter 1	(Tentative) Weeks 1-2
Unit B:	Descriptive Statistics	Chapter 2	Weeks 2-4
Unit C:	Probability	Chapter 3	Weeks 3-5
Unit D:	Discrete Probability Distributions	Chapter 4	Weeks 4-6
Unit E:	Normal Probability Distributions	Chapter 5	Weeks 5-7
Unit F:	Confidence Intervals	Chapter 6	Weeks 7-9
Unit G:	Hypothesis Testing with One Sample	Chapter 7	Weeks 10-13
Unit H:	Hypothesis Testing with Two Samples	Chapter 8	Weeks 12-15
Unit I:	Correlation and Regression	Chapter 9	Weeks 14-16
Unit J:	Chi-Square Tests and the F-Distribution	Chapter 10	Weeks 15-16
	Final Review/Final	All Chapters	Weeks 17-18

Course Outcomes:

Upon completion of this course, students will be able to:

- A) construct frequency distributions, histograms, Pareto charts, pie charts, and boxplots.
- B) calculate or determine the mean, median, mode, standard deviation, variance, z-scores, and percentiles.
- C) calculate and interpret individual probabilities, add or multiply probabilities for determining the probability of multiple, complementary, and conditional events including binomial probability distributions.
- D) calculate the probabilities and z-scores associated with normal distributions and the mean and standard deviation of the sample means for a population with any distribution.
- E) calculate and interpret critical z-values, confidence intervals, margin of error, and the estimated mean of a population when either the standard deviation is known or unknown.
- F) conduct hypothesis testing to test single population claims including Type 1 and Type 2 Errors, hypothesis testing using the P-value method, hypothesis testing using a t-test, and hypothesis testing between two populations.

Course Objectives:

In the process of completing this course, students will:

- A) summarize and describe given data sets.
- B) apply the methods of descriptive statistics to determine the measures of central tendency and variability to a variety of problems.
- C) apply basic principles of probability to determine probabilities of a variety of events.
- D) analyze discrete and continuous probability distributions.
- E) explore the basics of sampling theory.
- F) estimate population parameters through studying confidence intervals.
- G) examine hypothesis testing for small and large samples and multiple populations.
- H) determine if a relationship exists between quantitative variables.