Mathematics 210

Elementary Statistics and Probability (3)

(Effective Fall 2018)

Prerequisite: Math 100-110, or 140, or 170, or 185, or 251 or appropriate mathematics placement.

Catalog Description: Descriptive measures, elementary probability, sampling, random variables. Discrete probability distributions, normal probability distributions and introduction to inference theory.

Notes:

1. A graphing calculator is required. A TI-83 or TI-84 is very strongly recommended. Computer algebra systems are prohibited. A TI-Nspire calculator may only be used with the TI-84 faceplate.
2. Some instructors may require MyStatLab, a computer supplement to the course text.
3. All students in the course will take the Department of Mathematics and Statistics common final exam.

General Education: The faculty of UT Martin have included this as a general education course with the following course goal and student learning outcomes.

Curriculum Goals: The purpose of the Mathematics requirement is to teach students to organize, evaluate and solve problems using both abstract and quantitative approaches. Courses in this area will enable students to communicate using the language of mathematics.

Student Learning Outcomes:

a. Students will use appropriate notation and vocabulary to communicate mathematics.
b. Students will use symbolic and numerical methods to perform calculations.
c. Students will solve problems with real-world applications.

Learning Outcomes for Major: This course addresses one or more of the student learning outcomes for the major.

Upon completion of his/her degree from the University of Tennessee at Martin with a major in mathematics, the graduate will be able to:

i. apply mathematical concepts and principles to perform numerical and symbolic computations.
ii. use technology appropriately to investigate and solve mathematical and statistical problems.
iii. write clear and precise proofs.
iv. communicate effectively in both written and oral form.
v. demonstrate the ability to read and learn mathematics and/or statistics independently.

Teaching Objectives:

The student will:

1. Learn the nature of statistics and how it plays an important role in our daily lives.
2. Organize and summarize data, and represent graphically the important information contained in a data set.
3. Compute numerical quantities that measure the central tendency and dispersion of a set of data.
4. Understand the elementary properties of probability.
5. Compute the probability of an event and of compound events.
6. Distinguish between discrete and continuous random variables.
7. Compute the mean and standard deviation of a probability distribution.
8. Use discrete and continuous distribution models to calculate probabilities for appropriate random variables.
9. Study the sampling distribution of some useful statistics.
10. Learn a method for estimating some population parameters.
11. Understand and apply the basic concepts of statistical inference to the decision making process.
12. Find the least squares regression line.
13. Use the statistical software package Minitab.

Text(s):

All classes will use one, or both, of the following. Please check with your instructor to find out which you will need.

Elementary Statistics, Thirteen Edition, Mario Triola, Pearson, 2017. ISBN: 978-0-134-46245-5.

MyStatLab, ISBN-13: 978-0-134-76370-5.

Outline:

Chapter	Title (Sections)	Days
1	Introduction to Statistics (1–3)	1
2	Summarizing and Graphing Data (1–4)	2
3	Statistics for Describing, Exploring, and Comparing Data (1–3)	3
4	Probability (1–5)	5
5	Discrete Probability Distributions (1–3)	4
6	Normal Probability Distributions (1–5)	5
7	Estimates and Sample Sizes (1–2)	3
8	Hypothesis Testing (1–3)	4
9	Inferences from Two Samples (1–3)	3
10	Correlation and Regression (1–2)	2
11	Goodness-of-Fit and Contingency Tables (1–2)	2
	Minitab	2
	One period tests	5
	Total days	41

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