

Elementary Statistics

- I. **Catalog description:** An introduction to descriptive and inferential statistics. Organization and presentation of data, averages and variations, elementary probability, random variables, special discrete distributions, normal distributions, sampling distributions, point estimation, confidence intervals, and hypothesis testing. Credit will not be given for both STAT 235 and STAT 236. Prerequisite: 4 units high school math or MATH 110.
- II. **Prerequisite:** A grade of "C" or better in Algebra II
- III. **Purposes/Objectives** of STAT235:
 - a. Unit 1
 - i. Compute/interpret variance and standard deviation for a given data set.
 - ii. Compute/interpret various measures of central tendency, including mean, median, mode, and percentile.
 - b. Unit 2
 - i. Calculate probabilities, including mutually exclusive events, independent/dependent events, and union/intersection of event.
 - ii. Write the probability distribution for a given data set.
 - iii. Calculate and interpret the mean and standard deviation of a discrete random variable.
 - iv. Use the binomial distribution and the poisson distribution to determine probabilities.
 - c. Unit 3
 - i. Use the Standard Normal Distribution to calculate probabilities.
 - ii. Standardize a given normal distribution
 - iii. Use the normal distribution to approximate a binomial distribution
 - iv. Calculate the population mean for a given population.
 - v. Calculate and interpret the mean and standard deviation of a given sampling distribution for both normally distributed and non-normally distributed populations
 - vi. Calculate and interpret the mean and standard deviation of a given sample proportion.
 - d. Unit 4
 - i. Estimate the population mean for a population in which standard deviation is known.
 - ii. Estimate the population mean for a population in which standard deviation is unknown.
 - iii. Construct a confidence interval and margin of error for a given data set.
 - iv. Determine sample size necessary given a particular margin of error and confidence level.
 - e. Unit 5
 - i. Conduct hypothesis tests about the population mean for a population in which standard deviation is known.
 - ii. Conduct hypothesis tests about the population mean for a population in which standard deviation is unknown.
 - iii. Construct confidence intervals for the difference between two population means for two data sets in which the standard deviation is known/unknown.
 - iv. Conduct hypothesis tests about the difference between two population means for two data sets in which the standard deviation is known/unknown.
- IV. **Course Content/Outline**
 - a. Introduction to Probability
 - i. Statistical sampling and graphing summaries
 - ii. Basic probability
 - iii. Conditional probability
 - iv. Probability for discrete distributions: binomial, Poisson, hypergeometric
 - b. Normal and t distributions
 - i. Confidence Intervals for 1 population
 - ii. Hypothesis Tests for 1 population
 - iii. Confidence Intervals and hypothesis testing for 2 populations.
 - c. Chi-Square distribution
 - i. Goodness of Fit Tests
 - ii. Tests of Independence
 - iii. Tests of homogeneity

V. Textbook and Other required materials

- a. *Introductory Statistics, 6th Ed., Prem S. Mann*
- b. Calculator with statistical functions
 - i. Scientific OR
 - ii. Graphing

V. Basis for Student Evaluation

- a. 6 or 7 Exams – 80% of term grade
- b. 6 or more quizzes – 20% of term grade
- a. Final Exam – 10% of semester grade
- b. Letter grades will be

A	93 – 100	B+	88-89	C+	78-79	D+	68-69	F	59 and Below
A-	90-92	B	83-87	C	73-77	D	63-67		
		B-	80-82	C-	70-72	D-	60-62		

There are NO retakes

VI. Expectations and Policies

- a. Attend class and actively participate in classroom activities and discussions.
- b. Complete homework.
 - i. Homework is assigned every day.
 - ii. I am available on Tuesday and Thursday from 2:50 – 3:30 pm for help with homework.
- c. Quizzes are given at least once per unit.
 - i. If you are absent the class prior to the quiz day, you are expected to take the quiz the day immediately following the quiz day.
 - ii. If you are absent the day of the quiz, you are expected to take the quiz the day you come back.
- d. Exams
 - i. Exams are given approximately every 2 – 3 weeks.
 - ii. Exams are to be taken during the time allotted. Once the second passing bell rings, the student is to turn in his/her exam.
 - ii. If you are absent the class prior to the exam day, you are expected to take the exam the day immediately following the exam day.
 - iii. If you are absent the day of the exam, you are expected to take the exam the day you come back. You have a maximum of 3 school days after the date of the exam to take the exam. Otherwise you have forfeited your opportunity to take the exam

VII. Academic Honesty

- a. Academic Honesty

Academic dishonesty, such as cheating, plagiarism, or sabotage. The Board of Curators recognizes that academic honesty is essential for the intellectual life of the University. Faculty members have a special obligation to expect high standards of academic honesty in all student work. Students have a special obligation to adhere to such standards. In all cases of academic dishonesty, the instructor shall make an academic judgment about the student's grade on that work and in that course. The instructor shall report the alleged academic dishonesty to the Primary Administrative Officer.

 - iii. The term **cheating** includes but is not limited to:
 1. use of any unauthorized assistance in taking quizzes, tests, or examinations;
 2. dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments;
 3. acquisition or possession without permission of tests or other academic material belonging to a member of the University faculty or staff; or
 4. knowingly providing any unauthorized assistance to another student on quizzes, tests, or examinations.
- b. The term **plagiarism** includes, but is not limited to:
 1. use by paraphrase or direct quotation of the published or unpublished work of another person without fully and properly crediting the author with footnotes, citations or bibliographical reference;
 2. unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials; or
 3. unacknowledged use of original work/material that has been produced through collaboration with others without release in writing from collaborators.
- c. The term **sabotage** includes, but is not limited to, the unauthorized interference with, modification of, or destruction of the work or intellectual property of another member of the University community. (UMKC Student Conduct handbook)

VIII. Technology

- a. You will need a scientific or graphing calculator with statistical functions.
- b. You can access your current grade on SIS provided you have a username and password.
- c. No cell phone/iPod or any other electronic device may be used in class.
 1. First use of such item(s) will result in confiscation. The item will be taken to the office and returned only to a parent (RayPec Student handbook p. 25).
- d. A list of assignments and copies of handouts as well as notes are available at www.elmermath.webbly.com

IX. Student Conduct

"Students shall be expected to assume their share of responsibility in maintaining an atmosphere conducive to effective teaching/learning." (RayPec Student handbook p. 32)

- a. Class Rules
 - i. Student will assume responsibility for his/her actions.
 - ii. Respect others and their property
 - iii. Follow directions.
 - iv. Be in your seat when the bell rings.
 - v. No sleeping will be permitted.
 - vi. The teacher reserves the right to add to or amend these rules.
- b. Consequences of misconduct
 - i. Verbal Warning
 - ii. Move to another seat
 - iii. Move to another classroom and conference with teacher
 - iv. Sent to the Office with discipline referral
 - v. Severe/blatant misconduct will result in being sent directly to the office.

X. Classroom procedures

- a. Tardies
 - i. You must be in the room when the tardy bell rings
 - ii. If you are tardy, you will not be admitted to class without a pass.
- b. Absences
 - i. You are expected to make up missed work for each absence.
 - ii. It is your responsibility to see that you get any missed work on your return to school.

****If you miss an exam and fail to make it up, you will receive a score of 0. It is YOUR responsibility to be prepared for and to take the test immediately upon your return.**

- c. School Field Trips
 - i. You are responsible for getting the assignment done in advance.
 - ii. If the field trip is scheduled the day of a test, you are expected to take the test PRIOR to going on the field trip.
- e. Food and Drink
 - i. Drinks must be in a container with a seal-able lid. No cans.
 - ii. Food must be in individual servings
 - iii. Food causing a distraction will not be permitted.
 - iv. No seeds (shelled or unshelled)