

**Carthage Mathematics Department**  
**Course Summary for MTH 1050 Elementary Statistics**

1. Credits: 4 credits
2. Semesters Offered: Fall and Spring
3. Text(s): Essentials of Statistics by Mario F. Triola, or Elementary Statistics by Mario F. Triola
4. Topics Covered:
  - a. Sampling methods and experimental design, population versus sample, qualitative versus quantitative variables
  - b. Descriptive statistics, including frequency distributions, histograms, stemplots, five-number summaries, and boxplots
  - c. Mean, median, mode, range and standard deviation
  - d. Basic probability theory, the addition rule, and the multiplication rule
  - e. Discrete probability distributions, binomial probability distributions
  - f. Normal distributions, sampling distributions and Central Limit Theorem
  - g. Estimating a population mean, estimating a population proportion
  - h. Testing a claim about a population mean, testing a claim about a population proportion
  - i. Inferences about two proportions, inferences about two means, analysis of variance
  - j. Linear correlation coefficient and regression
  - k. Chi-Square, goodness-of-fit tests, tests of independence and homogeneity
5. Skills Enhanced:
  - a. Technical writing
    - i. At instructor's discretion, a statistical project containing approximately 3 pages of written work expected.
    - ii. Complete sentences, clear exposition, and correct notation emphasized.
  - b. Computer skills
    - i. Excel/SPSS: Creating frequency distributions, histograms, scatter plots, pivot tables; finding mean, median, standard deviation, linear correlation coefficient
6. Sample Syllabus (Essentials of Statistics):
  - a. Chapter 1
  - b. Chapter 2
  - c. Chapter 3
  - d. Sections 4-1, 4-2, 4-3, 4-4, 4-5
  - e. Chapter 5
  - f. Sections 6-1, 6-2, 6-3, 6-4, 6-5
  - g. Sections 7-1, 7-2, 7-3, Section 7-4 may be included
  - h. Sections 8-1, 8-2, 8-3, 8-4, Section 8-5 may be included
  - i. Sections 9-1, 9-2, 9-3
  - j. Sections 10-1, 10-2, 10-3
  - k. Chapter 11
7. Miscellanea
  - a. MTH 1050 is generally scheduled to meet two days per week, for approximately 200 minutes per week.
8. Course Goals: By the end of the course, students should be able to do the following.
  - a. Use technical writing and appropriate graphical and numeric methods to describe and interpret data sets.
    - i. Assessment: The cumulative final exam contains questions involving descriptive statistics.
  - b. Compute and interpret confidence intervals for means and proportions.

- i. Assessment: The cumulative final exam contains questions involving confidence intervals.
- c. Conduct appropriate statistical tests, including written interpretation of test results.
  - i. Assessment: The cumulative final exam contains hypothesis tests and tests of independence.
- d. Compute linear correlation coefficients and determine regression line equations.
  - i. Assessment: The cumulative final exam contains questions related to linear correlation.
- e. Demonstrate sufficient knowledge of the course content.
  - i. Assessment: Sufficient knowledge is required to obtain a passing grade. The knowledge must be demonstrated on exams, homework, and class projects.