SU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE
SYLLABUS *(Tentative)*
MATH 155 *Modern Statistics with Computer Analysis*

Objective: To introduce descriptive statistics and both parametric and nonparametric inferential methods

Intended for: Students in the social sciences and natural sciences and others who must make inferences from sample data. **Credit may not be received for more than one: MATH 150, 155, 213 or 216.**

Prerequisite: High School Algebra II and Plane Geometry.

Textbook: "Elementary Statistics" by Navidi & Monk, 3rd edition (print or e-text*)

Technology: MINITAB (free use for SU students). Some instructors require the purchase of ConnectMath access or a specific calculator*.

* Contact section instructor for details.

Weeks

Chapter 1: ***Basic Ideas*** 0.5 – 1.0
Fundamental elements of a statistical study, types of data, the importance of random sampling, observational studies versus designed experiments

Chapters 2-3: ***Graphical & Numerical Summaries of Data*** 2.5
Bar graphs, pie charts, histograms, and boxplots; measures of center, variation, and relative standing; Chebyshev's theorem and empirical rule

Chapter 4*:* ***Summarizing Bivariate Data*** 1.0
Scatterplots, interpreting sample linear correlation, regression lines and point predictions

Chapter 6-7: ***Probability Distributions*** 3.0
Discrete and continuous random variables, probability distributions, binomial distributions, normal distributions, sampling distribution of the mean and Central Limit Theorem, assessing normality

Chapters 8-9, 15*:* ***Confidence Intervals & Hypothesis Testing*** 3.5 – 4.0
Confidence interval for a population mean, testing hypotheses about a population mean, P-values, Type I & Type II errors, sign test

Chapter 10-11, 15: ***Two-Sample Confidence Intervals & Hypothesis Tests*** 1.0 – 1.5
Comparing two population means (independent and paired samples), Wilcoxon signed-ranks test, Mann Whitney (Wilcoxon rank-sum) test

Tests 1.0 – 1.5

Topics to be covered as time permits: Probability (Chapter 5), Inferences about population proportions

Evaluation

Quizzes/homework/labs	15 – 25%
Written project(s)	5 – 10%
Tests (2 or more)	40 – 60%
Final Exam (comprehensive)	20 – 40%

Free tutoring is available for this course in the Spring and Fall semesters.

NOTE: Once a student has received credit, including transfer credit, for a course, credit may not be received for any course with material that is equivalent to it or is a prerequisite for it.

TAM 3/2019