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 or 213.**

Prerequisite: High School Algebra II and Plane Geometry.

Textbook: "Elementary Statistics" by M. Triola 12th edition (print or e-text*)

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

***** Contact section instructor for details.

Weeks

Chapter 1: ***Introduction to Statistics*** 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: ***Describing Univariate Data*** 2.5
Bar graphs, pie charts, histograms, and boxplots; measures of center, variation, and relative standing; Chebyshev's theorem and empirical rule

Selected Chapter 10*:* ***Describing Bivariate Data*** 1.0
Scatterplots, interpreting sample linear correlation, regression lines and point predictions

Chapter 5-6: ***Random Variables and Probability Distributions*** 3.0
Discrete and continuous random variables, probability distributions, binomial distributions, normal distributions, sampling distribution of the mean and Central Limit Theorem

Chapters 7-8, 13*:* ***Estimation and Hypothesis Tests Based on Single Samples*** 3.5 – 4.0
Confidence interval for a population mean, testing hypotheses about a population mean, P-values, Type I & Type II errors, assessing normality, sign test

Chapter 9, 13: ***Comparing Population Means*** 1.0 – 1.5
Comparing two population means (independent and paired/dependent sampling), Wilcoxon signed-ranks test, Mann Whitney (Wilcoxon rank-sum) test

Tests 1.0 – 1.5

Topics to be covered as time permits: Probability, 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 4/2016