

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

- Objective:** To introduce the concepts of statistical inference by way of both non-parametric methods and classical parametric methods.
- Intended for:** Students in the social sciences and natural sciences 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.
- Technology:** THIS COURSE IS COMPUTER DEPENDENT. Students will use MINITAB throughout the course. MyStatLab access may also be required.

	Weeks
Chapter 1: <i>Introduction to statistics</i> The science of statistics, its applications, fundamental elements of statistics, types of data, collecting sample data	.5
Chapter 2-3: <i>Summarizing, describing, graphing and comparing data</i> Histograms and other graphs; describing center and variation of data; measures of relative standing	2.0 - 2.5
Chapter 4: <i>Probability</i> Events, sample spaces, probability of simple and compound events, contingency tables, conditional probability	1.0
Chapter 5-6: <i>Random Variables and Probability Distributions</i> Random variables, probability distributions for discrete and continuous random variables, binomial random variables, normal distribution, normal probability plot, sampling distribution and central limit theorem	3.0
Chapters 7-8, 13: <i>Estimation and Hypothesis Tests Based on Single Samples</i> Confidence interval for a population mean (small and large sample), determining the sample size, test of hypothesis about a population mean (large and small), P-values, sign test	3.0
Chapter 9, 13: <i>Comparing Population Means</i> Comparing two population means: independent sampling and paired difference experiments, nonparametric tests for comparing two populations: independent sampling and paired difference experiments, Note: Wilcoxon Rank Sum Test is equivalent to the Mann Whitney U Test	2.0
<i>Chapter 10: Correlation and regression</i> Scatterplot, strength/shape/direction of bivariate relationship, correlation, straight line regression	1.0
<i>Tests</i>	1.0

EVALUATION

Quizzes/homework/lab work	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.