

SU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE  
 SYLLABUS (*Tentative*)  
 MATH 214 *Statistical Thinking Laboratory*

- INTENDED FOR:** Students majoring in mathematics or other sciences.
- OBJECTIVES:** To introduce the concepts of descriptive and inferential statistics in a hands-on setting.
- PREREQUISITE:** MATH 155 or equivalent.
- COREQUISITE:** Students currently registered for MATH 213 must register for the lab.
- TECHNOLOGY:** THIS COURSE IS COMPUTER DEPENDENT. MINITAB will be used throughout the course.

	<i>Weeks</i>
<b><i>Minitab Essentials</i></b>	1.5
File management, descriptive statistics techniques, and graphing (single- and multi-variable)	
<b><i>Data Collection Issues</i></b>	1.5
Obtaining reliable data from published sources, measurement issues, and getting data into Minitab	
<b><i>Probability</i></b>	1.0
Probability & Conditional Probability from tallies; PDF's, CDF's, and inverse PDF's; and simulation of random experiments	
<b><i>Discrete Random Variables</i></b>	1.5
Distribution characteristics and applications, including Binomial, Geometric, Hypergeometric, and Poisson	
<b><i>Continuous Random Variables</i></b>	1.5
Distribution characteristics and applications, including Uniform, Exponential, and Normal	
<b><i>Sampling Distributions and the Central Limit Theorem</i></b>	1.0
Illustration via simulation and applications	
<b><i>Estimation</i></b>	1.0
Confidence intervals for means and proportions; demonstration via simulation and applications	
<b><i>Hypothesis Tests (one sample)</i></b>	2.0
Parametric and non-parametric tests for means, medians, and proportions; demonstration via simulation and applications	
<b><i>Hypothesis Tests (two samples)</i></b>	1.0
Parametric and non-parametric tests for means, medians, and proportions; demonstration via simulation and applications	
<b><i>Simple Linear Regression</i></b>	1.0
Constructing and interpreting fitted line plots, estimation and prediction, inferences about slope	
<b><i>Chi-Square Analysis and ANOVA</i></b>	1.0

**EVALUATION**

Attendance	20%
Lab Reports & Portfolios	60%
Final Exam	20%

**Writing Across the Curriculum:** This course is in full support of the emphasis on this campus to give the students every opportunity to reinforce their skills in writing. Instructors will expect students to clearly communicate conclusions and thinking processes in written lab reports.