

SU DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE  
 SYLLABUS (*Tentative*)  
 MATH 493/593 *Advanced Topics in Statistics: Experimental Design*

**INTENDED FOR:** Students considering employment in areas of statistics. Students concentrating or minoring in statistics.

**OBJECTIVES:** To gain knowledge of various designs and analysis of experiments.

**PREREQUISITE:** At least one course in inferential statistics with a “C” or better (MATH 151, 155, 213 or equivalent). Math 313 or 314 is also preferred.

**TECHNOLOGY:** THIS COURSE IS COMPUTER DEPENDENT. MINITAB, SPSS, or SAS will be used throughout the course.

**TEXTBOOK:** “Experimental Design with Applications in Management, Engineering and the Sciences by Paul D. Berger & Robert E. Maurer, 1<sup>st</sup> Edition, 2002.

		<i>Weeks</i>
Chapters 1	<i>Introduction to Experimental Design</i>	.5
Chapters 2-3	<i>One-Factor Designs &amp; ANOVA</i>	1.5
Chapter 4	<i>Multiple- Comparison Testing</i>	1.0
Chapter 5	<i>Orthogality &amp; Orthogonal Decomposition</i>	.5
Chapter 6	<i>Two-Factor Cross-Classification Designs</i>	1.5
Chapter 7	<i>Nested/Hierarchical Designs</i>	1.0
Chapter 8	<i>Latin Square Designs</i>	2.0
Chapter 9	<i>Two-Level Factorial Designs</i>	2.0
Chapter 10	<i>Confounding/Blocking in 2<sup>k</sup> Designs</i>	1.5
	<i>Optional Topics</i>	1.5
	Fractional Factorial Designs,	
	Three Level Factorial Designs	
	Taguchi Methods	
	<i>Tests</i>	<u>1.0</u>
		14.0

### EVALUATION

Homework, Quizzes, Boardwork, Projects	25%
Tests	50%
Final	25%

### Writing Across the Curriculum

*Writing will be a large component of this course. All data analyses must be accompanied by clearly written interpretations and conclusions.*

The problem sets/projects will require graduate students to exhibit integrative thinking, synthesis, and analysis on material beyond the level usually expected of undergraduates.