



### STA 320–Statistical Methods Course Syllabus

**Course description:** Analysis of variance, regression analysis and nonparametric methods. The course will stress the use of computer packages MINITAB or SAS and the interpretation of the outputs.

**Credit hours:** 3

**Course Prerequisite and Corequisites:** MTH 220.

**Course outline:**

	<u>Approximate time spent</u>
• <b>Review of Probability &amp; Basic Inference</b>	20%
○ Probability and Sampling Distributions	
○ Confidence intervals and hypothesis testing	
○ Introduction to MINITAB and/or SAS	
○ Inferences for a Single Population	
○ Inferences for two populations	
• <b>Analysis of Variance</b>	30%
○ One way completely randomized design	
○ Multiple Comparisons	
○ Randomized Block Design	
○ Factorial Designs	
• <b>Regression Analysis</b>	30%
○ Linear Regression	
○ Multiple Regression	
• <b>Nonparametric Methods</b>	20%
○ One sample	
○ Two Independent Samples	
○ More than two samples	
○ Randomized block design	
○ Rank correlation	

**Student Learning Outcomes (SLO):** At the end of STA 320, a student who has studied and learned the material should be able to:

1. Demonstrate understanding of sampling distributions and their role in statistical analysis. [EEO: 3, 5, 6]
2. Recognize experiments designed according to criteria listed in course outline. [EEO: 1, 2, 3]
3. Analyze data sets generated from experiments designed according to criteria listed in course outline with or without the aid of a computer. [EEO: 1, 4, 6]
4. Report results of statistical analysis of data generated from experiments designed as according to criteria listed in course outline. [EEO: 2]

*There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.*

**Exemplary Educational Objectives (EEO):**

1. To apply arithmetic, algebraic, geometric, higher-order thinking, and statistical methods to modeling and solving real-world situations.
2. To represent and evaluate basic mathematical information verbally, numerically, graphically, and symbolically.
3. To expand mathematical reasoning skills and formal logic to develop convincing mathematical arguments.
4. To use appropriate technology to enhance mathematical thinking and understanding and to solve mathematical problems and judge the reasonableness of the results.
5. To interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them.
6. To recognize the limitations of mathematical and statistical models.