DEPARTMENT OF MATHEMATICS
SYLLABUS

I.   MATH 236 - Elements of Statistics II - 3 credits

II.   CATALOG DESCRIPTION

An extension of concepts introduced in Elements of Statistics I. Topics include estimation, hypothesis testing, design of experiments with analysis of variance, regression analysis, co-variance analysis, and non-parametric approaches. Experiences using a variety of computing devices will also be included. Solid methods courses for any major whom needs to use statistical techniques.

PREREQUISITE: MATH 130, Elements of Statistics I or Math 235, Survey of Statistics or equivalent.

III.   OBJECTIVES

1.   To provide students with enough statistical training so that They can design an experiment, utilize a statistical package to analyze the data, and interpret results.

2.   To provide a thorough, although elementary, understanding of the concept of a general linear model and its applications in regression and design.

3.   To provide enough background for a student to pursue other courses in statistical techniques.

IV.   COMPREHENSIVE COURSE OUTLINE

A.   Review of Statistical Inference
1.   Estimation
2.   Hypothesis Testing

B.   Correlation and Regression Analysis
1.   Simple Linear Regression

2. Multiple Linear Regression
    3. Correlation Analysis

C. Non-parametric Statistics
    1. Chi-square tests
    2. Analysis of ranked data

D. Introduction to Design of Experiments
    1. Advantages of Designing Experiments
    2. Analysis of Variance
    3. Some Common Designs

V. SUGGESTED TEXTS

McClave, J.T., and Sincich, T., Statistics, 12th Ed. Prentice Hall, 2013