DEPARTMENT OF MATHEMATICS
Syllabus

I.   MATH 535 - Statistical Methods I - 3 credits

II.  Course Description

A survey of statistical methods currently used in research, education, behavioral sciences and biomedical application. Experimental designs are discussed regarding advantages, disadvantages, sampling problems, and analysis. Regression, correlation, multiple regression and analysis of variance. The course will demonstrate the statistical methods using a statistical software package such as SAS or Minitab.

Prerequisite: A probability and statistics course.

III.  Objectives

Upon completion of the course, the students will be able to

A.   design an experiment, utilize a computing device to analyze the data and interpret the results.

B.   work collaboratively with a statistician and demonstrate that they understand the concepts in advanced statistical inference.

C.   demonstrate the necessary skills to be successful in subsequent courses in statistical methods.

IV.  Course Outline

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

B.   Regression and Correlation
     1.   Correlation
     2.   Simple regression
     3.   Multiple regression
          a.   Model Building
          b.   Residual analysis

C.   Analysis of Variance
     1.   Basic designs and analysis
     2.   Randomized block designs
     3.   Post hoc analysis

V.  Suggested Texts

Mendenhall, W. and Sincich, T., <u>A Second Course in Statistics: Regression Analysis</u> 7th Edition, Prentice Hall Publishing Company, 2012.

Ott, L., Longnecker, M., <u>An Introduction to Statistical Methods and Data Analysis</u> 6th Edition, Brooks/Cole Publishing Co., 2010.

VI.  General Education Credit

This course cannot be taken for general education credit.