Tennessee Technological University
Mathematics Department

MATH 3080: Statistical Methods II

I. COURSE DESCRIPTION FROM CATALOG:

Introduction to parametric statistical methods using classic linear models. Simple and multiple linear regression, model validation, variables selection. Analysis of count data, inference and estimation of proportions, odds ratios, goodness-of-fit tests, Fisher's Exact test, and Logistic Regression.
Lec. 3-3. Cr. 3-3.

II. PREREQUISITE(S):

C or better in MATH 3070

III. COURSE OBJECTIVE(S):

Ability to apply basic statistical methodology for data analysis that is applicable in a variety of scientific disciplines beyond that which is taught in Math 3070. Ability to use computer programs to summarize and present data for statistical analysis.

IV. STUDENT LEARNING OUTCOMES:

Upon successful completion of the course students will conduct and interpret a Chi-Square Goodness of Fit Test using software; make inferences using one-way ANOVA techniques and multiple comparison procedures using software; and build and interpret a multiple regression model using software.

V. TOPICS TO BE COVERED:

There may be some overlap with Math 3070. Start where the previous course ended.

1. Statistical Inference (Review)
2. Model Validation
3. Multiple Linear Regression
4. Categorial Data Analysis (Proportions)
5. CDA (Count Data)
6. Logistic Regression

VI. ADDITIONAL INFORMATION:

VII. POSSIBLE TEXTS AND REFERENCES:

Introduction to Statistical Data Analysis for the Life Sciences 2nd ed. by Ekstrom and Sorensen, CRC Press, ISBN 9781482238938

OpenIntro Statistics, 2nd edition, David M. Diez, Christopher D. Barr, and Mine Cetinkaya-Rundel. PDF and tablet versions of the text are free and available at OpenIntro Statistics.

VIII. ANY TECHNOLOGY THAT MAY BE USED:

R with Rstudio, SAS University edition, Excel. Note that both R and SAS University can run on a Windows, Mac, or Linux operating system.

IX. STUDENT ACADEMIC MISCONDUCT POLICY:

Maintaining high standards of academic integrity in every class at Tennessee Tech is critical to the reputation of Tennessee Tech, its students, alumni, and the employers of Tennessee Tech graduates. The Student Academic Misconduct Policy describes the definitions of academic misconduct and policies and procedures for addressing Academic Misconduct at Tennessee Tech. For details, view the Tennessee Tech's Policy 217 – Student Academic Misconduct at Policy Central.

X. DISABILITY ACCOMMODATION:

Students with a disability requiring accommodations should contact the Accessible Education Center (AEC). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The AEC is located in the Roaden University Center, Room 112; phone 931-372-6119. For details, view the Tennessee Tech's Policy 340 – Services for Students with Disabilities at Policy Central.