Tennessee Technological University
Mathematics Department

MATH 3070: Statistical Methods I

I. COURSE DESCRIPTION FROM CATALOG:

Introduction to parametric statistical methods, sampling, probability, Type I and Type II Error, sample size estimation, confidence interval estimation, and testing hypotheses using the normal, Student's t, and F distributions, linear regression, analysis of variance, and data analysis utilizing statistical software. Lec. 3-3. Cr. 3-3.

II. PREREQUISITE(S):

ACT mathematics score greater than or equal to 19; or C or better in MATH 1130 or MATH 1710 or equivalent.

III. COURSE OBJECTIVES(S):

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

IV. STUDENT LEARNING OUTCOMES:

Upon successful completion of the course the student will identify variable types and implement appropriate numerical and graphical descriptions using software; compute probabilities using the normal distribution; compute and interpret t-based confidence intervals for a single mean, the difference between two means, and the mean stemming from paired data; perform a hypothesis test and interpret its p-value for one, two and more sample means.

V. TOPICS TO BE COVERED:

1. Data Description
2. Normal Distribution
3. Statistical Inference
4. Simple Linear Regression
5. Comparison of Two Groups
6. One-way Analysis of Variance

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 by Dietz, Barr, and Cetinkaya-Rundel. We will use the second edition which is freely distributed online and can be found at http://www.openintro.org/stat/textbook.php

VIII. ANY TECHNOLOGY THAT MAY BE USED:

R and R Studio which can be run on a Windows, Mac, or Linux platform.

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.