

Tennessee Technological University
Mathematics Department

MATH 3080: Statistical Methods II

I. COURSE DESCRIPTION FROM CATALOG:

Introduction to parametric statistical methods with some non-parametric alternatives, sampling, probability, Type I and Type II Error, sample size estimation, confidence interval estimation, and test hypotheses using normal, Student's t, Snedecor's F, Chi-Square, and the binomial distributions, linear regression, analysis of variance, and data analysis utilizing statistical software.

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. 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.

10. Correlation and Regression
11. Multinomial Experiments and Contingency Tables
12. Analysis of Variance
13. Nonparametric Statistics
14. Statistical Process Control

VI. ADDITIONAL INFORMATION:

VII. POSSIBLE TEXTS AND REFERENCES:

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

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 Office of Disability Services (ODS). An Accommodation Request (AR) should be completed as soon as possible, preferably by the end of the first week of the course. The ODS is located in the Roaden University Center, Room 112; phone 372-6119. For details, view the Tennessee Tech's Policy 340 – Services for Students with Disabilities at [Policy Central](#).