

MATH 474W Applied Statistics

Course objectives:

The main objectives of MATH 474W Applied Statistics are for the students to develop the ability to apply statistical methods correctly to analyze data from experimental and observational studies; to develop the ability to interpret the analysis results properly; and to gain the experience of communicating the results effectively. In this course, students will 'write to learn', which means to learn the analysis strategies through writing, and 'learn to write', which means to develop students' writing skills to use statistics to make effective arguments in the presence of uncertainty.

Usual course content:

Topics include two sample comparison methods, ANOVA, multiple comparisons, bootstrap and nonparametric methods, simple and multiple linear regression, analysis of counts data, and logistic regression.

A substantial portion of the grade is determined by written work other than tests. Students will be given advice/feedback on their written assignments. The report is graded on the validity the analysis, clear organization, convincingness and thoroughness.

Technology:

Students will prepare a written report using appropriate statistical and graphical software (e.g. R, SAS etc.) and document preparation software (e.g. Word, LaTeX etc.).

Students who may benefit:

Undergraduate students with major/minor in statistics, graduate students with a statistics concentration, and any other students with interest in applying statistics in their disciplinary area will all benefit from this course.

This course fulfills the upper-level Writing-Intensive course requirement for the mathematics major and the major in mathematics with concentration in statistics.

Follow up courses:

This course will give a broad quantitative foundation for further study in advanced statistics courses.