

STATISTICS (STAT)

Courses

STAT 101 ELEMENTARY STATISTICS - TRANSFER 3 Units

Transfer courses that meet the UW System expectations for a gateway statistics course and fulfill the UW-Whitewater mathematics proficiency requirement.

STAT 230 INTRODUCTION TO STATISTICAL REASONING AND ANALYSIS 3 Units

A course on the principles, procedures and concepts surrounding the production, summarization and analysis of data. Emphasis on critical reasoning and interpretation of statistical results. Content includes: probability, sampling, and research design; statistical inference, modeling and computing; practical application culminating in a research project. PREREQ: GRADE OF C OR BETTER IN MATH 139 OR MATH 141 OR MATH 142

STAT 263 INTRODUCTION TO R 1 Units

This course will cover basic topics in R, a statistical computing framework. Topics include writing R functions, manipulating data in R, accessing R packages, creating graphs, and calculating basic summary statistics.

COREQ: MATH 250 OR MATH 253

STAT 342 APPLIED STATISTICS 3 Units

This course will cover the basics of statistical testing, regression analysis, experimental design, analysis of variance, and the use of computers to analyze statistical problems. This course contains a writing component.

PREREQ: (MATH 250 OR MATH 253) WITH A GRADE OF C OR BETTER AND (STAT 263 OR COMPSCI 172 OR COMPSCI 174)

STAT 362 APPLIED NONPARAMETRIC STATISTICS 3 Units

This course covers theory and applications of commonly used distribution-free tests such as the sign test and the Wilcoxon signed rank test. Other topics include: the Kruskal-Wallis and Friedman tests for analysis of variance, nonparametric regression, and nonparametric bootstrapping.

PREREQ: (STAT 342 WITH A GRADE OF C OR BETTER) OR (MATH 343 WITH A GRADE OF C OR BETTER)

STAT 420 APPLIED REGRESSION ANALYSIS 3 Units

This is a second course in regression analysis and its applications. Topics include correlation, simple and multiple linear regression, model assumptions, inference of regression parameters, regression diagnostics and remedial measures, categorical predictors, multicollinearity, and model selection. Real data are emphasized and analyzed using statistical software such as R or SAS.

PREREQ: STAT 342 OR CONSENT OF INSTRUCTOR

STAT 423 EXPERIMENTAL DESIGN AND ANALYSIS OF VARIANCE 3 Units

An introduction to applied experimental design with emphasis on the construction of causal knowledge, analytical techniques, and statistical publication requirements. Topics include single and multiple factor, randomized block, and repeated measure designs; model selection, underlying assumptions, inference, diagnostics, multiple comparison procedures, confidence intervals, effect sizes, and difficulties in applied research settings. The R computing platform will be used.

PREREQ: STAT 342 WITH A GRADE OF C OR BETTER

STAT 430 SAMPLING, DESIGN, AND ANALYSIS OF SURVEY DATA 3 Units

Practical issues in sampling, applied survey research, analysis of complex survey data, and professional reporting are emphasized. Topics include random and non-random sampling, parameter estimation, bias, questionnaire design and wording, psychology of participant response, data imputation, weighting, finite population correction, analysis of categorical data and hierarchical linear models. Students will conduct survey research and complete a data analysis project.

PREREQ: STAT 342 WITH A GRADE OF C OR BETTER

STAT 445 APPLIED MULTIVARIATE STATISTICS 3 Units

Introduction to the fundamentals of multivariate statistics, emphasizing the implementation of various statistical methods and how to interpret their outputs. Topics covered include matrix algebra, graphical techniques, the multivariate normal distribution, inferences on mean vectors, principal component analysis, multidimensional scaling, factor analysis, and cluster analysis. Extensive use of appropriate statistical software programs.

PREREQ: STAT 342

STAT 498R INDEPENDENT STUDY - UNDERGRADUATE RESEARCH *Repeatable* 1-3 Units

Study of a selected topic or topics under the direction of a faculty member. Repeatable. Department Consent required.