

# STATISTICS (STAT)

---

## **STAT 1369. Elementary Statistics. 3 Hours.**

This is a survey course in elementary statistics designed to acquaint students with the role of statistics in society. Coverage includes graphical descriptive methods, measures of central tendency and variation, the basic concepts of statistical inference, the notion of estimators, confidence intervals, and tests of hypotheses. Also offered as MATH 1369.

**Prerequisite:** Passing score on the MATH TSI Assessment or equivalent.

## **STAT 3379. Statistical Methods In Practice. 3 Hours.**

Topics include organization and presentation of data; measures of central tendency, dispersion, and position; probability distributions for discrete and continuous random variables, sampling techniques, parameter estimation, and hypothesis testing. Emphasis will be given to the use of statistical packages. Also offered as MATH 3379.

**Prerequisite:** Three (3) semester hours of college mathematics.

## **STAT 3380. Stat Design & Anal Of Experiments. 3 Hours.**

Topics include sampling designs and hypothesis testing in analysis of variance, analysis of covariance, and regression analysis. Design characteristics, model diagnostics, and hypothesis testing will be emphasized and work will be required on real data. The MINITAB and SAS statistics packages will be applied. Normally offered in the Spring semester.

**Prerequisite:** STAT 3379 or equivalent.

## **STAT 3381. Sample Survey Methods. 3 Hours.**

The course treats principles needed in planning and conducting sample surveys. Topics include random, stratified, systematic, and cluster sampling methods as well as sub sampling techniques.

**Prerequisite:** STAT 3379 or equivalent.

## **STAT 4370. Special Topics In Statistics. 3 Hours.**

This course is designed to accommodate independent study and research with content determined by mutual agreement of student and supervisor. However, it may also be taught as a special organized class when there is sufficient student interest in a particular project. Such topics as statistical quality control, modeling and analysis, time series analysis, Monte-Carlo techniques and bootstrapping may be included. This course may be taken for Academic Distinction credit. (See Academic Distinction Program in this catalog.) May be repeated for credit.

**Prerequisite:** Six semester hours of advanced statistics and consent of instructor.

## **STAT 4371. Thry & Appl Of Prob & Stat I. 3 Hours.**

Topics include basic concepts and properties of probability, random variables, statistical distributions, measures of central tendency, variance, covariance, correlation, functions of random variables, sampling distributions, and the Central Limit Theorem. Also offered as MATH 4371. Normally offered in the Fall semester.

**Prerequisite:** MATH 1430.

## **STAT 4372. Thry & Aplctn Of Prob & Sta II. 3 Hours.**

Topics include multivariate, conditional and marginal distributions, point and interval estimation, theory of estimation, maximum likelihood estimates, hypothesis testing, likelihood ratio tests, contingency analysis, and nonparametric statistics. Also offered as MATH 4372. Normally offered in the Spring.

**Prerequisite:** MATH 2440 and STAT 4371.

## **STAT 4373. Nonparametric Statistics. 3 Hours.**

Topics include chi-square goodness-of-fit testing and inferences concerning location and scale. Specific tests include the sign test, Wilcoxon signed-rank test, the Kruskal-Wallis test, tests for randomness and trends, and contingency analyses.

**Prerequisite:** STAT 3379.

## **STAT 4374. Regression Modeling & Analysis. 3 Hours.**

Topics include model estimation and testing, model diagnostics, residual analysis, variables selection, and multicollinearity. Work will be required on real data with the use of the MINITAB and SAS statistics packages.

**Prerequisite:** STAT 3379 or MATH 3379.

## **STAT 4375. Quality Control & Reliability. 3 Hours.**

In this course, students examine topics such as attribute and variables control charts, process capability, acceptance sampling, probabilistic foundations of reliability, hazard functions, failure laws, and system reliability.

**Prerequisite:** STAT 3379 or consent of instructor.

## **STAT 4376. Time Series and Forecasting. 3 Hours.**

In this course, students examine topics such as types and classification of time series, methods of forecasting, errors in forecasting, regression analysis for time series, decomposition methods, exponential smoothing, Box-Jenkins methods, nonseasonal and seasonal modeling, and transfer function and intervention models.

**Prerequisite:** STAT 3379 or instructor approval.