

# STATISTICS (STAT)

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## **STAT 115 Introductory Statistics (3 Hours)**

Prerequisite: Test standing-ACT or SAT mathematics scores or departmental approval.

This course is designed for business, science, liberal arts, public health, behavioral health, economics, and education majors. Topics studied include descriptive measures for empirical data, theory of probability, probability distributions, sampling distributions of statistics from large and small samples, estimation theory, hypothesis testing, correlation, and regression.

## **STAT 272 DATA ANALYSIS (3 Hours)**

Prerequisite: Math 271 with a grade of "C" or better or department approval.

STAT 272 (3) Data Analysis. This course covers simple linear regression, multiple linear regression, and analysis of variance (ANOVA). Rationale: To enhance content delivery and student mastery of the introductory statistics content and align the course requirements for the new BS degree in statistics and to also enable a seamless implementation of the 2+2 agreement with community colleges and students transfer to CSET and JSU in general.

## **STAT 300 REGRESSION ANALYSIS (3 Hours)**

Prerequisite: : STAT 272, with a grade of "C" or better.

STAT 300 (3) Regression Analysis. This course covers multiple regression including variable selection procedures, detection and effects of multicollinearity, identification and effects of influential observations, residual analysis, use of transformations, non-linear regression, the use of indicator variables, logistic regression, and the use of R or SAS.

## **STAT 323 NONPARAMETRIC STATISTICS (3 Hours)**

This course covers distribution-free analysis of location and scale measures, nonparametric comparison procedures, association and contingency tables, goodness-of-fit, and tests of randomness, one sample and two sample problems. It also uses statistical packages to perform various tests and conduct nonparametric analysis and enhance students' abilities to process distribution-free data.

## **STAT 350 COMPUTNL STATS AND DATA MNGT (3 Hours)**

This course covers R, SAS, SPSS, S-Plus, computational statistics packages and other big data statistical computational packages with emphasis on reading, manipulating and summarizing data and implementations of simulation and bootstrapping.

## **STAT 357 ACTUARIAL SCI EXAM:PROB/EXAM I (3 Hours)**

This course will cover basic elements of probability, addition and multiplication rules, conditional probability, independent events, Bayes' Rules, univariate probability distributions, multivariate probability distributions. It is designed for students who intend to take actuarial sciences Exam 1/Probability.

## **STAT 408 TIME SERIES ANALYSIS (3 Hours)**

This course covers the methods for analyzing data collected over time, review of multiple regression analysis, elementary forecasting methods, moving averages and exponential smoothing. Autoregressive-moving average (Box-Jenkins) models: identification, estimation, diagnostic checking, and forecasting, transfer function models and intervention analysis, and introduction to multivariate time series methods will also be covered.

## **STAT 414 MULTIVARIATE DATA ANALYSIS (3 Hours)**

This course is primarily designed to expose students to conducting multivariate data analysis using real life data. This course will also serve to enhance the statistical analysis backgrounds of the students and expose the students to the use of statistical packages such as R, SAS, or SPSS to learn various methods of analyzing multivariate data. This course covers topics including, multivariate normal; multiple and partial correlation, principal components analysis, factor analysis, discriminant analysis, logistic regression, cluster analysis, etc.

## **STAT 418 SEMINAR IN STATISTICS (3 Hours)**

The provisions to the student of an opportunity to discuss pertinent trends and ideas in statistics and to evaluate the experience he/she has had through study and practice during his/her previous years of training in statistics. It also provide students with the opportunity to discuss new trends and ideas in statistics by first exposing them to scholarly trends in the application of statistics to other academic and emerging fields of computational data-enabled science and engineering. This includes supervised activities on research projects identified on an individual or small group basis.

## **STAT 455 EXPERIMENTAL DESIGN (3 Hours)**

This course covers the principles of statistical experimental design with applications, randomized complete and incomplete block designs, Latin square designs, and analysis of covariance, split-plot-design, factorial and fractional designs.