STATISTICS (STAT)

STAT 0--. STAT LOWER DIVISION. (1-10 Credits)
Lower Level Coursework in Statistics
Level: Professional Health Care, Undergraduate
Prerequisite(s): None
Corequisite(s): None
Restrictions: None
Primary grade mode: Transfer
Schedule type(s): Lecture
Area(s) of Inquiry: None

STAT V--. STATISTICS WITH VALIDATION. (3 Credits)
Level: Professional Health Care, Undergraduate
Prerequisite(s): None
Corequisite(s): None
Restrictions: None
Primary grade mode: Transfer
Schedule type(s): Lecture
Area(s) of Inquiry: None

STAT 1--. STAT UPPER DIVISION. (1-10 Credits)
Upper Level Coursework in Statistics
Level: Professional Health Care, Undergraduate
Prerequisite(s): None
Corequisite(s): None
Restrictions: None
Primary grade mode: Transfer
Schedule type(s): Lecture
Area(s) of Inquiry: None

STAT 040. INTRODUCTION TO R AND SAS. (3 Credits)
This course will cover how to access, structure, format, manipulate and archive data using R and SAS. It will include topics in data inputting, merging files, cleaning data, data summary, descriptive statistics, running procedure statements, graphical presentation of data, loops, if/then statements, and creating your own scripts and functions that extend the language. Prereq.: MATH 020 or equivalent college algebra course, knowledge of basic software tools including word processing, email, Internet browsers, and presentation software. Course is for the Data Analytics major or minor, or the Actuarial Science major.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): MATH 020 or MATH 028 or MATH 050 or MATH 070
Corequisite(s): None
Restrictions:
Enrollment is limited to students with an major in Actuarial Science, Accounting/Actuarial Science, Actuarial Science/Economics, Actuarial/ Entrepreneurial Mgmt, Actuarial Science/Finance, Actuarial Sci/ Int'l Business, Actuarial Science/Info Systems, Actuarial Science/ Management, Actuarial Science/Marketing or Data Analytics.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 050. STATISTICS FOR THE SOCIAL SCIENCES. (3 Credits)
Descriptive and inferential statistics most often used in social research are examined, with an emphasis on statistics as communication tools; includes development of skills in formula reading, interpreting statistical outcomes and selecting appropriate statistics for analysis of various research questions and data.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): None
Corequisite(s): None
Restrictions:
Enrollment is limited to Undergraduate level students.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 060. STATISTICS FOR THE LIFE SCIENCES. (3 Credits)
An introduction to statistical methods used in the life sciences. In this course the student will develop the ability (1) to decide which techniques to use to solve particular problems, (2) to use basic statistical tools to address questions, and (3) to explain statistical results to others. At the end of the course the student should understand how to: (1) display and describe distributions, (2) display and examine relationships between variables, (3) design samples and experiments, (4) determine probabilities and use probability distributions, (5) conduct significance tests associated with means and proportions, and (6) significance tests associated with two-way tables, and one-way ANOVA. Prereq.: Math 050 or IBA 015 or Math 028 or Math 070 or Math 100 or AP 029 or AP 030 or AP 031 or Math 020 Non-CBPA Majors Only
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): MATH 020 or (MATH 028 or MATH 050 (may be taken concurrently) or MATH 070 (may be taken concurrently) or MATH 100 (may be taken concurrently))
Corequisite(s): None
Restrictions:
Students in the Zimpleman College of Business college may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: Critical Thinking

STAT 071. STATISTICS I. (3 Credits)
An introduction to descriptive and inferential statistics; frequency distributions; measures of central tendency and spread; confidence intervals; large and small sample tests of significance; probability; and binomial and normal distributions. Prereq.: MATH 020 or MATH 028 or equivalent.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): MATH 017 or MATH 020 or MATH 028 or MATH 050 (may be taken concurrently) or MATH 070 (may be taken concurrently) or MATH 100 (may be taken concurrently)
Corequisite(s): None
Restrictions:
Students in the PH_HS-C_BS, PH_HS-P_BS or PH_PPHR_DP programs may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: Quantitative

STAT 072. STATISTICS II. (3 Credits)
Continuance of STAT 071 with further tests of significance; analysis of variance; correlation and regression; and contingency table analysis. Prereq.: STAT 071, STAT 130, or ACTS 131, and also IS 044.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): (STAT 071 or ACTS 131 or MATH 131 or STAT 131 or STAT 060 or STAT 130 or MATH 130) and IS 044
Corequisite(s): None
Restrictions: None
Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: Critical Thinking, Quantitative

STAT 098. SPECIAL TOPICS: INTRODUCTORY STATISTICS. (1-3 Credits)
Timely or innovative course in introductory statistics. Not regularly scheduled.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): None
Corequisite(s): None
Restrictions:
Graduate level students may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 108. MODERN REGRESSION. (3 Credits)
Prediction is often at the heart of issues faced by companies and scientific disciplines alike. This is an applied regression course with an emphasis on prediction, decision making, and modern programming in R. Course will start with simple linear regression and multiple linear regression, covering statistical assumptions and diagnostics. This will set the stage for topics in modern model selection methods aimed at improving prediction such as ridge regression, lasso, and adaptive lasso. In addition, the course will cover regression trees, random forests and classification methods. Cross validation methods will be used for model comparison. Throughout, an emphasis will be placed on communication of the strengths and limitations of the methods. Prereq.: STAT 071
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): STAT 071
Corequisite(s): None
Restrictions: None
Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 130. PROBABILITY FOR ANALYTICS. (3 Credits)
An introduction to probability concepts, including definition of probability; independence; conditional probability; random variables; specific discrete and continuous probability distributions; moments; multivariate random variables; functions of random variables; limit theorems; maximum likelihood estimation; hypothesis testing. Prereq.: STAT 040 and MATH 070
Level: Graduate, Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): STAT 040 and MATH 070
Corequisite(s): None
Restrictions: None
Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 170. REGRESSION AND TIME SERIES. (3 Credits)
Regression and time analysis. Specific topics include simple and multiple regression multicollinearity; heteroscedasticity; diagnostics; forecasting with the regression model; binary and multiple-choice models; autocorrelation; random walks; ARIMA models; minimum mean-square-error forecasts and confidence intervals. Prereq.: STAT 040 and one of (STAT 072, STAT 130, ACTS 135 or ACTS 141).
Level: Graduate, Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): STAT 040 and (STAT 072 or STAT 130 or ACTS 135 or MATH 130 or ACTS 141)
Corequisite(s): None
Restrictions: None
Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: Information Literacy

STAT 172. DATA MINING AND GENERAL LINEAR MODELS. (3 Credits)
Data Mining and Generalized Linear Modeling - The emphasis will be on data analysis, statistical assumptions, and diagnostics. Topics include: Linear Regression, Logistic and Probit Regression, CART, Neural Networks, Association Rules, Clustering, Generalized Linear Models, Models for Continuous Data, Models for Binary Data, Models for Polytomous data, Log-Linear Models, Conditional Likelihoods, and Gamma Regression. Prereq.: STAT/MATH 130 or ACTS/MATH 131; STAT 040; and MATH 070 and STAT 170.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): STAT 040 and MATH 070 and (STAT 130 or MATH 130 or ACTS 131 or MATH 131) and STAT 170
Corequisite(s): None
Restrictions:
Enrollment is limited to Professional Health Care or Undergraduate level students.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 190. CASE STUDIES IN DATA ANALYTICS. (3 Credits)
In this course, students will apply description, predictive, and prescriptive data analysis methods learned in previous cases to new cases. Students will learn to effectively manage long-term data analysis projects within diverse teams through a complete data analytics project lifecycle and compellingly communicate outcomes through writing and oral presentations which include appropriate use of data visualizations. Prereq.: CS 167 AND STAT 172
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): CS 167 and STAT 172
Corequisite(s): None
Restrictions: None
Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 198. SPECIAL TOPICS IN STATISTICS. (3 Credits)
Timely or innovative course in statistics. Not scheduled regularly.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): None
Corequisite(s): None
Restrictions:
Students with a classification of Freshman may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 199. INDEPENDENT STUDY. (1-5 Credits)
Individual advanced study and research under faculty supervision.
Level: Non Degree Coursework, Professional Health Care, Undergraduate
Prerequisite(s): None
Corequisite(s): None
Restrictions: None
Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Web Instructed
Area(s) of Inquiry: None

STAT 230. INDEPENDENT STUDY. (3 Credits)
Level: Graduate
Prerequisite(s): None
Corequisite(s): None
Restrictions:
Undergraduate level students may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 240. STATISTICAL MODELING. (3 Credits)
This course will focus on the analysis of data for statistical modeling. Statistical methods for analyzing and displaying data will be used as well as concepts related to model assessment and diagnostics. Statistical software R or SAS will be used. Prereq: One of the following - IS 210, MDAL 210, or HSCI 201.
Level: Graduate
Prerequisite(s): MDAL 210 or IS 210 or HSCI 201
Corequisite(s): None
Restrictions:
Undergraduate level students may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 260. APPLIED ANALYTICS PROJECT. (3 Credits)
This course will provide students with the opportunity to experience the full life cycle of a data analytics project. Students will collaborate with team members on a full-scale data analytics project to utilize the skills learned throughout their degree program. An emphasis will be placed on data analytics as well as communication skills. Prereq: All core courses - IS 210, IS 220, IS 231, and STAT 240. May be taken concurrently with any core course except IS 210.
Level: Graduate
Prerequisite(s): (MDAL 210 or HSCI 201 or IS 210) and (MDAL 220 (may be taken concurrently) or IS 220 (may be taken concurrently)) and (MDAL 230 (may be taken concurrently) or IS 231 (may be taken concurrently)) and (MDAL 240 (may be taken concurrently) or STAT 240 (may be taken concurrently))
Corequisite(s): None
Restrictions:
Undergraduate level students may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 272. TOOLS FOR CQI ORGANIZATIONS. (3 Credits)
Level: Graduate
Prerequisite(s): None
Corequisite(s): None
Restrictions:
Undergraduate level students may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None

STAT 298. CURRENT ISSUES IN STATISTICS. (3 Credits)
Level: Graduate
Prerequisite(s): None
Corequisite(s): None
Restrictions:
Undergraduate level students may **not** enroll.

Primary grade mode: Standard Letter
Schedule type(s): Independent Study, Lecture, Web Instructed
Area(s) of Inquiry: None