Statistics (STAT)

STAT 100 Data Science and Citizenship (4)
This course explores the complex ways in which we interact with data in everyday life. While thinking critically about the role of data science in advancing social good, students will gain fundamental skills in data literacy and open-source programming tools for data science.

STAT 204 Elementary Statistics (4)
An introduction to statistics covering these topics: probability, binomial and normal distributions, mean, median, variance, standard deviation, the distinction between sample and population, t-distribution, hypothesis testing, confidence intervals, and linear regression.

STAT 214 Statistical Modeling (4)
This course focuses on choosing, fitting, assessing, and using statistical models. Topics include simple and multiple linear regression, logistic regression, and multifactor analysis of variance. Intended for students in the physical, natural or social sciences. *Prerequisite: (STAT 204 or MATH 322) and CSCI 157.*

STAT 302 Bayesian Statistics (4)
An introduction to the Bayesian approach to statistical inference. Topics include: basic probability theory, Bayes Theorem, prior distributions and conjugate priors, Markov Chain Monte Carlo methods, applications of Bayesian statistics (e.g. Bayesian networks, decision trees). *Prerequisite: STAT 204 or MATH 321.*

STAT 304 Experimental Design and Analysis (4)
This course covers the selection of an appropriate experimental design (e.g., factorial crossing, complete block, Latin square), determination of sample size, issues with multiple comparisons, and assessment of the assumptions of statistical models. *Prerequisite: STAT 204 or MATH 322.*

STAT 306 Time Series (4)
An introduction to time series and forecasting methods with applications in economics, engineering and the natural and social sciences. *Prerequisite: MATH 210 and (STAT 204 or MATH 322).*

STAT 336 Sports Analytics (4)
We make use of publicly available sports data sets to analyze, predict, and rank team and player performance, and analyze strategic decisions arising in various sports. *Prerequisite: (STAT 204 or MATH 322) and CSCI 157.*

STAT 410 Data Science Practicum (4)
Each student will participate on a team that will complete a project from the initial scoping phase through data collection, analysis, and culminate in a deliverable product in the form of both a written report and public presentation. *Open only to seniors.*

STAT 444 Independent Study (2 or 4)
An opportunity for advanced students to pursue topics of special interest. *Prerequisite: Instructor prerequisite override required.*

STAT 460 Senior Capstone (2)
In the first semester, students work with faculty mentors to design and begin working on substantial projects that require integrating and building on what they have learned in their other courses. In the second semester, students complete these projects and present their results in a public venue. May be repeated once for credit. *Open only to seniors.*