

STATISTICS (STAT)

STAT 1100 - Introduction to Statistics

Credit(s): 3 Credits

Basic descriptive and inferential statistics. Emphasis on becoming a smart consumer of statistics. Will include the study of examples of statistics in the medical news. Credit not given for MATH 1300 or MATH 1260 or OPM 2070 and STAT 1100.

Prerequisite(s): MATH 0260 with a grade of C- or higher

Restrictions:

Students in the Chaifetz School of Business college may **not** enroll.

STAT 1260 - Statistics Including Sports and Politics

Credit(s): 3 Credits

A SLU inquiry seminar. Producing data through the use of samples and experiments; organizing data through graphs and numbers that describe the distribution of the data of one variable or the relationship between two variables; probability; statistical inference including confidence intervals and tests of significance.

Prerequisite(s): (MATH 1200 with a grade of C- or higher or Math Waiver per Advisor with a minimum score of 1200)

STAT 1300 - Elementary Statistics with Computers

Credit(s): 3 Credits

Data production and analysis; probability basics, distributions; sampling, estimation with confidence intervals, hypothesis testing, t-test; correlation and regression; Cross tabulations and chi-square. Students learn to use a statistical package such as SPSS. Credit not given for STAT-1300 and any of the following: MATH-1300 or OPM 2070.

Prerequisite(s): (MATH 1200 or Math Waiver per Advisor with a minimum score of 1200)

STAT 1930 - Special Topics

Credit(s): 0-3 Credits

STAT 2300 - Intermediate Statistics

Credit(s): 3 Credits

A statistically sophisticated, data driven course covering one and two sample comparisons of means, simple linear regression, multiple regression and two-way analysis of variance. Data wrangling and visualization. Assumptions of methods, robustness to deviations from assumptions and communicating results of statistical tests in professional ways will be taught throughout the course. (Offered in Spring)

Prerequisite(s): STAT 1300

STAT 3850 - Foundation of Statistics

Credit(s): 3 Credits

Descriptive statistics, probability distributions, random variables, expectation, independence, hypothesis testing, confidence intervals, regression and ANOVA. Applications and theory. Taught using statistical software. Prerequisite: MATH 1520. Credit not given toward the math major or minors for both MATH/STAT 3810 and MATH/STAT 3850.

Prerequisite(s): MATH 1520

STAT 3910 - Internship

Credit(s): 1-6 Credits (Repeatable for credit)

STAT 3930 - Special Topics

Credit(s): 3 Credits (Repeatable for credit)

STAT 3980 - Independent Study

Credit(s): 1 or 3 Credits (Repeatable for credit)

STAT 4800 - Probability Theory

Credit(s): 3 Credits

Axioms of probability, conditional probability. Discrete and continuous random variables, expectation, jointly defined random variables. Transformations of random variables and limit theorems. Theory and applications, taught using statistical software. Credit not given toward the math major or minors for any two of MATH 3800, MATH 4800 and MATH 4810.

Prerequisite(s): (MATH 3850 or STAT 3850); MATH 2530; (MATH 1660 or MATH 2660)

STAT 4840 - Time Series

Credit(s): 3 Credits

Applied time series. Topics include exploratory data analysis, regression, ARIMA. Spectral analysis, state-space models. Theory and applications, taught using statistical software.

Prerequisite(s): (STAT 3850 or MATH 3850)

STAT 4850 - Mathematical Statistics

Credit(s): 3 Credits

Theory of estimators, sampling distributions, hypothesis testing, confidence intervals, regression, bootstrapping, and resampling. Theory and applications, taught using statistical software. Prerequisite: MATH 4800. Students may not take both MATH 4850 and MATH 4820.

Prerequisite(s): (MATH 4800 or STAT 4800)

STAT 4860 - Statistical Models

Credit(s): 3 Credits

Poisson processes, Markov chains, hidden Markov models, continuous time Markov chains, queuing theory. Theory and applications, taught with statistical software.

Prerequisite(s): (MATH 4800 or STAT 4800)

STAT 4870 - Applied Regression

Credit(s): 3 Credits

Linear regression, model selection, nonparametric regression, classification and graphical models. Theory and applications using statistical software.

Prerequisite(s): (MATH 3850 or STAT 3850); (MATH 3110 or MATH 3120)

STAT 4880 - Bayesian Statistics and Statistical Computing

Credit(s): 3 Credits

This course introduces Bayesian statistical methods and statistical computing techniques using statistical computing software. Topics include Bayesian models, Markov chain Monte Carlo, hierarchical modeling, model comparison and regression models.

Prerequisite(s): MATH 3850

STAT 4910 - Internship

Credit(s): 1-6 Credits (Repeatable for credit)

STAT 4930 - Special Topics

Credit(s): 3 Credits (Repeatable for credit)

STAT 4980 - Independent Study

Credit(s): 1 or 3 Credits (Repeatable for credit)

STAT 5084 - Time Series

Credit(s): 3 Credits

Regression, ARIMA models, spectral analysis, state-space models and models in the frequency domain. Taught with statistical software.

Prerequisite(s): (STAT 3850 or MATH 3850)

STAT 5085 - Mathematical Statistics

Credit(s): 3 Credits

Theory of estimators, sampling distributions, hypothesis testing and confidence intervals, regression, bootstrapping, resampling, introduction to Bayesian statistics and elementary experimental design.

Prerequisite(s): MATH 5080

STAT 5087 - Applied Regression

Credit(s): 3 Credits

Linear regression, model selection, nonparametric regression, classification and graphical models. Theory and applications using statistical software.

Prerequisite(s): (MATH 3850 or STAT 3850); (MATH 3110 or MATH 3120)

STAT 5930 - Special Topics

Credit(s): 3 Credits (Repeatable for credit)

STAT 5980 - Independent Study

Credit(s): 1 or 3 Credits (Repeatable for credit)