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, STAT 1300, STAT 1260.
Prerequisite(s): (MATH 0260 with a grade of C- or higher, SLU Math Index with a minimum score of 750, MATH 1200, MATH 1205, MATH 1400, MATH 1320, MATH 1510, or MATH 0265 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. Cross-listed with MATH 1260.
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. Cross-listed with MATH 1300.
Prerequisite(s): (1 Course from MATH 1200-4999 or Math Waiver per Advisor with a minimum score of 1200)
Attributes: Mathematics BA Req (A&S)

STAT 1930 - Special Topics
Credit(s): 0-3 Credits

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. Credit not given toward the math major or minor for any two of MATH 3800, MATH 4800, and STAT 4800. Cross-listed with MATH 4800.
Prerequisite(s): (MATH 3850 or STAT 3850); MATH 2530; (MATH 1660 or MATH 2660)
Attributes: Geospatial Elective

STAT 3880 - 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
Attributes: Geospatial Elective

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 minor for any two of MATH 3800, MATH 4800, and STAT 4800. Cross-listed with MATH 4800.
Prerequisite(s): (MATH 3850 or STAT 3850); MATH 2530; (MATH 1660 or MATH 2660)
Attributes: Geospatial Elective

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. Cross-listed with MATH 4840.
Prerequisite(s): (STAT 3850 or MATH 3850)
Attributes: Geospatial Elective

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(s): (MATH 4800 or STAT 4800)
Attributes: Geospatial Elective

STAT 4870 - Applied Regression
Credit(s): 3 Credits
Linear regression, model selection, nonparametric regression, classification and graphical models. Theory and applications using statistical software. Cross-listed with MATH 4870.
Prerequisite(s): (MATH 3850 or STAT 3850); (MATH 3110 or MATH 3120)
Attributes: Geospatial Elective

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
Attributes: Geospatial Elective

STAT 4910 - Internship
Credit(s): 1-6 Credits

STAT 4930 - Special Topics
Credit(s): 3 Credits

STAT 4980 - Independent Study
Credit(s): 1 or 3 Credits

STAT 5080 - 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 minor for any two of MATH 3800, MATH 4800, and STAT 4800. Cross-listed with MATH 4800.
Prerequisite(s): (MATH 3850 or STAT 3850); MATH 2530; (MATH 1660 or MATH 2660)
Attributes: Geospatial Elective

STAT 5084 - 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. Cross-listed with MATH 4840.
Prerequisite(s): (STAT 3850 or MATH 3850)
Attributes: Geospatial Elective

STAT 5085 - 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(s): (MATH 4800 or STAT 4800)
Attributes: Geospatial Elective

STAT 5800 - 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 minor for any two of MATH 3800, MATH 4800, and STAT 4800. Cross-listed with MATH 4800.
Prerequisite(s): (MATH 3850 or STAT 3850); MATH 2530; (MATH 1660 or MATH 2660)
Attributes: Geospatial Elective

Geospatial Elective
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)  
Attributes: Bioinformatics & Comp Bio Elec  

STAT 5088 - 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.  
Attributes: Bioinformatics & Comp Bio Elec  

STAT 5930 - Special Topics  
Credit(s): 3 Credits  

STAT 5980 - Independent Study  
Credit(s): 1 or 3 Credits