STA 115/Statistics **1 course unit**
(every semester)
This course introduces the students to statistical ideas and concepts with an emphasis on the interpretation of data and the communication of statistical results. Topics include sampling, surveys, experimental designs, observational studies, data exploration, chance phenomena, and methods of statistical inference. Students who have already received credit for STA 215 can not receive credit for this course.

STA 215/Statistical Inference **1 course unit**
(every semester)
Prerequisite: MAT 125 or MAT 127
A comprehensive introduction to descriptive statistics and the essential ideas of probability. Students will study foundations of classical parametric inference: point estimation, confidence intervals, hypothesis testing and common statistical techniques including simple regression and correlation. Examples will be drawn from a variety of social and natural sciences.

STA 303/Design of Experiments **1 course unit**
(spring even years)
Prerequisites: STA 215
An introduction to problems and techniques inherent to the design and analysis of experiments. There are broad applications across numerous disciplines in the sciences and the humanities. Topics include: analysis of variance, blocking, general factorial models, nested designs, confounding and fractional replication. A statistical software package will be used throughout the course (SAS, SPSS or MINITAB).

STA 304/Sampling and Nonparametric Statistics **1 course unit**
(spring odd years)
Prerequisites: STA 215
This course introduces students to the use of sampling theory, the design and analysis of sample surveys, and robust statistical tests that are applicable in a wide range of real-world applications. Topics include: stratified sampling, cluster sampling, quota sampling, questionnaire design, and k-sample tests for paired and unpaired data.

STA 305/Regression Analysis **1 course unit**
(every fall)
Prerequisites: STA 215
Regression concepts and techniques as a synthesis of theory, methods and applications. Topics include: multiple regression, interactions, partial and multiple correlation, polynomial regression and logistic regression and time series analysis. A statistical software package will be used throughout the course (SAS, SPSS, or MINITAB).

STA 306/Applied Multivariate Analysis **1 course unit**
(every fall)
Prerequisites: STA 215
An introduction to a variety of multivariate statistical methods as aids to analyzing and interpreting large data sets. These methods will have general applications across a wide range of client disciplines. Topics include: principal components analysis, cluster analysis, discriminant analysis, multi-dimensional scaling and correspondence analysis. A statistical software package will be used throughout the course (SAS, SPSS or MINITAB).

STA 307/Data Mining and Predictive Modeling **1 course unit**
(every spring)
Prerequisites: BIO 352 or ECO 231 or MAT 316 or PSY 303 or (CSC 320 and STA 215)
An introduction to Data Mining and Predictive Modeling. Topics include decision trees, link functions, logic regression, neural networks, TreeNet, support vector machine, text mining, association rules (market basket analysis), and link analysis.

STA 314/Statistical Quality Control **1 course unit**
(occasionally)
Prerequisites: STA 215
An introduction to modern techniques of quality control and reliability practice. Topics include: acceptance sampling, sampling plans, control charts, combinatorial reliability, failure models and system reliability.

STA 317/Linear Programming **1 course unit**
(spring even years)
Prerequisites: MAT 127 or MAT 125
An introduction to the field of operations research, in particular that portion of the field which deals with deterministic problems. Topics include optimization using linear programming techniques, network problems, and applications to problems of transportation and trans-shipment. Operations research software packages are integral to the course.

STA 318/Operations Research **1 course unit**
(spring odd years)
Prerequisite: MAT 316
An introduction to that portion of Operations Research which deals with probabilistic techniques. Topics include: forecasting, queuing models, inventory control and simulation. Students will become conversant with a number of operations research software packages.

STA 390/Statistics Specific Research Course **variable course units**

STA 391/Independent Study in Statistics **variable course units**

STA 392/Guided Study in Statistics **variable course units**

STA 393/Independent Research in Statistics **variable course units**
(every semester)
Prerequisite: By invitation only
Student will study and/or do research independently in an appropriate area. A department member will be assigned to advise and direct the student.

STA 399/Internship I in Statistics **variable course units**
(every semester)
Prerequisites: Junior standing and permission of department
A supervised statistics-related experience working for government or the private sector. Based on input from the client, the student and faculty coordinator agree on the overall scope of the project including learning objectives, work plan, and expected outputs. The content of the internship should require the student to do some research and/or creative work. Students will periodically inform the coordinator of status and, on completion of the internship, will document the experience and make an oral presentation. The course counts as a general elective for the student with either a major or a minor in statistics. Grading is Pass/Unsatisfactory. Courses graded on a P/U basis are not counted as part of the 16 course units of letter-graded course units for graduation with honors.

STA 410/Mathematical Statistics **1 course unit**
(every fall)
Prerequisites: STA 215 and MAT 316
Topics include: theory of sampling, law of large numbers, central limit theorem, normal approximation to binomial and poisson distributions, estimation of population parameters, hypothesis testing, confidence methods, change of variable and order statistics.

STA 494/Seminar in Statistics **1 course unit**
(occasionally)
Prerequisite: STA 215

A flexible course in which the content is selected from topics in statistics. This is an elective course designed to enrich the background of the students as well as to bridge the gap between undergraduate statistics and graduate statistics.

STA 498/Capstone **0 course units**
(every semester)
Prerequisite: Senior standing
Intensive study of advanced topics in statistics. Final exam or research paper required.