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 cannot 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 216/Statistical Inference and Probability **1 course unit**
(every spring)
Prerequisite: MAT 127
This course introduces future mathematics educators to statistical ideas and concepts with an emphasis on methods of statistical inference (notably confidence intervals and hypothesis tests) and probability (notably conditional probability, the binomial distribution, and concepts relating to independence and disjoint probabilities).

STA 270/Topics in Statistics **1 course unit**
(occasionally)
Special topics in statistics that will vary by semester.

STA 291/Independent Study in Statistics **variable course units**
(every semester)
Prerequisite: Department permission.
For individual pursuit of topics within or beyond a student's major field of study which transcend the regularly available curriculum.

STA 292/Guided Study in Statistics **variable course units**
(every semester)
Prerequisite: Department permission.
This course allows student to study statistical topics under the supervision of a faculty member.

STA 303/Design of Experiments **1 course unit**
(every third semester)
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**
(every third semester)
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. The SAS statistical software package will be used throughout the course.

STA 306/Applied Multivariate Analysis **1 course unit**
(every third semester)
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**
(spring of even years)
Prerequisites: (1) STA215; (2) CRI215 or CSC220 (or above); and (3) MAT 316 or one 300-level STA course.
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
Course description: An introduction to the theory and application of statistical quality control. Topics include variables control charts ($\overline{X}$, R, and s), attributes control charts (p, np, c, and u), and non-Shewhart type charts (CUSUM, MA, and EWMA); rational subgrouping, Average Run Length, and O-C curves.

STA 318/Operations Research **1 course unit**
(occasionally)
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 370/Topics in Statistics **1 course unit**
(occasionally)
Special topics in statistics that will vary by semester.

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

STA 391/Independent Study in Statistics **variable course units**
(every semester)
Prerequisite: Department permission.
For individual pursuit of advanced topics within or beyond a student's major field of study which transcend the regularly available curriculum.

STA 392/Guided Study in Statistics **variable course units**
(every semester)
Prerequisite: Department permission.
This course allows student to study advanced statistical topics under the supervision of a faculty member.

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
An introduction to the theory of statistics. Topics include transformations of variables; sampling distributions of common statistics; method of moments and maximum likelihood estimation; properties of point estimates including bias, MSE, consistency, and sufficiency; confidence intervals; and hypothesis testing, including Type I and II Errors and power.

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 **1 course unit**
(every spring)
Prerequisite: Senior standing and a Mathematics major. STA 305, MAT 316, and two additional 300 or 400-level STA courses.
Intensive study of topics or applications in statistics. Verbal presentation and written paper required.