QM 199. Service Learning. (3 Credits)
This course is designed to introduce students to Service Learning through the integration of academic learning about local, national, and global issues with service work addressing those concerns. Approval of supervising department required. (Offered upon sufficient demand.)

QM 291. Statistical Process Control. (3 Credits)
Theory and application of statistical process control including experimental design, X-Bar, R and P charts, and acceptance sampling. Prerequisite: MA 112 or any Area III math included in the General Education Component listed under Requirements for the Bachelor of Business Administration Degree. (Fall, Spring, Summer)

QM 292. Statistical Analysis for Business. (3 Credits)
Application of statistical analysis to problems in business and economics. Simple and multiple regression and correlation analysis, decision making under uncertainty, time series, and nonparametric statistics. Prerequisite: QM 291. (Fall, Spring, Summer)

QM 295. Quantitative Methods in Business and Economics. (3 Credits)
A survey of mathematical tools used in business and economics, including calculus, matrix algebra, and linear programming. Prerequisites: EC 251, 252; MA 112 or any Area III math included in the General Education Component listed under Bachelor of Business Administration Degree. (Fall)

QM 299. Service Learning. (1-6 Credits)
Course number reserved for special courses offered from time to time in response to special circumstances. The courses are discipline specific with variable credit and when offered, they are identified by department content and credit.

QM 360. Introduction to Data Analytics. (3 Credits)
This course builds upon QM 292 concepts, focusing on database construction, linear and nonlinear model building and estimation. Topics taught in this course include time series regression using ordinary and generalized least squares, bi/multinomial logistic regression, forecasting, and regression diagnostics. Based on regression diagnostics and trends in the data, students are introduced to model/variable correction techniques to include first differencing, variable transformations, and other methodologies to improve model performance. Significant emphasis is placed on interpretation of model results and its application to business/real-world use and problem solving. Prerequisite: QM 292. (Fall)

QM 369. Special Course. (1-6 Credits)
Course number reserved for special courses offered from time to time in response to special circumstances. The courses are discipline specific with variable credit and when offered, they are identified by department content and credit.

QM 389. On-Campus Internship. (3 Credits)
QM 395. Decision-Making Techniques for Business. (3 Credits)
Decision-making techniques available to management, including linear programming, integer programming, game theory, simulation, Markovian Chains, and queuing theory. Prerequisite: QM 292. (Offered on sufficient demand)

QM 399. Departmental Service Learning. (1-6 Credits)
This course is designed to provide students the opportunity to integrate academic learning about vital service issues within a specific discipline with service work addressing those issues. This course may be repeated for a maximum of six credits. Approval of supervising department required. (Offered upon sufficient demand.)

QM 460. Techniques in Data Mining. (3 Credits)
Data mining involves a collection of techniques for extracting patterns and trends in large databases. As more of our everyday life is recorded and quantified, these techniques are quickly becoming a standard analytical tool in a number of fields, including information technology, banking, retail marketing, and consulting. This course offers a hands-on introduction to methods used in this new and exciting field. Prerequisite: QM 360 or permission of instructor.

QM 461. Optimization and Machine Learning. (3 Credits)
This course builds upon QM 460 concepts, focusing on optimization as a decision-making tool and then more advanced prediction methods that form the basis of modern machine learning algorithms. These methods include using neural networks, genetic algorithms, and support vector machines to make automated decisions. Significant programming applications in Python or a similar language will be incorporated. Prerequisite: QM 460. (Spring)

QM 480. Regression and Time-Series Analysis. (3 Credits)
Extensive analysis of simple and multiple regression in both linear and nonlinear forms. Techniques of instrumental variables and model building. Extensions of regression to time-series and econometrics. Emphasis is on application of models to actual business problems. Prerequisite: QM 292. (Offered on sufficient demand)

QM 490. Experimental Design and Advanced Statistical Process Control. (3 Credits)
Basic experimental design and statistical process control methods, including randomized block, factorial, nested, repeated measures, and alias structure designs, and Shewhart, CUSUM, EWMA, and retrospective control charts. Emphasis is placed on techniques commonly used in industrial data analysis. Prerequisite: QM 292. (Offered on sufficient demand)

QM 495. Mathematical Economics. (3 Credits)
Applications of calculus and matrix theory in economics, including elasticity optimization, equilibrium, and linear models. Prerequisites: QM 292 or equivalent; QM 295 or equivalent.

QM 499. Independent Study-Practicum. (3 Credits)
Open to senior majors on approval of the department chair. Provides for study, research, or special field experience under departmental determination, supervision, and evaluation.