** Quantitative Methods and Statistics (QMST)**

**QMST 2333. Business Statistics.**
This introductory course covers descriptive and inferential statistical techniques for business and economic decision making. Topics include measures of central tendency and dispersion, probability distributions, sampling distributions, confidence intervals, hypothesis testing, simple linear regression, and correlation analysis. Prerequisite: QMST 3339 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

**QMST 3334. Statistical Modeling.**
Students will learn to apply a broad range of statistical analysis techniques using statistical software in business decision-making. Topics include applied modeling techniques, such as regression modeling, time-series modeling and analysis of variance; non-parametric methods; quality control; and simulation. Prerequisite: QMST 2333 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

**QMST 3339. Data Mining and Visualization.**
This course introduces data mining concepts and practical skills for applying data mining techniques to solve business problems. It emphasizes data visualization and data analysis algorithms (e.g., prediction, classification, clustering), systematic evaluation and model assessment for big data sets. Prerequisites: QMST 2333 or equivalent; Overall GPA of 2.0 required.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

**QMST 3341. Big Data Analysis.**
This is an introductory course in statistical programming. The objective of this course is to use programming tools and statistical methods to analyze large data sets. Topics covered are graphs used for statistical analysis, statistical modeling, visualization techniques, simulation, and optimization. Prerequisite: QMST 2333 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

**QMST 4314. Optimization.**
This course introduces the theory, algorithms and applications of optimization methods that are used in analyzing and solving business decision problems. The fundamental methods to be discussed include linear programming, integer programming and network optimization. This course also builds the base for decision making models with uncertainty. Prerequisite: QMST 3339 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

**QMST 4320. Data Analytics.**
This course will introduce various techniques available to extract useful information from massive datasets. The course will emphasize advanced analytical theory and methods such as: clustering, association rules, regression, classification and In-Database analytics. The course will also teach techniques used for data preparation, discovery, and model building. Prerequisite: QMST 3341 with a grade of "D" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

**QMST 4373A. Applied Time Series.**
This course will teach the fundamentals of time series methods to be applied on real-life data. The course focuses on application, however the methodology behind the models will also be discussed. Students will learn how to pick the appropriate method for the time series of interest. Prerequisites: Consent of instructor and department chair.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

**QMST 4373C. Topics in Data Analytics.**
This course covers the process of transforming big data into information for making decisions. The topics include introduction to data science, analytics and advanced data mining algorithms, and challenges related to analyzing business data. Students will learn how to use software and conduct data analysis.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

**QMST 5199B. Thesis.**
This course represents a student’s continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

**QMST 5299B. Thesis.**
This course represents a student’s continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

**QMST 5332. Optimization.**
A study of management science/operations research emphasizing theory and applications of evaluative, predictive, and optimizing models as applied to the management of product and service-oriented operations.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter
QMST 5334. Statistical Methods for Business.
The course provides the quantitative foundation for business analysis and decision making. Topics include: inferential statistics, regression analysis, and other analytical/modeling techniques with wide applicability in decision-making and problem solving in all functional areas of business. Prerequisite: B A 5353 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

QMST 5335. Forecasting and Simulation.
This course introduces the concepts and principles of forecasting and simulation techniques as applied to planning and decision making in organizations. Topical coverage includes time series forecasting, casual forecasting, discrete event simulation, and continuous-event simulation techniques.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

QMST 5336. Analytics.
This course introduces analytics which refers to the process of transforming data into information for making decisions. The topics include the introduction to analytics, visualization, analytics applications, and challenges related to business data. Students will learn how to use software, conduct data analysis and communicate their results.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

QMST 5342. Probability and Statistical Models.
This course introduces probability and probability distributions. It includes general and generalized linear models, inflated and mixture models, and hierarchical models. Model validity and choice will also be discussed. Prerequisite: QMST 5336.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

QMST 5343. Data Mining.
This course covers data mining concepts and applications of data mining techniques to solve business problems. It emphasizes algorithms such as classification, clustering, association, and text mining. Model selection and assessment are also emphasized. Prerequisite: QMST 5336.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

QMST 5369. Independent Study in Quantitative Methods.
This course focuses on individual in-depth research. Students, in consultation with a faculty member, choose a selected area of study in quantitative methods and work independently on a specialized project. Course may be repeated with approval of department chair. Prerequisite: Consent of instructor and Department Chair.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

QMST 5390A. Statistical Computing.
This course covers programming and statistical computing concepts. Programming concepts include data manipulation, data structures, control structures, functions, basic algorithms, and matrix manipulations. Statistical computing topics include numerical linear algebra, Monte Carlo methods, and numerical optimization.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

QMST 5395. Internship in Analytics.
This course is based on experiential learning while the student works in quantitative methods and statistics. Students will integrate both professional and academic experiences through the internship with an external employer. Prerequisite: Specified by the employer with the consent of instructor and department chair.
3 Credit Hours. 1 Lecture Contact Hour. 20 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

QMST 5399A. Thesis.
This course represents a student's initial thesis enrollment. No thesis credit is awarded until the student has completed the thesis in Data Analytics and Information Systems. Graded on a credit (CR), progress (PR), no-credit (F) basis.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Credit/No Credit

QMST 5399B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

QMST 5599B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
5 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

QMST 5999B. Thesis.
This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the thesis is submitted for binding. Graded on a credit (CR), progress (PR), no-credit (F) basis.
9 Credit Hours. 9 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit