DAST courses. .

Academic Probation & Dismissal

MSDA students must maintain a graduate GPA of at least 3.0. No graduate course in which a grade below a 'C' is earned may be applied toward the completion of the MSDA degree plan.

If a MSDA student's cumulative graduate GPA falls below 3.0 or if the student has a grade of 'D' or 'F' in any data analytics class, the student will be placed on academic probation. If, during the next fall or spring semester, the student raises his cumulative graduate GPA to at least 3.0, without a 'D' or 'F' in any graduate class, the student may be removed from academic probation. If, at the conclusion of the next fall or spring semester, the student fails to achieve a cumulative graduate GPA of at least 3.0, he or she will be dismissed from the MSDA degree program.

A student dismissed from the MSDA degree program may submit a written appeal detailing why circumstances of the case warrant special consideration. This appeal goes to the MSDA admissions committee, whose decision is final. If the appeal is denied, one fall or spring semester must elapse before the student may reapply to the MSDA degree program. Readmission, occurring under the current catalog, is not guaranteed and will be reviewed on a case-by-case basis by the MSDA admissions committee.

Requirements to Register for MSDA Courses

To register for any DABE, DAIC, or DAST course, one must be accepted into the MSDA degree program and must satisfy the prerequisites specified in the course descriptions. DABE 539, DAIC 539, and DAIC 599 are designed to be taken in a student's final semester of the MSDA degree plan.

DATA ANALYTICS COURSES:

DABE 510-520-530. Independent Study in Business Analytics (X:X:X)
Independent study by students majoring in the business analytics specialization. Departmental approval required. Prerequisite: Admission to graduate program.

DABE 519-529-539. Business Analytics Internship or Practicum (X:X:X)
Designed to provide graduate business analytics students with an opportunity to apply their classroom knowledge in a real business environment and to gain hands- on experience. Department approval required. Prerequisite: Admission to graduate program.

DABE 531. Visualization and Communication (3:3:0)
Students will finish this course with the ability to create accurate and effective data visualizations using a variety of tools, ranging from spreadsheets to vector graphics to interactive software applications. They will learn how to use those visualizations in professional communication applications, including electronic, oral and written tasks and/or presentations. Students will learn how to create and use visualizations to support messaging and decision-making, with special attention given to the interlocking problematics of accuracy, ethics, design, rhetoric and usability. Prerequisite: Admission to graduate program.

DABE 532. Operations Research (3:3:0)
Students learn mathematical techniques to determine the optimum course of action for decision problems with constraints. The course material considers the use of data in building models for prescriptive analytics. Topics may include linear, nonlinear, dynamic, and stochastic programming. Prerequisite: Admission to graduate program.

DABE 533. Marketing Analytics (3:3:0)
This course focuses on techniques designed to develop more effective marketing strategies using data-driven decision-making. Topics covered include market segmentation, market response models, customer profitability, and social media, paid search advertising, product recommendation systems, mobile geo-location analysis, media attribution models, and resource allocation. Prerequisite: Admission to graduate program.

DABE 534. Financial Analytics (3:3:0)
This course provides hands-on experience in the analysis of financial data, including the construction and testing of financial models for decision-making. Prerequisite: Admission to graduate program.

DABE 535. Econometric Analysis (3:3:0)
This course provides hands-on experience in econometric analysis designed to help students acquire the skills to carry out their own research in econometrics, including the construction, estimation, and testing of economic models. Prerequisite: Admission to graduate program.

DABE 536. Statistical Process Control/Six Sigma (3:3:0)
Students learn to transform processes by applying statistical tools within the Six Sigma DMAIC framework. The course material focuses on analyzing and reducing variability in process output. Topics may include measurement systems, process capability, and control charting. Prerequisite: Admission to graduate program.

DABE 537. Enterprise Resource Planning (3:3:0)
This course covers the fundamentals of enterprise resource planning (ERP) systems, including procurement, production and sales business processes using ERP software. Topics include the use of business intelligence for business decision-making. Prerequisite: Admission to graduate program.

DABE 538. Project Management (3:3:0)

This course focuses on methods of documenting project elements and analyzing performance according to time and monetary budgets. the course includes both in-class discussion and hands-on experience through complex industry projects. rerequisite: Admission to graduate program.

DABE 579. Special Topic in Business Analytics (3:3:0)
Designed for graduate business analytics students. May be repeated for credit when topics change. Prerequisite: Admission to graduate program. Prerequisite: Admission to graduate program.

DAIC 519-529-539. Technology & Computation Internship (X:X:X)

Designed to provide graduate technology and computation students with an opportunity to apply their classroom knowledge in a real organizational environment and to gain hands-on experience. Departmental approval required. Prerequisite: Admission to graduate program.

DAIC 531. Data Mining (3:3:0)

In this course we explore how data mining brings together techniques from databases, statistics, machine learning, and information retrieval. Students will be exposed to data mining concepts, techniques, and software utilized in the overall process of extracting information from a data set and organizing it into an understandable structure to discover knowledge within data. Emphasis is on tools for dealing with large data sets. Prerequisite: STAT 374.

DAIC 532. Database Design (3:3:0)
This course will teach effective database design and management. Students will learn to design and create relational databases, write Structured Query Language (SQL) statements to extract relevant information, and normalize tables to reduce redundancy. Prerequisite: CSCI 136 or CSCI 248.

DAIC 533. Information Security (3:3:0)
Students will be introduced to the broad field of cyber-security. The course will cover topics from areas of network security, web security, computer security, and cryptography. Prerequisites: CSCI 332 or permission of instructor.

DAIC 534. Advanced Data Mining (3:3:0)
This course is the second course in a two-course sequence on data mining. It emphasizes advanced concepts and techniques for data mining and their application. It builds upon the data mining concepts and statistical methodology of the first course and takes up more advanced topics. Each student will be expected to develop a term project in which they deploy an advanced data mining algorithm on a multidimensional data set. Pre- requisite: DAIC 531.

DAIC 599A. Technology & Computation Capstone (3:3:0)

DAIC 599B. Technology & Computation Thesis (3:3:0)

Emphasizes literature search in data analytics, ability to work with big data, use of advanced quantitative skills and the ability to write and present the results. Each student must complete an individual research project to demonstrate the mastery of the curriculum. The thesis project may explore a new topic or expand on an already researched idea. Prerequisite: permission of the instructor.

DAST 531. Advanced Statistical Methods I (3:3:0)
Topics include two population inferential statistics (estimation and hypothesis testing), multinomial experiments/goodness-of-fit tests, contingency tables, analysis of variance (one-way and two-way), multivariable linear and single variable-nonlinear regression, inferences about the correlation coefficient and slope of the regression line, special probability distributions (e.g., Poisson, Exponential, and Gamma), and an introduction to nonparametric statistics. Real data and statistical packages will be used extensively in this course. Prerequisite: STAT 374.

DAST 532. Advanced Statistical Methods II (3:3:0)
Advanced topics in regression: regression with categorical variables, logistic regression, multiple logistic regression, Poison′s log-linear regression, variable screening methods and regression pitfalls, residual analysis and special regression models. Least squares and interpolation methods for modeling patterns, time series and data smoothing, multiple comparison methods beyond ANOVA, survival analysis, and advanced topics chosen from Bayesian statistics. Real data and statistical packages will be used extensively. Prerequisite: DAST 531 or STAT 375.

DAST 533: Bayesian Statistics (3:3:0)
An introduction to the basic ideas of Bayesian statistics. In Bayesian statistics, population parameters are considered random variables having probability distributions. You will learn

to use Bayes' rule to transform prior probabilities into posterior probabilities using the observed data. You will be introduced to the basic Bayesian concepts and computational techniques. We'll also compare and contrast the Bayesian methods with comparable classical (frequentist) techniques. The course emphasizes data analysis through practical applications using statistical software. Prerequisites: DAST 531 or STAT 375.

DAST 534: Mathematical Statistics (3:3:0)
Mathematical theory of Probability, general study of discrete and continuous probability distributions, multivariable distributions, moments and mathematical expectations, special probability distributions and density functions (e.g., geometric, hyper- geometric, negative Binomial, multinomial, Gamma, Beta, and Exponential), sampling theory and mathematical treatment of hypothesis testing, and estimation including method of maximum likelihood and Bayesian Estimation. Prerequisite: DAST 531 or STAT 375.

DAST 535. Computational Methods & Approximations (3:3:0)
Numerical methods an algorithms for analyzing the mathematical and statistical models based on data. Topics include the numerical solution of nonlinear equations, error analysis, numerical differentiation and integration, interpolation and approximation by Spline functions, data smoothing and least squares approximation. Numerical solution of systems of linear and nonlinear equations using traditional iterative methods, eigenvalue estimation and numerical solutions of initial value problems. Mathematical software (Maple) will be used extensively in this course. Prerequisite: admission to the graduate program; MATH 136 or MATH 241.

DAST 536. Data Analysis with R (3:3:0)
The R language is widely used in industry and in science to gain insight into information that a data set can reveal. In this course you will learn how to program in R and how to use R for effective data analysis. The course covers practical issues in statistical computing which include programming in R, reading data into R, accessing R packages, writing R functions, debugging, and organizing and commenting R code. Several large data sets will be examined to demonstrate the use of R statistical language in data analysis. Prerequisite: Admission to graduate program; STAT 374.

DRAMATIC MEDIA

Dramatic Media is storytelling by way of the stage or screen, through the fusion and study of text, performance, design and technology.

Major in Dramatic Media: 42 hours, including DRAM 138, 236, 237, 271, 272, 334A, 334B, 436; 9 hours from DRAM 231, 232, 235, or 238; and 9 hours from DRAM 331, 332, 335, 337, or 338.

Supporting Courses: 6 hours from Art, Music, ENGL 438 (Drama), COMM 271, COMM 273, COMM 373, or COMM 379 (Film), to be chosen in consultation with an academic advisor in Dramatic Media.