Program Overview

The **Supply Chain Analytics Concentration** program equips students with the skills to apply data-driven decision-making in managing and optimizing supply chains. This concentration combines coursework in supply chain fundamentals with advanced analytics, teaching students to leverage tools such as predictive modeling, optimization, and data visualization. Students learn to address real-world supply chain challenges—like demand forecasting, inventory management, and logistics optimization—using modern analytics techniques.

Application Requirements

- completed online application
- $55 nonrefundable application fee

  or

- $90 nonrefundable application fee for applications with international credentials
- baccalaureate degree from a regionally accredited university (Non-U.S. degrees must be equivalent to a four-year U.S. Bachelor's degree. In most cases, three-year degrees are not considered. Visit our International FAQs (https://www.gradcollege.txst.edu/international/faqs.html) for more information.)
- official transcripts from **each institution** where course credit was granted
- a competitive overall GPA or a competitive GPA in the last 60 hours of undergraduate course work (plus any completed graduate courses)
- official GMAT or GRE (general test only) with a competitive score
- responses to specific essay questions and a personal statement
- resume/CV detailing work experience, extracurricular and community activities, and honors and achievements
- three letters of recommendation from individuals best able to assess the student's ability to succeed in graduate school

Approved English Proficiency Exam Scores

Applicants are required to submit an approved English proficiency exam score that meets the minimum program requirements below unless they have earned a bachelor's degree or higher from a regionally accredited U.S. institution or the equivalent from a country on our exempt countries list (http://www.gradcollege.txstate.edu/international/language.html#waiver).

- official PTE scores required with a 52
- official TOEFL iBT scores required with a 78 overall and minimum individual module scores of
  - 19 listening
  - 19 reading
  - 19 speaking
  - 18 writing
- official IELTS (academic) scores required with a 6.5 overall and minimum individual module scores of 6.0
- official Duolingo scores required with a 110 overall
- official TOEFL Essentials scores required with an 8.5 overall

This program does **not** offer admission if the scores above are not met.

Degree Requirements

The Master of Science (M.S.) degree with a major in Data Analytics and Information Systems with a concentration in Supply Chain Non-thesis option requires 30 semester credit hours.

Code	Title	Hours
Required Courses		
ANLY 5332	Optimization for Business Analytics	3
ANLY 5334	Statistical Methods for Business	3
ANLY 5335	Forecasting and Simulation	3
ANLY 5336	Analytics	3
ANLY 5337	Supply Chain Analytics	3
ANLY 5339	Analytics Applications in Supply Chain Management	3
ISAN 5355	Database Management Systems	3
ISAN 5357	Computing for Data Analytics	3
Restrictive Management Electives		**3**
Choose 3 hours from the following		
ISAN 5390A	Introduction to Design Thinking	
ISAN 5358	Agile Project Management For Business Professionals	
ISAN 5318	Artificial Intelligence in Digital Economy	
B A 5351	Organizational Performance and Competitive Advantage	
MKT 5321	Marketing Management	
MKT 5340	Digital Marketing	
ANLY 5338	Operations Management	
ACC 5361	Accounting Analysis for Managerial Decision Making	
MGT 5311	Process Improvement Management in Organizations	
Prescribed Electives [1]		**3**
Choose 3 hours from the following		
ISAN 5318	Artificial Intelligence in Digital Economy	
ISAN 5358	Agile Project Management For Business Professionals	
ISAN 5364	Data Warehousing	
ISAN 5365	Developing Generative AI Solutions for Business and Innovation	
ISAN 5367	Machine Learning	
ISAN 5369	Independent Study in Information Systems	
ISAN 5370	Enterprise Resource Planning and Business Intelligence	
ISAN 5395	Internship in Information Systems	
ISAN 5390A	Introduction to Design Thinking	
GEO 5301	Multivariate Quantitative Methods	
GEO 5418	Geographic Information Systems I	
GEO 5419	Geographic Information Systems II	
HIM 5311	Health Informatics and Data Visualization	
HIM 5340	Healthcare Informatics	
IE 5310	Advanced Statistical Design of Experiments for Engineers	
IE 5340	Applied Deterministic Operations Research for Engineers	

IE 5343	Non-Linear Optimization Techniques for Engineers
IE 5398C	
MKT 5321	Marketing Management
MKT 5322	Marketing Research Methods
MKT 5323	Qualitative Research in Marketing
MKT 5345	Marketing Analytics
MKT 5340	Digital Marketing
MKT 5346	Contemporary Topics in Marketing Analytics
MKT 5347	AI and Data Visualization for Marketing
QFE 5320	Econometrics
QFE 5335	Financial Analytics
ANLY 5342	Probability and Statistical Models
ANLY 5343	Data Mining
ANLY 5330	Statistical Computing
ANLY 5338	Operations Management
ANLY 5369	Independent Study in Analytics
ANLY 5395	Internship in Analytics
ACC 5361	Accounting Analysis for Managerial Decision Making
MGT 5311	Process Improvement Management in Organizations
Total Hours	**30**

[1] Cannot count for a prescribed elective if used for a restrictive management elective.

Comprehensive Examination Requirement

All MSDAIS students are required to take a written comprehensive examination in their last semester of the program. Students must pass the comprehensive exam during the last semester in at most two attempts. If a student fails to pass the comprehensive exam in two attempts during the final semester, the student will retake the comprehensive exam during the next regular semester.

Students who do not successfully complete the requirements for the degree within the timelines specified will be dismissed from the program.

Master's level courses in Data Analytics and Information Systems: ANLY (p. 2), ISAN (p. 4)

Courses Offered

Analytics (ANLY)

ANLY 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

ANLY 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

ANLY 5330. 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.
Grade Mode: Standard Letter

ANLY 5332. Optimization for Business Analytics.
This course introduces optimization theory and applications for analyzing and solving business decision-making problems. The students will learn to apply in various business domains optimization concepts and tools such as linear programming, integer/mixed-integer programming, and other classes of optimization models.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ANLY 5334. Statistical Methods for Business.
This 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.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

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

ANLY 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

ANLY 5337. Supply Chain Analytics.
This course explores the application of data analytics tools and techniques to enhance supply chain performance across strategic, tactical, and operational levels. Topics such as performance analysis, demand planning, inventory management, logistics optimization, and various risk analysis concepts will be discussed from an analytics perspective. Tools such as statistical analysis, optimization, and simulation will be used to improve decision-making in supply chain management. Prerequisite: ANLY 5334 with a "C" or better. Corequisite: ANLY 5335 with a grades of a "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ANLY 5338. Operations Management.
This course introduces the processes and strategies to create, produce, and deliver goods and services that drive organizations' overall success. It will highlight operational and tactical problems organizations typically confront and introduce the concepts and analytical tools (both process and systems based) used to deal with these problems.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ANLY 5339. Analytics Applications in Supply Chain Management.
This course explores how data analytics optimizes supply chain management. Students will learn applications of descriptive, predictive, and prescriptive analytics used to solve various supply chain management problems. The course covers analytical techniques, real-world case studies, and modern software tools to enhance decision-making and operational efficiency along supply chains. Prerequisite: ANLY 5337 with a grade of a "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ANLY 5342. Probability and Statistical Models.
This course introduces the concept of 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.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ANLY 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: ANLY 5336 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ANLY 5369. Independent Study in Analytics.
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: Instructor approval.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Standard Letter

ANLY 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: Instructor approval.
3 Credit Hours. 1 Lecture Contact Hour. 20 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

ANLY 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

ANLY 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

ANLY 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

ANLY 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

Information Systems (ISAN)

ISAN 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

ISAN 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

ISAN 5318. Artificial Intelligence in Digital Economy.
This course provides an understanding of the issues in managing organizations' artificial intelligence (AI) and information assets. The course examines users' issues and challenges within the Information Technology management arena as part of a firm's business and AI strategy. The course provides frameworks and management principles that current or aspiring managers can employ with the challenges of implementing rapidly advancing AI technology. Through real-world case studies, students are empowered to effectively leverage AI to drive innovation, enhance decision-making, and automate business operations. Prerequisite: B A 5351 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5355. Database Management Systems.
This course explores the concepts, principles, issues, and techniques for managing data resources using database management systems. Topics include techniques for analysis, design, and development of database systems, creating and using logical data models, database query languages, and procedures for evaluating management software. Students will develop a management information system.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5357. Computing for Data Analytics.
This course focuses on fundamentals of programming. Students will learn to design and implement applications, and programmatically handle a variety of data management functionalities.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5358. Agile Project Management For Business Professionals.
This course provides an in-depth study of the project management body of knowledge as applied to Information Technology, emphasizing Agile methodologies and the processes of managing scope, costs, schedules, quality, and risks. Topics Include program management, system planning and design methodologies, material & capacity requirements, human, cultural, & international issues, and their impact on the organization.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5360. E-Commerce: Strategies, Technologies, and Applications.
This course is designed to familiarize students with current and emerging e-commerce technologies. Topics include Internet technology for business advantage, reinventing the future of business through e-commerce, business opportunities in e-commerce, and social, political, global, and ethical issues associated with ecommerce.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5364. Data Warehousing.
This course allows students to familiarize with current and emerging data warehousing technologies that play a strategic role in business organizations. Topics include data warehouse development life cycle, data warehouse navigation, data quality, and performance issues. Prerequisite: ISAN 5355 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5365. Developing Generative AI Solutions for Business and Innovation.
This course equips students with the skills and knowledge to develop advanced generative AI applications. Key topics include deploying large language models on cloud-based platforms, exploring natural language processing (NLP) techniques, and mastering prompt engineering to generate both text and code. Through hands-on projects, students will integrate application programming interfaces (APIs) and implement solutions such as Retrieval Augmented Generation (RAG) to create scalable AI systems that address real-world challenges. Prerequisite: ISAN 5357 and ANLY 5336 both with grades of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5367. Machine Learning.
This course focuses on deriving actionable knowledge from data using algorithms and industry standard tools. Topics covered are the complete process, key technologies, core machine learning algorithms, and programming used for business intelligence. Prerequisite: ISAN 5357 and ANLY 5336 both with grades of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5368. Information Security.
This course covers the analysis, design, development, implementation, and maintenance of information security systems in communication networks. Topics include legal, ethical, professional, and personnel issues, concepts, theories, and processes of risk management, technology; cryptography theory and practice; and physical and hardware security.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

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

ISAN 5370. Enterprise Resource Planning and Business Intelligence.
This course uses information technology integrations in enterprises for operational control and business intelligence is examined via Enterprise Resource Planning (ERP) applications in customer relationships management, accounting, finance, purchasing, production control, sales, marketing, and human resource management. Emphasizes managerial issues surrounding the need, selection, and implementation of ERP systems.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5371. Accounting Information Systems and Controls.
This course examines accounting information systems and controls and their role in the current technology-intensive business environment. Emphasis is placed on contemporary technology and applications, information technology and business information systems assessments, design of internal controls to satisfy regulation and policy requirements, control concepts, theories, and processes, information systems auditing, systems development life cycle, and information structure, data transfer, and transaction cycles. Prerequisite: ACC 3313 or ACC 5361 either with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5378. Information Security Policies and Compliance.
This course focuses on the technology and managerial issues related to information policies, regulations, and compliance that assure confidentiality, integrity, and availability of data and computer systems. Topics include information security policy, regulations, laws, standards, framework, compliance, and governance. Prerequisite: ISAN 5368 with a grade of "C" or better.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Grade Mode: Standard Letter

ISAN 5390A. Introduction to Design Thinking.
This course provides an overview and hands-on introduction to Design Thinking and the human-centered design process. Topics include an introduction, defining the problem, ideation, and concept generation, prototyping & testing, refining, and launching.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

ISAN 5390B. Business Data Visualization for Decision Making.
This course equips students with the skills to transform data into actionable insights using effective visual communication. Students will learn best practices in data visualization, focusing on critical methods and technologies essential in our increasingly data-driven economy. Topics include design principles, chart composition, strategic use of visual elements, visual data exploration techniques, data dashboard construction, and compelling visual storytelling.
3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing|Topics
Grade Mode: Standard Letter

ISAN 5395. Internship in Information Systems.
This course provides students with opportunities for experiential learning by contributing to a computer information systems project. The course enables integration of professional and academic experience through internship with an external employer. Prerequisite: Instructor approval.
3 Credit Hours. 1 Lecture Contact Hour. 20 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

ISAN 5399A. Thesis.
This course represents a student's initial thesis enrollment. No thesis credit is awarded until the student has completed their thesis. 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

ISAN 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

ISAN 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. 9 Lecture Contact Hours. 0 Lab Contact Hours.
Course Attribute(s): Exclude from 3-peat Processing
Grade Mode: Credit/No Credit

ISAN 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