Information Technology, Analytics, and Operations (ITAO)

ITAO 295 Special Topics in IT, Analytics, and Operations (1-6 credit hours)
Presentation of accounting material at the 200-level not normally available in regular course offerings, or offering of new courses on a trial basis. Course may be taken multiple times only if topic is different.

Typically offered in Fall, Spring, and Summer

ITAO 495 Special Topics in IT, Analytics, and Operations (1-6 credit hours)
Presentation of material not normally available in regular course offerings, or offering of new courses on a trial basis. Course may be taken multiple times only if the topic is different.

Typically offered in Fall, Spring, and Summer

ITAO 498 Independent Study in IT, Analytics, and Operations (1-6 credit hours)
Detailed investigation of topics of particular interest to advanced undergraduates under faculty direction on a tutorial basis. Credits and content determined by faculty member in consultation with Department Head. Individualized/Independent Study and Research courses require a "Course Agreement for Students Enrolled in Non-Standard Courses" be completed by the student and faculty member prior to registration by the department.

Typically offered in Fall, Spring, and Summer

ITAO 511 Data Security and Privacy (3 credit hours)
Data security and privacy necessary for todayÂ¿s business environment. Common vulnerabilities, securing data, encryption, policies, privacy management, standards, and compliance.

Typically offered in Spring only

ITAO 512 Business Analysis with SQL (3 credit hours)
This course introduces students to the core concepts, tools, and practices needed to analyze real-world business data using SQL. The course emphasizes hands-on coding, data cleaning, multi-table integration, and scalable analytical workflows using authentic datasets. Students learn how relational databases are structured, how to write efficient and accurate queries, and how SQL supports decision-making in data-driven organizations. No prior programming experience is required.

Prerequisite: Graduate Standing
Typically offered in Fall, Spring, and Summer

ITAO 540 Principles of Operations and Supply Chain Management (2 credit hours)
Design and management of operations and supply chains. Analysis of strategies, processes, planning and control, and advanced techniques using a variety of managerial frameworks and quantitative tools. Restricted to MBA students.

Prerequisite: ITAO 551
Typically offered in Fall, Spring, and Summer

ITAO 541 Supply Management (3 credit hours)
Major themes and strategies of supply management relationships. The focus is on establishing a basis for collaborative relationships with suppliers through focused market intelligence research, relationship assessment and management, negotiation, collaborative contracting, and on-going management of relationships in global supply chains. Emphasis on the importance of collaboration through the application of practical tools and approaches that drive mutually beneficial outcomes. Core processes around initial exploration and assessment of supply chain relationships, establishing metrics/expectations for the relationship, crafting and managing contracts, and sustaining continuous performance improvement in sourcing, logistics and operations. Every student will participate in a team-based supply chain project with an organization and will learn the team-based, deadline-driven nature of supply chain initiatives in a real-company setting.

Co-requisite: ITAO 540 Operations and Supply Chain Management
Typically offered in Fall and Spring

ITAO 542 Monte Carlo Decision Analysis (1 credit hours)
This one credit hour course is for students who are looking to enhance their Excel-based business decision analytical skills. After many years of consulting, Most companies struggle when addressing the uncertainty among the key drivers of their business decisions. The focus of the course is on the analysis of decisions under uncertainty using Monte Carlo simulation. The skills learned in this course are applicable in a wide variety of business decisions.

Prerequisite: Graduate Standing
Typically offered in Fall and Summer

ITAO 544 Operations Analysis (3 credit hours)
This course focuses on building a framework for understanding how operations decisions are made and how those decisions shape the firm's ability to effectively utilize its physical and human resources. It further explores how the physical and human resources help meet customer requirements through processes that convert diverse inputs into customer-valued outputs. Key topics include metrics for flow rate, flow time, and work in process, and the influence of resource decisions, uncertainty, buffering, batching, and control policies like "push" and "pull." Excel-based simulations and case studies are used to illustrate the principles and concepts listed above.

Prerequisite: ITAO 540 or equivalent engineering course
Typically offered in Fall and Spring

ITAO 545 Decision Making under Uncertainty (3 credit hours)
Structured framework for modeling and analyzing business decisions in the presence of uncertainty and complex interactions among decision parameters. Topics include decision models, value of information and control, risk attitude, spreadsheet applications, and decision analysis cycle. Interactive case study.

Typically offered in Fall, Spring, and Summer

ITAO 546 Strategic Operations Management (3 credit hours)
Strategic Operations Management, analyzes the various operations that are ongoing in a firm and how they relate to the organization's business strategy. This course teaches students how to evaluate and formulate an operations strategy and to analyze operational decisions which impact a firm's competitive position. The course builds upon the foundational concepts and models students have seen in previous operations courses to illustrate how operations fits within an organization and can be used as a competitive advantage.

R: Students taking this course need to have successfully completed ITAO 540 : Principles of Operations and Supply Chain Management.
Typically offered in Spring only

ITAO 547 Sustainable Operations Management (1 credit hours)
In this course, students examine some of the difficult tradeoffs they may face as an operations manager when sustainability issues arise. The course places a strong emphasis on interactive, practice-based learning through case discussions, a simulation, breakout sessions, and industry speaker/s. Topics discussed include supply chain disruption, resource management, sustainable sourcing, compliance and standards, supply chain transparency, and business model innovation.

Typically offered in Spring only

ITAO 548 Analytical Supply Chain Management (3 credit hours)
The objective of the course is to build an understanding of how to manage and improve the performance (efficiency and responsiveness) of operations and supply chains through decision making that is based on analysis and facts, rather than intuition. The course introduces fundamental aspects of operations and supply chain management as well as analytical modeling tools and techniques that can be used to support decision making (e.g., optimization, regression analysis, simulation). The approach taken in the course is entirely example-based and hands-on, since all these techniques will be implemented in Excel, either with Excel's built-in tools or with Excel add-ins.

Corequisites: ITAO 540 and ITAO 551
Typically offered in Fall only

ITAO 549 Supply Chain Management Practicum (3 credit hours)
Research project examining supply chain management issues at an organization, usually a member of the Supply Chain Resource Cooperative. Projects will typically focus on procurement, logistics, materials management, operations, or integrated supply chain issues.

Prerequisite: ITAO 540
Typically offered in Spring only

ITAO 550 Data-Driven Managerial Decisions 1 (1 credit hours)
Business cases and problems where data analysis is part of the decision-making process. Applications to finance, management, marketing, and operations. Proficiency in Excel methods commonly used in management. Completion of a project where students follow a business problem from formulation to solution using data analysis. Restricted to MBA students.

Prerequisite: BUS/ST 350
Typically offered in Fall, Spring, and Summer

ITAO 551 Data-Driven Managerial Decisions 2 (1 credit hours)
Continuation of a series of business cases and problems where data analysis is part of the decision making process. Estimation of linear relationships among variables, with applications to finance, management, marketing, and operations. Proficiency with Excel methods commonly used for estimation. Completion of a project where students follow a business problem from formulation to solution using the methods covered the course. Restricted to MBA students.

Corequisite: ITAO 550
Typically offered in Fall and Spring

ITAO 552 Predictive Analytics for Business and Big Data (3 credit hours)
This course is designed around the full analytics lifecycle which encompasses the business problem, the data, the analysis, and the decision. Students will learn to identify and clearly explain business problems that can be addressed with analytics. They will learn to determine which analytic methods are best suited to solve particular problems and clearly explain the results of an analytic model and how those results might impact the business bottom line. Analytical methods to be covered include data, visualization, a review of regression analysis; logistic regression; classification and regression trees (including boosting and bagging methodologies); and clustering (segmentation) methods. Students will also develop at least a beginning proficiency with several statistical software packages including Tableau, JMP, R, and SAS Enterprise Miner. Emphasis will be placed on analyzing real data and understanding how analytical thinking can be applied to solve big data problems.

Prerequisites: ITAO 550 and ITAO 551
Typically offered in Fall, Spring, and Summer

ITAO 553 Data Engineering, Management and Warehousing (3 credit hours)
This course examines how to collect and process data to make it useful, how to validate, protect, and process data to make it available, and how to create a place to properly store data.

Typically offered in Fall, Spring, and Summer

ITAO 554 Project Management (3 credit hours)
Life cycle view of organizing and managing technical projects, including project selection, planning, and execution. Methods for managing and controlling project costs, schedules, and scope. Techniques for assessing project risk. Use of popular project management software tools. Application of project management tools and methods to product development, software, and process reengineering projects.

Typically offered in Spring and Summer

ITAO 556 Communications, Privacy, and Ethics in Data Science (2 credit hours)
This class will give you the opportunity to explore the ethical issues associated with the development and use of Big Data and data science activities. The data science lifecycle will serve as a backdrop within which to examine ethical concerns related to the design, collection, use and dissemination of data. These include issues of AI and bias, transparency in communications and data design, privacy and data collection, among others.

Typically offered in Spring only

ITAO 558 Artificial Intelligence in Management (3 credit hours)
This course will discuss artificial intelligence (AI) and its applications to help make data-driven decisions in business and management. Students will learn to understand the language of AI, discuss different applications of AI, and work with actual AI tools at a high level to develop new insights. Hands-on examples will be complemented by applications of AI drawn from different industries.

Typically offered in Fall and Spring

ITAO 559 Business Analytics Practicum (3 credit hours)
This course focuses on solving a real-world business problem that includes a heavy data analytic component. The business problem will vary according to the client but could include problems from finance, human resources, marketing, finance, supply chain, or other management areas.

Prerequisite: ITAO 550 and ITAO 551 and ITAO 552
Typically offered in Fall and Spring

ITAO 590 Special Topics In Information Technology, Analytics, and Operations (1-6 credit hours)
Presentation of material not normally available in regular courses offerings or offering of new courses on a trial basis.

Typically offered in Fall, Spring, and Summer

ITAO 740 Doctoral Seminar - Operations and Supply Chain Management Research (3 credit hours)
This seminar introduces non-business doctoral students to research in operations and supply chain management and, more fundamentally, to the process of developing research ideas and projects. At the outset of the course, the focus of the discussion lies on the structure and key elements of research papers and on the general research process. In the following sessions, students identify the findings and contributions of published research papers and propose/defend possible extensions or new research ideas. Throughout the course, the primary emphasis will be placed on each student's development of a research project, from idea to draft working paper.

R: Doctoral Students Only
Typically offered in Fall only

ITAO 790 Special Topics in Information Technology, Analytics, and Operations (1-6 credit hours)
Presentation of material not normally available in regular courses offerings or offering of new courses on a trial basis.

Typically offered in Fall, Spring, and Summer