# DS - Decision Sciences

Courses numbered 100 to 299 = *lower-division*; 300 to 499 = *upper-division;* 500 to 799 = *undergraduate/graduate*.

**DS 350. Operations Management (3).**
Overview of the concepts, tools and techniques used in making managerial decisions related to the production or operations function of an organization. Topics include operations strategy, quality management and control, facility location and layout, forecasting, inventory planning, and others. Prerequisite(s): BADM 162 and ECON 231.

**DS 400. Principles of Global Supply Chain Management and Logistics (3).**
Cross-listed as IB 400. Designed to provide an overview of supply chains and logistics focusing on issues related to supply, operations, logistics and integration in a global context. Current and relevant topics to discuss include purchasing management, supplier relationships, ethical and sustainable sourcing, resource planning, process management, global logistics and location decisions, process integration, and performance measures. Area multi-national companies (Koch, Cargill, Spirit, Cessna and other aviation companies, etc.) are featured as live cases/guest lectures. Prerequisite(s): junior standing, advanced standing.

**DS 481. Cooperative Education (1-3).**
Academic program that expands a student's learning experiences through paid employment in a supervised educational work setting related to the student's major field of study or career focus. Repeatable for credit. Prerequisite(s): junior standing and 2.250 GPA.

**DS 491. Independent Study/Project (1-3).**
Courses may be of two general types. The first consists of doing research, readings or other scholarly investigation in a subject area that is coordinated by a faculty member. The topic and scope would be mutually agreeable to the student and the faculty member. The second consists of doing a specific project for an organization, which might require the student to do research. The student may be embedded in an organization (either with or without pay) and under the direction of an organizational representative and a faculty member in order to accomplish a specific project. In either case, the course cannot be used to substitute for a regular departmental course. Repeatable for credit. Prerequisite(s): 2.750 GPA in the academic area, junior standing, advanced standing and departmental consent.

**DS 690. Seminar in Selected Topics (1-5).**
An umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 690A, 690B). Not all subtopics are offered each semester – see the course schedule for availability. Students enroll in the lettered courses with specific topics in the titles rather than in this root course. Prerequisite(s): DS 350 with a grade of C+ (2.300) or better, junior standing, advanced standing.

**DS 701. Introduction to Supply Chain Management (SCM) (0.5).**
Enables students to understand the basics of integrated business logistics and supply chain management.

**DS 702. Introduction to Spreadsheet Modeling (0.5).**
Covers how to create spreadsheet models in Excel. Regardless of title (manager, supervisor, purchasing agent, etc.) and functional area (operations, supply chain, finance, etc.), students learn how to use Excel to summarize, report and analyze data — a critical set of skills in today's data-driven business environment.

**DS 703. Introduction to Forecasting (0.5).**
Predictive analytics is one of the three key parts of analytics (descriptive, predictive and prescriptive), and deals with forecasting. Course introduces students to time series analysis, and the averaging techniques of forecasting, including moving average, and exponential smoothing. Also introduces the metrics for error analysis in forecasting.

**DS 704. Introduction to Inventory Management (0.5).**
Overview of the concepts, tools and techniques used in managing inventory in a system.

**DS 705. Basics of Analytics (1).**
Covers basic methods for the analysis of existing datasets. Commonly used techniques for the analysis of quantitative and qualitative data are introduced. Topics include: data preprocessing, linear regression, logistic regression, classification, and cluster analysis. Students are introduced to R, an open source data mining software. Lectures use R and Microsoft Excel to guide the analysis, but students are welcome to use their preferred software package in solving assignment problems and evaluations.

**DS 706. Introduction to Demand Management (1).**
Focuses on fundamentals of demand management and introduces collaboration, consensus and integration issues of demand management. Includes strategies for managing uncertainty and the role of technology.

**DS 707. Introduction to Supply Management (0.5).**
Exposes learners to the latest trends and issues dealing with supply management. Covered topics include sourcing management, purchasing management, financial and operational strategies for procurement, supplier base management, and risks and sustainability in procurement.

**DS 708. Advanced Forecasting (1).**
Predictive analytics is one of the three key parts of analytics (descriptive, predictive, and prescriptive), and deals with forecasting. Course goes beyond the averaging techniques for forecasting, and covers linear regression for forecasting time series with trend, and the decomposition method for forecasting time series with trend and seasonality.

**DS 709. Introduction to Project Management (0.5-1).**
Establishes fundamental guidelines for defining the process of project management and designing time-constrained projects. Covers core methodology for managing complex projects on time.

**DS 710. Supply Chain Management Network Planning (1).**
Enables students to understand the basics of network planning in distribution networks, network design, global network design, and transportation network design.

**DS 711. Performance Management in Supply Chains (1).**
Performance management — a standard practice in organizations — is presented and promoted through business processes, methodologies, metrics and technologies used by an organization to measure, monitor and manage business performance. Covers a broad category of processes, technologies, applications and metrics for managing the performance of supply chains. Emphasizes the criticality of creating and maintaining an enterprise-level culture of evidence/fact-based management and decision making. Covers concepts and frameworks related to performance management in supply chains and exposes students to supporting technologies used by contemporary organizations.

**DS 712. Advanced Demand Management (1).**
Case-based course focusing on implications of demand management and elements of supply chain management in an effort to optimize revenue, inventory costs and customer service levels via promotional activities and intelligence.

**DS 713. Integrated Supply and Demand Management (1).**
Enables students to understand how integrated supply and demand management impacts design of an optimized supply chain.

**DS 714. Strategic Management in Supply Chain Management (0.5).**
Presents innovative strategies and best practices for strategically managing and optimizing supply chains to improve supply chain performance.

**DS 715. Supply Chain Management A (0.5).**
Uses simulation games to introduce different concepts in strategic supply chain management.

**DS 716. Supply Chain Management B: Simulation Game (0.5).**
Uses simulation games to discuss different concepts in strategic supply chain management.

**DS 725. Global Procurement and Outsourcing (3).**
Designed to expose learners to the latest supply chain trends and issues dealing with global purchasing and sourcing. Covered topics include global sourcing management, purchasing management, financial and operational strategies for sourcing and procurement, diversity in sourcing and procurement, supplier base management, risks in sourcing and procurement, ethical and sustainable outsourcing. Real-life experience and practices by guest speakers from area multi-national companies (Koch, Cargill, Spirit, Cessna and other aviation companies, etc.) are featured. *Course includes diversity content.*

**DS 755. Project Management (3).**
Cross-listed as MIS 755. This hands-on and project-based technology course establishes fundamental guidelines for defining the process of project management and designing time-constrained projects. Covers core methodology for managing complex projects on time. Uses a software tool. Prerequisite(s): junior standing, advanced standing; students are strongly recommended to take DS 350 before taking DS 755.

**DS 760. ERP: Enterprise Resource Planning (3).**
Cross-listed as BSAN 760. Provides students with an understanding of what Enterprise Resource Planning (ERP) systems are (also known as Enterprise Systems). ERPs are designed to assist an organization with integrating and managing its business processes by moving away from numerous disintegrated and costly legacy systems towards one main IT system for the organization. ERPs are a critical component of an organization’s IT strategy because they integrate many functions in business including operations, supply chain, sales, distribution and accounting. The course provides a technical overview of ERP systems and their managerial impact on organizations. SAP is introduced to illustrate the concepts, fundamentals, framework, information technology context, technological infrastructure and integration of business enterprise-wide applications. Latest technological trends in the ERP market are discussed. Additional accompanying software is introduced, as time permits.

**DS 790. Logistics and Warehouse Analytics (3).**
Project-based course offers experimental logistics and warehouse decisions to challenging problems with global implications for an industry. Practical logistics strategies and analytic techniques are illustrated to facilitate strategic, tactical and operational decision making across supply chain functions, including but not limited to manufacturing, warehousing, transportation and inventory. Prerequisite(s): BSAN 775.