SUPPLY CHAIN MANAGEMENT (SCM)

SCM.250 Analytical Methods for Supply Chain Management
Prereq: None
G (Fall; partial term)
3-0-3 units
Covers the primary methods of analysis required for supply chain management planning. The class solves various practical problems using simulation, linear programming, integer programming, regression, and other techniques. The work is primarily team based with a final exam. Restricted to SCM students.
J. Velazquez Martinez

SCM.251 Supply Chain Financial Analysis
Prereq: None. Coreq: SCM.260[J]; or permission of instructor
G (Fall; partial term)
3-0-6 units
Explores the linkages between supply chain management and corporate finance. Emphasizes how the supply chain creates value for both the shareholders of the company and for the stakeholders affected by the company's operations. Sessions combine lectures and data-rich cases from the manufacturer, distributor, and retailer perspective. Topics include accounting fundamentals, financial analysis, activity-based costing, working capital management, cash flow projections, capital budgeting, and sustainability.
J. Goentzel, J. Rice

SCM.253 Case Studies in Supply Chain Financial Analysis
Prereq: Permission of instructor
G (Spring; second half of term)
2-0-1 units
Students explore and discuss case studies that focus on financial analysis in real supply chains. Cases provide the opportunity for students to apply the theory and quantitative methods that they have studied in addressing actual supply chain challenges. These include decision making around sourcing, capital investments, inventory strategy, and new product introduction. Students present and defend their solutions to their peers.
J. Goentzel, J. Rice

SCM.254 Applied Programming and Data Analysis in Python
Prereq: SCM.264, SCM.500, or permission of instructor
G (IAP)
2-0-1 units
Introduces Python programming and data analysis applications for supply chain management. Students develop skills to program and analyze data to solve supply chain and logistics problems. Topics include data structures, Python structures and functions, Pandas, and other analysis tools. Restricted to SCM students.
S. Caballero

SCM.256 Data Science and Machine Learning for Supply Chain Management
Prereq: SCM.254 or permission of instructor
G (Spring)
3-0-9 units
Introduces data science and machine learning topics in both theory and application. Data science topics include database and API connections, data preparation and manipulation, and data structures. Machine learning topics include model fitting, tuning and prediction, end-to-end problem solving, feature engineering and feature selection, overfitting, generalization, classification, regression, neural networks, dimensionality reduction and clustering. Covers software packages for statistical analysis, data visualization and machine learning. Introduces best practices related to source control, system architecture, cloud computing frameworks and modules, security, emerging financial technologies and software process. Applies teaching examples to logistics, transportation, and supply chain problems. Enrollment limited.
C. Cassa, T. Hall

SCM.258 Written Communication Topics for Supply Chain Management
Prereq: None
G (Fall, IAP)
1-0-0 units
Credit cannot also be received for SCM.259
Reviews the structure of and expectations for the master's capstone project and thesis. Discusses the concepts of genre and audience and their importance in writing the capstone/thesis (e.g., freewriting and outlining) and for writing concise, fluid prose. Restricted to SCM students.
P. Siska
SCM.259 Written Communication for Supply Chain Management
Prereq: None
G (Fall)
1-0-2 units
Credit cannot also be received for SCM.258
Provides an overview of the expectations for the master's capstone project and thesis. Students write and receive feedback on drafts of selected capstone/thesis chapters. Discusses the concepts of genre and audience and their importance in writing the capstone/thesis. Explores techniques for developing and organizing ideas (e.g., freewriting and outlining) and for writing concise, fluid prose. Covers how to find, evaluate, and work with source materials (e.g., paraphrasing, citing). Restricted to SCM students.
P. Siska

SCM.260[J] Logistics Systems
Same subject as 1.260[J], 15.770[J], IDS.730[J]
Subject meets with SCM.271
Prereq: Permission of instructor
G (Fall)
3-0-9 units
Provides an introduction to supply chain management from both analytical and practical perspectives. Taking a unified approach, students develop a framework for making intelligent decisions within the supply chain. Covers key logistics functions, such as demand planning, procurement, inventory theory and control, transportation planning and execution, reverse logistics, and flexible contracting. Explores concepts such as postponement, portfolio management, and dual sourcing. Emphasizes skills necessary to recognize and manage risk, analyze various tradeoffs, and model logistics systems. SCM.271 meets with SCM.260[J] but requires fewer assignments and lectures.
Y. Sheffi, C. Caplice

SCM.261[J] Case Studies in Logistics and Supply Chain Management
Same subject as 1.261[J], 15.771[J]
Prereq: Permission of instructor
G (Spring)
3-0-6 units
A combination of lectures and cases covering the strategic, management, and operating issues in contemporary logistics and integrated supply chain management. Includes: logistics strategy; supply chain restructuring and change management; and distribution, customer service, and inventory policy.
J. Byrnes

SCM.262 Leading Global Teams
Prereq: SCM.260[J] or permission of instructor
G (IAP)
2-0-1 units
Reinforces supply chain concepts and develops management and teamwork skills. Focuses on practical, rather than theoretical tools, methodologies, and approaches that students will use throughout their supply chain career. Includes guest lectures, a case competition, and several large-scale, team-based simulation learning games. Restricted to SCM students.
J. Velazquez Martinez

SCM.263 Advanced Writing Workshop for SCM
Prereq: None
G (Spring)
1-0-2 units
Improves students' ability to communicate research information. Through a combination of lectures and small team coaching sessions, helps students present their ideas in cogent, concise prose. Reviews the expectations for the various chapters of a capstone project and thesis project as well as how to work with source materials (paraphrasing, quoting, and citing). Also covers how to write an abstract. Restricted to SCM students.
P. Siska

SCM.264 Databases and Data Analysis for Supply Chain Management
Subject meets with SCM.274
Prereq: None
G (Fall; second half of term)
3-0-3 units
Introduces databases, data analysis, and machine learning topics. Covers data modeling, relational databases, SQL queries, data mining, non-relational databases, and data warehouses. Introduces data analysis tools for visualization, regression, supervised and unsupervised techniques including principal component analysis and clustering. Term project includes implementation of data model, database, visualization and data analysis. SCM.274 meets with SCM.264 but requires fewer assignments and lectures. Restricted to SCM students.
C. Cassa
**SCM.265[J] Global Supply Chain Management**

Same subject as 1.265[J], 2.965[J], 15.765[J]
Prereq: 15.761, 15.778, SCM.260[J], SCM.261[J], or permission of instructor
G (Spring)
Not offered regularly; consult department
2-0-4 units

Focuses on the planning, processes, and activities of supply chain management for companies involved in international commerce. Students examine the end-to-end processes and operational challenges in managing global supply chains, such as the basics of global trade, international transportation, duty, taxes, trade finance and hedging, currency issues, outsourcing, cultural differences, risks and security, and green supply chains issues. Highly interactive format features student-led discussions, staged debates, and a mock trial. Includes assignments on case studies and sourcing analysis, as well as projects and a final exam.

*Staff*

**SCM.266 Freight Transportation**

Prereq: SCM.260[J]
G (Spring; second half of term)
2-0-4 units

Provides an in-depth introduction to the fundamental concepts and techniques related to the design, procurement, and management of freight transportation. Examines freight transportation as a bridging function for a firm, considering the physical flow of raw materials and finished goods as well as connections to suppliers and customers. Also covers how freight transportation insulates a firm’s core operations from external disruptions and variability of supply and demand.

*C. Caplice, Y. Sheffi*

**SCM.267 Global Supply Chain Management Topics**

Prereq: None. Coreq: SCM.265[J]
G (Spring)
Not offered regularly; consult department
2-0-1 units

Discusses the basic theories of international trade, cultural differences in global supply chains, sustainability, risks, and security. Highly interactive format features student-led discussions, staged debates, and a mock trial. Assignments include case studies and student presentations. Meets with SCM.265[J].

*Staff*

**SCM.271 Logistics Systems Topics**

Subject meets with 1.260[J], 15.770[J], IDS.730[J], SCM.260[J]
Prereq: Permission of instructor
G (Fall)
1-0-2 units

Provides an introduction to supply chain management from both analytical and practical perspectives. Taking a unified approach, students develop a framework for making intelligent decisions within the supply chain. Covers key logistics functions, such as demand planning, procurement, inventory theory and control, transportation planning and execution, reverse logistics, and flexible contracting. Explores concepts such as postponement, portfolio management, and dual sourcing. Emphasizes skills necessary to recognize and manage risk, analyze various tradeoffs, and model logistics systems.

SCM.271 meets with SCM.260[J] but requires fewer assignments and lectures.

*Y. Sheffi, C. Caplice*

**SCM.272 Supply Chain Specialty Workshop**

Prereq: None
G (IAP)
2-0-1 units

Introduces topics of maritime logistics, segmentation and revenue management, sourcing and purchasing fundamentals, service parts logistics, retailing operations, green supply chain management, and supply chain innovation in a series of hands-on workshops. Restricted to SCM students.

*J. Velazquez Martinez*

**SCM.274 Databases and Data Analysis Topics for Supply Chain Management**

Subject meets with SCM.264
Prereq: Permission of instructor
G (Fall; second half of term)
1-0-2 units

Introduces databases, data analysis, and machine learning topics. Covers data modeling, relational databases, SQL queries, data mining, non-relational databases, and data warehouses. Introduces data analysis tools for visualization, regression, supervised and unsupervised techniques including principal component analysis and clustering. Term project includes implementation of data model, database, visualization and data analysis. SCM.274 meets with SCM.264 but requires fewer assignments and lectures. Restricted to SCM students.

*C. Cassa, T. Hall*
SCM.280 Supply Chain Communications Workshop
Prereq: None
G (Fall, IAP; partial term)
1-0-0 units
Introduces topics of communication and methods to improve communication skills. Provides students with tools needed to become clear speakers and effective leaders. Includes assessment of communication styles, tactics for effective negotiation, interview strategies, and presenting one's self. Restricted to SCM students.
J. Velazquez Martinez, M. Jesus Saenz

SCM.281 Supply Chain Public Speaking Workshop
Prereq: None
G (Spring; partial term)
1-0-0 units
Further develop and refine public speaking skills through engaging interactive workshops. Techniques learned will help students become dynamic and authentic speakers. Includes impromptu speaking preparation, facilitating meetings, selling to the board room, and crafting presentations, always in relation to concepts and fundamentals of supply chain management. Restricted to SCM students.
J. Velazquez Martinez

SCM.282 Supply Chain Leadership Workshop
Prereq: None
G (IAP)
2-0-1 units
Designed to enhance your ability to manage and lead in challenging times through a series of self assessment instruments, case studies, and workshops. The objectives are to increase awareness of your strengths and weaknesses as a leader, provide a battery of instruments and surveys to help one understand the way one operates in an organizational setting, and offer strategies and tips on how to leverage one's strengths and work on areas in need of development. Restricted to SCM students.
J. Velazquez Martinez

SCM.283 Humanitarian Logistics
Subject meets with SCM.284
Prereq: None
G (Spring; first half of term)
2-0-4 units
Explores how logistics management principles apply in dynamic, resource-constrained contexts, ranging from humanitarian crisis response to international development. Class sessions combine interactive presentations, practical exercises, case discussions, and guest speakers from humanitarian organizations. Provides an introduction to supply chain concepts and the humanitarian context to accommodate students from various backgrounds.
J. Goentzel

SCM.284 Humanitarian Logistics with Project
Subject meets with SCM.283
Prereq: None
G (Spring)
3-0-9 units
Explores how logistics management principles apply in dynamic, resource-constrained contexts, ranging from humanitarian crisis response to international development. Combines interactive presentations, practical exercises, case discussions, and guest speakers from humanitarian organizations. Provides an introduction to supply chain concepts and the humanitarian context to accommodate students from various backgrounds. Team projects utilize data and information from the UN, NGOs, government agencies, and the private sector. Meets with SCM.283 first half of term.
J. Goentzel

SCM.290 Sustainable Supply Chain Management
Prereq: None
G (Spring; first half of term)
2-0-4 units
Introduces operational aspects of sustainable supply chains. Focuses on analyzing the implications of environmental considerations in logistics decisions. Topics include carbon footprint, sustainable logistics, closed-loop supply chains, reverse logistics, and sustainable supply chain strategy. Includes a team project that evaluates the sustainable supply chain strategy of an industry or a publicly-traded company.
J. Velazquez
**SCM.291 Procurement Fundamentals**  
Prereq: None  
G (Spring; second half of term)  
2-0-4 units

Introduces strategic procurement fundamentals to enhance both competitive advantage and resilience to supply chains. Covers frameworks and tools that managers use to elevate purchasing from an operational function to a strategic one. Includes both classic resilience- and cost-based portfolios, as well as modern perspectives, which consider sustainability and power. Combines theoretical and applied perspectives and is designed for students with or without previous procurement experience. Assessment based on case analysis and a final project.  
*D. Correll*

**SCM.293[J] Urban Last-Mile Logistics**  
Same subject as 1.263[J], 11.263[J]  
Prereq: None  
G (Spring; first half of term)  
2-0-4 units

Explores specific challenges of urban last-mile B2C and B2B distribution in both industrialized and emerging economies. Develops an in-depth understanding of the perspectives, roles, and decisions of all relevant stakeholder groups, from consumers, to private sector decision makers, to public policy makers. Discussion of the most relevant traditional and the most promising innovating operating models for urban last-mile distribution. Introduces applications of the essential quantitative methods for the strategic design and tactical planning of urban last-mile distribution systems, including optimization and simulation. Covers basic facility location problems, network design problems, single- and multi-echelon vehicle routing problems, as well as associated approximation techniques.  
*M. Winkenbach*

**SCM.294 Digital Supply Chain Transformation**  
Prereq: None  
G (Fall, Spring; first half of term)  
2-0-4 units

Analyzes the factors involved in the digital transformation of supply chain relationships. Develops an in-depth understanding of the perspectives, roles, and decisions of relevant stakeholders in transforming supply chains in the digital era. Covers digital supply chain capabilities, the role of technology, processes and organizations, as well as digital platforms and performance. Discusses relevant case studies of digitally transformed supply chains, covering topics of long-term competitive advantage through operations and digital enhanced value generation. Includes presentations, guest speakers, team projects and case discussions, under experiential learning complementary approaches.  
*M. Jesus Saenz*

**SCM.295 Supply Chain Study Trek**  
Prereq: None  
G (Spring; partial term)  
1-0-0 units

Focuses on real world application of logistics and supply chain. Includes travel to on-site locations, company visits, facility operation tours, and partner presentations. Requires prior approval, detailed proposal, and final report. Restricted to SCM students.  
*J. Velazquez, M. Jesus Saenz*

**SCM.301 Independent Study: Supply Chain Management**  
Prereq: None  
G (Fall, IAP, Spring)  
Not offered regularly; consult department  
Units arranged  
Can be repeated for credit.  
Opportunity for research in Supply Chain Management and Logistics on an individual or group basis. Registration subject to prior arrangement and supervision by staff.  
*Staff*

**SCM.302 Independent Study: Supply Chain Management**  
Prereq: None  
G (Spring)  
Units arranged [P/D/F]  
Can be repeated for credit.  
Opportunity for research in Supply Chain Management and Logistics on an individual or group basis. Registration subject to prior arrangement and supervision by staff.  
*Staff*
SCM.500 Studies in Supply Chain Management
Prereq: Permission of department
G (IAP)
0-0-42 units

Y. Sheffi, CTL Staff

SCM.800 Capstone Project in Supply Chain Management
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.
Provides an opportunity for students to synthesize their coursework and professional experience in supply chain management. Students conduct research on a real-world problem of interest to supply chain practitioners. Projects may include site visits, in-person interviews and quantitative analysis of data provided by a sponsoring company, agency, or NGO. Students present their research results in both a report and to an audience of sponsors and supply chain executives. Restricted to SCM students.

J. Velazquez, M. Jesus Saenz

SCM.S90 Special Subject: Supply Chain Management
Prereq: None
G (Fall, Spring)
Not offered regularly; consult department
Units arranged
Can be repeated for credit.
Opportunity for study of topics in Supply Chain Management not otherwise included in the curriculum.

Staff

SCM.S91 Special Subject: Supply Chain Management
Prereq: None
G (Fall, Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.
Opportunity for study of topics in Supply Chain Management not otherwise included in the curriculum.

Consult Staff

SCM.S92 Special Subject: Supply Chain Management
Prereq: None
G (Fall, Spring)
Not offered regularly; consult department
Units arranged [P/D/F]
Can be repeated for credit.
Opportunity for study of topics in Supply Chain Management not otherwise included in the curriculum.

Staff

SCM.S94 Special Subject: Supply Chain Management
Prereq: None
G (Spring; second half of term)
Units arranged [P/D/F]
Can be repeated for credit.
Opportunity for study of topics in Supply Chain Management not otherwise included in the curriculum.

Staff

SCM.THG Graduate Thesis
Prereq: None
G (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.
Program of research leading to the writing of a master's thesis on a relevant supply chain management topic. Arranged by the student with a member of the Center for Transportation and Logistics (CTL) research staff.

J. Velazquez, M. Jesus Saenz

SCM.UR Undergraduate Research (New)
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged [P/D/F]
Can be repeated for credit.
Undergraduate research opportunities in Supply Chain Management.

Staff
SCM.URG Undergraduate Research (New)
Prereq: None
U (Fall, IAP, Spring, Summer)
Units arranged
Can be repeated for credit.

Undergraduate research opportunities in Supply Chain Management.
Staff