

Supply Chain Management

Chairperson: Dr. Mark Barratt, Ph.D.

Degree offered

MS in Supply Chain Management

PROGRAM DESCRIPTION

MS in Supply Chain Management is a 24-month, 31-credit cohort program designed to develop ethical leaders in the field of supply chain management. The program is a mix of predominantly online, and three short (3-4 day), face-to-face residential workshops. Students are required to attend and complete **all** three in-residence workshops that are held on campus at the beginning, middle and end of the two-year period, to complete the program. Students are required to complete the on-line course materials and assessments. All students are required to complete and achieve a pass in the masters capstone applied project. Cohorts begin in the fall term.

The program is aimed at individuals with technical or business degrees who are looking to further develop their understanding of the roll of supply chain management in their organizations, lead technical teams and units as well as supply chain initiatives and innovations, and expand their organization's competitiveness through innovation use of supply chain management for business effectiveness and efficiencies.

Students may pursue a specialization in Data Science. The student needs to take 6 additionally specified credits beyond the master's program requirements, which extends the student's program. Students may also apply to the Certificate in Data Science via the Graduate School's Mathematics and Computer Science program and potentially achieve the certificate versus the specialization. A maximum of 9 credits may double count between the master's degree and certificate program.

PREREQUISITES FOR ADMISSION

Admission to the master's in supply chain program requires: a) a four-year bachelor's degree from an accredited college or university; b) an acceptable record of academic achievement at the bachelor's level and in any previous graduate course work; c) acceptable scores on required admission tests; and d) an overall composite profile of admission data (including an evaluation of previous work experience) that predicts success in the program.

APPLICATION REQUIREMENTS

Students may apply for Regular Degree, Temporary Non-degree or Non-degree status. It is recommended that students apply for Regular Degree Status when possible. The application is online via the GSM website (<http://business.marquette.edu/academics/gsm>). Then click on Apply Now.

1. A completed application form and fee.
2. Official transcripts from all current and previous colleges/universities except Marquette.
3. Official test scores from the Graduate Management Admission Test (GMAT) test code 1448 or Graduate Records Exam (GRE) test code 5786.
 - a. Applicants may request a waiver of the GMAT/GRE requirement if they have earned an overall quality point average of 3.250 or higher with proof of quantitative course coverage from an AACSB accredited school.
4. Resume or job profile.
5. Two letters of recommendation.
6. (For international applicants only) an official TOEFL score (test code 1448 and department code 02) or other acceptable proof of English proficiency.

Note: Temporary non-degree applicants (admission valid for one term only) must submit all of the above, except the GMAT or GRE scores. Temporary non-degree status is not available to international students. International applicants must apply for regular degree admission status.

Students are encouraged to complete all application materials and apply for degree status. Temporary non-degree status is valid for one term only. Temporary non-degree status students are not eligible to continue taking M.S. classes beyond one term without degree admissions. Typically, non-degree admission is not recommended in the M.S program.

All application material should be sent to:

Graduate School of Management
 David A. Straz, Jr. Hall, Executive Center, Suite 275
 Marquette University
 P.O. Box 1881
 Milwaukee, WI 53201-1881

or by courier to: Marquette University Graduate School of Management; David A. Straz, Jr. Hall, Executive Center, Suite 275; 1225 W Wisconsin Avenue; Milwaukee, WI 53233

Supply Chain Management

The Master of Science in Supply Chain Management program (SCMM) is designed to be completed in 24 months. This is a 31-credit, cohort program designed to develop ethical leaders in the field of supply chain management. The program is mix of predominantly online and three short (3-4 day), face-to-face residential workshops. Applicants without the required supply chain management background are required to successfully complete SCMM 6501 Supply Chain Foundation at the beginning of the program. Those with a supply chain background may request a waiver of this requirement.

Students enroll in six (6) credits of courses each term. Three (3) of the total 31 credits are formed by three (3) residential workshop periods.

PROGRAM DETAILS

Master's Degree with No Specialization

COSC 6520 or MBA 6100	Business Analytics ¹ Business Analytics	3
SCMM 6500	Supply Chain Workshop 1	1
SCMM 6501	Supply Chain Foundation	1
SCMM 6505	Logistics - Methods and Systems	2
SCMM 6510	Sourcing in the Digital Supply Chain	2
SCMM 6515	Industry 4.0	2
SCMM 6520	Additive Manufacturing	1
SCMM 6525	Network Design	2
SCMM 6530	Supply Chain Workshop 2	1
SCMM 6535	Supply Chain Collaboration	2
SCMM 6540	Transportation	1
SCMM 6545	Applied Project	2
SCMM 6550	Supply Chain Workshop 3	1
SCMM 6931	Topics in Supply Chain Management	1
SCMM 6997	Supply Chain Capstone	3
And two electives (6 credits) from the following:		6
SCMM 6555	Supply Chain Planning	
SCMM 6560	Global Strategic Sourcing	
SCMM 6565	Lean Enterprise	
SCMM 6570	Supply Chain Finance	
SCMM 6575	Enterprise Systems	
COSC 5500	Advanced Data Science	
COSC 5820	Ethical and Social Implications of Data	
COSC 6510	Business Intelligence	
COSC 6570	Data at Scale	

Total Credit Hours

31

¹ If COSC 6520 Business Analytics is chosen, COSC 6540 Data Analytics is recommended for students with a programming background.

Master's Degree with a Specialization in Data Science

A Data Science specialization is available. To earn the specialization, students must complete COSC 5820 Ethical and Social Implications of Data and COSC 6510 Business Intelligence as the two electives in the Master of Science in Supply Chain Management program. Additionally, students must complete COSC 5500 Advanced Data Science and COSC 6570 Data at Scale, which adds an additional 6 credit hours to the overall program requirements and brings the total number of program credits to 37.

All courses for the specialization must be completed prior to graduating from the Master of Science in Supply Chain Management program. The grade of B or better is required in all courses related to a specialization. Transfer credits are not permitted for courses related to specializations. Obtaining both the specialization and a certificate is not permitted. Courses may not be used for more than two of the following options: certificate, specialization, master's.

COSC 6520 or MBA 6100	Business Analytics ¹ Business Analytics	3
SCMM 6500	Supply Chain Workshop 1	1
SCMM 6501	Supply Chain Foundation	1

SCMM 6505	Logistics - Methods and Systems	2
SCMM 6510	Sourcing in the Digital Supply Chain	2
SCMM 6515	Industry 4.0	2
SCMM 6520	Additive Manufacturing	1
SCMM 6525	Network Design	2
SCMM 6530	Supply Chain Workshop 2	1
SCMM 6535	Supply Chain Collaboration	2
SCMM 6540	Transportation	1
SCMM 6545	Applied Project	2
SCMM 6550	Supply Chain Workshop 3	1
SCMM 6931	Topics in Supply Chain Management	1
SCMM 6997	Supply Chain Capstone	3
Specialization requirements:		
COSC 5500	Advanced Data Science	3
COSC 5820	Ethical and Social Implications of Data	3
COSC 6510	Business Intelligence	3
COSC 6570	Data at Scale ²	3
or COSC 6060	Parallel and Distributed Systems	
or COSC 6380	Advanced Database Systems	
Total Credit Hours		37

¹ If COSC 6520 Business Analytics is chosen, COSC 6540 Data Analytics is recommended for students with a programming background.

² COSC 6060 Parallel and Distributed Systems or COSC 6380 Advanced Database Systems is recommended for students with a computer science background.

Master's Degree with the Data Science Certificate

The Department of Computer Science offers a Data Science certificate. If a Supply Chain Management student chooses to earn the certificate, admission to the Data Science certificate program must be obtained at the same time as admission to the Supply Chain Management program and will be enrolled simultaneously into both programs. Only credits taken while admitted to the certificate program may apply toward the certificate requirement. Certificates must be approved individually via the curriculum approval process as Title IV aid eligible, meeting Gainful Employment guidelines, in order for students in any of these programs to be eligible to apply for federal financial aid. There is no retroactive awarding of certificates or using courses that were taken prior to the admission to the certificate program to satisfy the requirements of a certificate, and credit may not be transferred in to satisfy the requirements for certificates.

The course requirements for the Data Science certificate are the same as those required for the specialization, as outlined above, plus COSC 6520 Business Analytics or MBA 6100 Business Analytics. The certificate may add up to an additional 9 credits to the master's requirements. Obtaining both the specialization and a certificate is not permitted. Courses may not be used for more than two of the following options: certificate, specialization, master's.

For more information on the certificate in Data Science, please see the Graduate School Bulletin.

Master's Degree with the Business and Managerial Analytics Certificate

The Graduate School of Management offers a Business and Managerial Analytics certificate. If a Supply Chain Management student chooses to earn the certificate, admission to the Business and Managerial Analytics certificate program must be obtained at the same time as admission to the Supply Chain Management program and will be enrolled simultaneously into both programs. Only credits taken while admitted to the certificate program may apply toward the certificate requirement. Certificates must be approved individually via the curriculum approval process as Title IV aid eligible, meeting Gainful Employment guidelines, in order for students in any of these programs to be eligible to apply for federal financial aid. There is no retroactive awarding of certificates or using courses that were taken prior to the admission to the certificate program to satisfy the requirements of a certificate, and credit may not be transferred in to satisfy the requirements for certificates.

The course requirements for the Business and Managerial Analytics certificate are as follows:

COSC 6520	Business Analytics	3
or MBA 6100	Business Analytics	
COSC 5820	Ethical and Social Implications of Data	3
And two electives (6 credits) from the following: ¹		6
MARK 6130	Customer Relationship Management	

MARK 6160	Marketing Research
MARK 6165	Marketing Analytics
ECON 6560	Applied Econometrics
ECON 6561	Applied Time-Series Econometrics and Forecasting
ACCO 5060	Accounting Analytics ²
or ACCO 6060	Accounting Analytics
or ACCO 6535	Fraud Examination and Analytics
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Total Credit Hours	12

¹ Electives for the Business and Managerial Analytics certificate would replace one or both of courses chosen from the electives list under the master's degree with no specialization.

² ACCO 6535 Fraud Examination and Analytics is recommended for students with a sufficient background in accounting.

The certificate may add up to an additional 9 credits to the master's requirements. Obtaining both the specialization and a certificate is not permitted. Courses may not be used for more than two of the following options: certificate, specialization, master's.

Accelerated Bachelor's-Master's Degree Program

This five-year program allows students to earn both their master of science in supply chain management (M.S. in Supply Chain Management) and an undergraduate degree from the College of Business Administration. Undergraduate students begin their graduate work in their senior year. A maximum of 9 credits may count for both the undergraduate and graduate degrees.

Should a student be denied admission to the M.S. in Supply Chain Management program, the courses are counted toward the undergraduate degree only. A minimum grade of B is required for courses taken as a undergraduate student for graduate credit to apply toward graduate program requirements. Upon completion of the first term as a master's candidate, the student must petition the appropriate Graduate School of Management program director to transfer the courses taken as an undergraduate to the master's degree.

To be considered for admission to the five-year program, applicants must formally apply to the Graduate School of Management during their junior year at Marquette University, complete all of the application requirements as listed above and indicate on their application that they are applying for the five-year or ADP program. For information, contact the Graduate School of Management (414) 288-7145, send an email to GSM@marquette.edu, or visit the Graduate School of Management website (<https://www.marquette.edu/business/graduate>).

Courses

SCMM 6500. Supply Chain Workshop 1. 1 cr. hr.

A 4-day, in-residence workshop that introduces the students to the Supply Chain program and provides an initial view of the purpose of the master's, i.e., the transition from traditional to digital supply chains. During the 4-days students experience a manual supply chain game which helps to familiarize them with the dynamics of the supply chain and the dynamic nature of information sharing across the supply chain. The 4-day workshop concludes with a case competition where the students compete in teams during a live case study. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6501. Supply Chain Foundation. 1 cr. hr.

Provides a holistic overview of the supply chains, and the various functions (e.g. Sourcing and Procurement; Manufacturing and Operations; Logistics and Distribution) and cross-functional processes (e.g. balancing supply and demand), that when integrated can provide firms with a sustainable competitive advantage. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6505. Logistics - Methods and Systems. 2 cr. hrs.

Provides an overview of the key elements of a successful logistics function that meets both customer and company objectives. Topics include: an introduction to location analysis (warehouses and distribution centers) and network design, transportation management, inventory management, international logistics, logistics technology and warehouse management. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6510. Sourcing in the Digital Supply Chain. 2 cr. hrs.

Students are taken systematically through an entire process of designing sourcing strategies, supplier evaluation and selection process; as well as design and execution of buyer-supplier relationship strategies. Students learn basics of negotiations and contracting, supply risk management and costing techniques that will help them with their careers in purchasing and supply chain management. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6515. Industry 4.0. 2 cr. hrs.

The term Industry 4.0 encompasses a promise of a new industrial revolution—one that marries advanced manufacturing techniques with the Internet of Things (IoT) to create a digital manufacturing enterprise that is not only interconnected, but communicates, analyzes and uses information to drive further intelligent action back in the physical world. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6520. Additive Manufacturing. 1 cr. hr.

An overview of additive manufacturing (3D Printing), the various approaches and applications of additive manufacturing. Highlights the various challenges of deploying additive manufacturing in a supply chain context. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6525. Network Design. 2 cr. hrs.

Provides a holistic view of how to design a distribution network, including the factors that influence the design; various strategies relating to where inventories are held and how they are shipped to customers and consumers; role of carriers and 'last mile' delivery issues; and importance of product and information flows and the rise of the Digital Networks. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6530. Supply Chain Workshop 2. 1 cr. hr.

A 4-day, in-residence workshop that provides an intense overview and application of commercial negotiations practices, from both supplier and customer perspectives. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6535. Supply Chain Collaboration. 2 cr. hrs.

Provides a broad view of the opportunities for collaboration, internally within an organization and with customers and suppliers; including the many layers of collaboration. Reviews the emerging technologies that enable and support collaboration. Finally, considers the regulatory and legal challenges which limit collaboration and the impact of geographical, cultural and legal jurisdictions on the ability to fully collaborate. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6540. Transportation. 1 cr. hr.

Focuses on fundamental principles and role of transportation systems, costing and pricing. Explores motor carrier, railroad and airline transportation. Students learn about transportation risk management and global transport planning and execution. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6545. Applied Project. 2 cr. hrs.

Students work in teams on applied projects with local companies, taking their understanding from the previous courses in the program and applying these to a real business problem. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6550. Supply Chain Workshop 3. 1 cr. hr.

A 4-day, in-residence workshop, in which students present the results of their applied projects to the project-sponsoring organizations in the form of a case competition. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6555. Supply Chain Planning. 3 cr. hrs.

Focuses on leading edge techniques used in developing a manufacturing strategy, inventory management, cycle time reduction, production scheduling ERP, JIT/Kanban, synchronous manufacturing, supply chain management and advanced manufacturing systems. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6560. Global Strategic Sourcing. 3 cr. hrs.

Focuses on strategic sourcing in the global economy. Explores the process of segmenting third-party external spend for ensuring that scarce procurement resources are directed to the most important categories. Spend analysis is used to establish categories or commodities on which to focus where the greatest impact can be made. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6565. Lean Enterprise. 3 cr. hrs.

Focuses on the key concepts of lean and leading cultures of continuous improvement. Explores how to engage others in the lean thinking transformation process. Also explores a broad range of lean tools and how to use these in a lean transformation. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6570. Supply Chain Finance. 3 cr. hrs.

An introduction to understanding supply chain financial performance and management. Includes the following: the case for supply chain finance; working capital management; managing costs across the supply chain; managing inventory from a financial perspective; organizations involved in the supply chain financial ecosystem; value propositions and the options for supply chain finance; and cross-borders issues for global supply chain finance. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6575. Enterprise Systems. 3 cr. hrs.

Focuses on how an IT system like ERP supports and integrates core business processes within an organization and across its supply chains. Format includes a combination of lectures and in-class exercises using SAP's ERP system. Discusses key ERP concepts and issues from functional, technical and implementation viewpoints. Also includes hands-on working experience (through simulation) in manufacturing and distribution using SAP in the following areas: Sales Order Process, Purchasing, MRP, Production Ordering, Accounting and Forecasting. Investigates the reasons why many ERP installations are considered "failures" and ways to circumvent these unfortunate outcomes, competing ERP platforms, and business intelligence tools available within SAP. To demonstrate an understanding of course-related ERP content, students experience a "real world" market simulation requiring knowledge derived from this course and previous courses. Data from this simulator are used for data modeling and analytics. Prereq: Admitted to SCMM; or cons. of M.B.A. prog. dir.

SCMM 6931. Topics in Supply Chain Management. 1-3 cr. hrs.

Topics vary. Prereq: Admitted to SCMM.

SCMM 6997. Supply Chain Capstone. 3 cr. hrs.

Brings together all the major concepts covered in the SCMM program and how each is interconnected and related to one another. Adopting a strategic perspective, the capstone explores how organizations develop and implement a variety of supply chain strategies. Prereq: Admitted to SCMM.