# Supply Chain Management, MS

***Program Director:  Dr. Mark Barratt, Ph.D.***
MS in Supply Chain Management website (https://www.marquette.edu/business/graduate/master-supply-chain.php)

## Degree Offered

MS in Supply Chain Management

## Program Description

The MS in Supply Chain Management is designed to develop ethical leaders in the field of supply chain management. 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.

The program is offered online with three 1-credit in-person workshops. The program may be completed within one calendar year, including fall, spring and summer terms. Most students enroll in the S.C.M.M. program part-time. All students are required to complete and achieve a pass in the masters capstone applied project.

Students may pursue a specialization in Data Science. To complete the specialization, the student needs to take 6 additionally specified credits beyond the master's program requirements, which extends the student's program.

## Prerequisites for Admission

Admission to the master's in supply chain program requires:

1. a bachelor's degree from an accredited college or university;
2. an acceptable record of academic achievement at the bachelor's level and in any previous graduate course work. Applicants with an undergraduate GPA below 3.000 need to complete an admissions interview and may be asked to supply a GMAT/GRE score if evidence of quantitative work is not reflected in academic course work or professional work experience;
3. an overall composite profile of admission data (including an evaluation of previous work experience) that predicts success in the program.

## Application Requirements

Application requirements and the online application link are available through the GSM website (https://www.marquette.edu/business/graduate/master-supply-chain.php).

**Note:** Students may apply for regular degree, non-degree or temporary non-degree status. Non-degree applicants and temporary non-degree applicants must submit all required application materials. Non-degree and temporary non-degree status are 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. Non-degree status and temporary non-degree status are valid for a term or a limited number of terms as approved by the program director. Students with non-degree or temporary non-degree status are not eligible to continue taking GSM classes beyond the time frame the approved term(s) without degree admission. Typically, non-degree admission is not recommended in the S.C.M.M. program.

## 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 (2-3 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.

### Master's Degree with No Specialization

| Code | Title | Hours |
|---|---|---|
| Required core courses [1] | | |
| COSC 6520 | Data Analytics | 3 |
| or MBA 6100 | Business Analytics | |
| SCMM 6500 | Supply Chain Workshop 1 | 1 |

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|---|---|---|
| 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 | Transportation and Network Design | 2 |
| SCMM 6530 | Supply Chain Workshop 2 | 1 |
| SCMM 6535 | Supply Chain Collaboration | 2 |
| SCMM 6545 | Applied Project | 2 |
| SCMM 6550 | Supply Chain Workshop 3 | 1 |
| SCMM 6570 | Supply Chain Finance | 1 |
| SCMM 6931 | Topics in Supply Chain Management | 1 |
| SCMM 6997 | Supply Chain Capstone | 3 |
| Electives - Choose two courses (6 credits) from the following: | | 6 |
| SCMM 6502 | Supply Chain Management | |
| SCMM 6504 | Negotiations | |
| SCMM 6540 | Transportation | |
| SCMM 6542 | Supply Chain Sustainability | |
| SCMM 6547 | Applied Project 2 | |
| SCMM 6555 | Supply Chain Planning | |
| SCMM 6559 | Supply Chain Risk and Resilience | |
| SCMM 6560 | Global Strategic Sourcing | |
| SCMM 6565 | Lean Enterprise | |
| SCMM 6570 | Supply Chain Finance | |
| SCMM 6575 | Enterprise Systems | |
| COSC 6510 | Data Intelligence | |
| COSC 6520 | Data Analytics | |
| COSC 6570 | Data at Scale | |
| COSC 6820 | Data Ethics | |
| **Total Credit Hours:** | | **31** |

[1]     Depending on the track and class delivery, e.g., part-time track, full-time track, and/or 100% online delivery, some elective courses will become required courses. The total number of credits remains at 31, however. Plans of study should be developed prior to beginning studies with the director of the program.

## Master's Degree with a Specialization in Data Science

A Data Science specialization is available. To earn the specialization, students must complete COSC 6510 Data Intelligence and COSC 6820 Data Ethics as the two electives in the Master of Science in Supply Chain Management program. Additionally, students must complete COSC 6520 Data Analytics 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 or master's.

| Code | Title | Hours |
|---|---|---|
| MBA 6100 | 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 | Transportation and Network Design | 2 |

| SCMM 6530 | Supply Chain Workshop 2 | 1 |
|---|---|---|
| SCMM 6535 | Supply Chain Collaboration | 2 |
| SCMM 6545 | Applied Project | 2 |
| SCMM 6550 | Supply Chain Workshop 3 | 1 |
| SCMM 6570 | Supply Chain Finance | 1 |
| SCMM 6931 | Topics in Supply Chain Management | 1 |
| SCMM 6997 | Supply Chain Capstone | 3 |
| Specialization requirements: | | |
| COSC 6510 | Data Intelligence | 3 |
| COSC 6520 | Data Analytics | 3 |
| COSC 6570 | Data at Scale | 3 |
| COSC 6820 | Data Ethics | 3 |
| **Total Credit Hours:** | | **37** |

## 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. 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 MBA 6100 Business Analytics. The certificate may add up to an additional 6 credits. 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 or master's.

For more information, see the certificate in Data Science (https://bulletin.marquette.edu/graduate/data-science-certificate/).

## 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. 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:

| Code | Title | Hours |
|---|---|---|
| COSC 6520 | Data Analytics | 3 |
| or MBA 6100 | Business Analytics | |
| COSC 6510 | Data Intelligence | 3 |
| COSC 6820 | Data Ethics | 3 |
| Electives - Choose two courses (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 6535 | Fraud Examination and Analytics | |
| **Total Credit Hours:** | | **15** |

[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. 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 or master's.

## Master's Degree with No Specialization with a Systems Engineering or Machine Learning Certificate

The Opus College of Engineering offers the Systems Engineering (SYEN) certificate and the Machine Learning (MLRN) certificate. Students may wish to earn the Supply Chain Management master's degree plus one of these certificates (SYEN or MLRN). This option can be pursued by those who have already completed the Systems Engineering or Machine Learning certificate or by concurrent enrollment in the Supply Chain master's degree and in the System Engineering or Machine Learning certificate.

Students seeking concurrent SCMM master's-engineering certificate enrollment must do so prior to taking engineering certificate courses. Those enrolled in the Supply Chain master's program who take engineering courses prior to enrolling in the specified certificate are not be permitted to apply those courses to completing a certificate.

Those who have already completed either certificate within the last 5 years can have those courses applied to meet the certificate requirements specified below:

| Code | Title | Hours |
|---|---|---|
| COSC 6520 | Data Analytics [1,2] | 3 |
| or MBA 6100 | Business Analytics | |
| SCMM 6500 | Supply Chain Workshop 1 | 1 |
| SCMM 6501 | Supply Chain Foundation | 1 |
| SCMM 6505 | Logistics - Methods and Systems | 2 |
| SCMM 6515 | Industry 4.0 | 2 |
| SCMM 6520 | Additive Manufacturing | 1 |
| SCMM 6530 | Supply Chain Workshop 2 | 1 |
| SCMM 6535 | Supply Chain Collaboration | 2 |
| SCMM 6545 | Applied Project | 2 |
| SCMM 6550 | Supply Chain Workshop 3 | 1 |
| SCMM 6997 | Supply Chain Capstone | 3 |
| Engineering Certificate Courses - See course options listed below. | | 12 |
| **Total Credit Hours:** | | **31** |

Systems Engineering Course options:

| Code | Title | Hours |
|---|---|---|
| Required Courses | | |
| GEEN 5820 | Systems Engineering Principles and Practice | 3 |
| GEEN 5830 | Engineering Risk Analysis | 3 |
| Elective Courses - Choose two courses from the following: | | 6 |
| BIEN 5320 | Biomedical Instrumentation Design | |
| BIEN 5510 | Image Processing for the Biomedical Sciences | |
| BIEN 5700 | Systems Physiology | |
| CEEN 5640 | Traffic Characteristics and Design | |
| CEEN 5715 | Sustainable Engineering | |
| COSC 5360 | Software and System Security | |
| COSC 5600 | Fundamentals of Artificial Intelligence | |
| EECE 5460 | Sensor Devices: Theory, Design and Applications | |
| EECE 5630 | Software Testing | |
| EECE 5650 | Introduction to Algorithms | |
| EECE 5850 | Introduction to Intelligent Systems | |
| GEEN 5810 | Industrial Ecology and Sustainable Design | |
| GEEN 5840 | Model-Based Systems Engineering | |
| MEEN 5270 | Physical Systems Modeling | |
| MEEN 5410 | Experimental Design | |
| PSYC 5330 | Human Factors Engineering | |

Other courses as approved by the certificate faculty sponsor and the associate dean for academic affairs in the Opus College of Engineering

| | | |
|---|---|---|
| **Total Credit Hours:** | | **12** |

Machine Learning Course options:

| Code | Title | Hours |
|---|---|---|
| Required Course: | | |
| EECE 6822 | Machine Learning | 3 |
| Elective courses - Choose three courses from the following: | | 9 |
| COSC 5500 | Visual Analytics | |
| COSC 5610 | Data Mining | |
| COSC 6330 | Advanced Machine Learning | |
| COSC 6570 | Data at Scale | |
| COSC 6820 | Data Ethics | |
| EECE 5650 | Introduction to Algorithms | |
| EECE 5690 | Developments in Computer Software | |
| or COSC 5600 | Fundamentals of Artificial Intelligence | |
| EECE 5850 | Introduction to Intelligent Systems | |
| EECE 5860 | Introduction to Neural Networks and Fuzzy Systems | |
| EECE 5870 | Evolutionary Computation | |
| EECE 6810 | Algorithm Analysis and Applications | |
| EECE 6820 | Artificial Intelligence | |
| EECE 6830 | Pattern Recognition | |
| EECE 6840 | Neural Networks and Neural Computing | |
| EECE 6932 | Advanced Topics in Electrical and Computer Engineering | |

Other courses approved by the certificate faculty sponsor, the EECE director of graduate studies (DGS) and the chair of the EECE department.

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|---|---|---|
| **Total Credit Hours:** | | **12** |

[1]     Students pursuing the MLRN option may opt to enroll in COSC 6520.

[2]     Students pursuing the SYEN option must enroll in MBA 6100.

## 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/).

## University Policies

- Academic Censure - Graduate School of Management (https://bulletin.marquette.edu/policies/academic-censure/management/)
- Academic Integrity (https://bulletin.marquette.edu/policies/academic-integrity/)
- Academic Misconduct (https://bulletin.marquette.edu/policies/academic-misconduct-policy/)
- Academic Program Definitions (https://bulletin.marquette.edu/policies/academic-programs-defined/)
- Accelerated Degree Programs (https://bulletin.marquette.edu/policies/accelerated-degree-programs/)
- Attendance - Graduate School of Management (https://bulletin.marquette.edu/policies/attendance/management/)
- Awarding Diplomas and Certificates (https://bulletin.marquette.edu/policies/awarding-diplomas-certificates/)
- Background Checks, Drug Testing (https://bulletin.marquette.edu/policies/background-checks-drug-testing/)

- Class Rank (https://bulletin.marquette.edu/policies/class-rank/)
- Commencement (https://bulletin.marquette.edu/policies/commencement/)
- Conferral of Degrees and Certificates (https://bulletin.marquette.edu/policies/conferral-degrees-certificates/)
- Course Levels (https://bulletin.marquette.edu/policies/course-levels/)
- Credit Hour (https://bulletin.marquette.edu/policies/credit/)
- Credit Load - Graduate School of Management (https://bulletin.marquette.edu/policies/credit-load/management/)
- Faculty Grading (https://bulletin.marquette.edu/policies/faculty-grading/)
- Family Education Rights and Privacy Act-FERPA (https://bulletin.marquette.edu/policies/ferpa/)
- Grade Appeals (https://bulletin.marquette.edu/policies/grade-appeals/)
- Grading System - Graduate School and Graduate School of Management (https://bulletin.marquette.edu/policies/grading-system/graduate-management/)
- Graduation - Graduate School of Management (https://bulletin.marquette.edu/policies/graduation/management/)
- Immunization and Tuberculosis Screening Requirements (https://bulletin.marquette.edu/policies/immunization-and-tuberculosis-screening/)
- Last Date of Attendance/Activity (https://bulletin.marquette.edu/policies/last-dateof-attendance-activity/)
- Military Call to Active Duty or Training (https://bulletin.marquette.edu/policies/militarycall-active-duty-training/)
- Registration - Graduate School of Management (https://bulletin.marquette.edu/policies/registration/management/)
- Repeated Courses - Graduate School of Management (https://bulletin.marquette.edu/policies/repeated-courses/management/)
- Student Data Use and Privacy (https://bulletin.marquette.edu/policies/student-data-use-privacy/)
- Transcripts-Official (https://bulletin.marquette.edu/policies/transcripts-official/)
- Transfer Course Credit - Graduate School of Management (https://bulletin.marquette.edu/policies/transfer-course-credit-policy/management/)
- Withdrawal - Graduate School of Management (https://bulletin.marquette.edu/policies/withdrawals/management/)

## Graduate School of Management Policies

- Academic Programs Overview - Graduate School of Management (https://bulletin.marquette.edu/business-administration/policies/academic-programs-overview/)
- Academic Review (https://bulletin.marquette.edu/business-administration/policies/academic-review/)
- Accelerated Degree Program (ADP) (https://bulletin.marquette.edu/business-administration/policies/accelerated-degree-program/)
- Advising (https://bulletin.marquette.edu/business-administration/policies/advising/)
- Appeals (https://bulletin.marquette.edu/business-administration/policies/appeals/)
- Assistanships and Fellowships (https://bulletin.marquette.edu/business-administration/policies/assistanships-fellowships/)
- Certificate Concurrent Enrollment (https://bulletin.marquette.edu/business-administration/policies/certificate-concurrent-enrollment/)
- College of Business Administration Policies (https://bulletin.marquette.edu/business-administration/policies/)
- Communication (https://bulletin.marquette.edu/business-administration/policies/communication/)
- Conduct (https://bulletin.marquette.edu/business-administration/policies/conduct/)
- Confidentiality of Proprietary Information (https://bulletin.marquette.edu/business-administration/policies/confidentiality-proprietary-information/)
- Continuous Enrollment (https://bulletin.marquette.edu/business-administration/policies/continuous-enrollment/)
- Courses and Prerequisites (https://bulletin.marquette.edu/business-administration/policies/courses-prerequisites/)
- Cross-listed Courses (https://bulletin.marquette.edu/business-administration/policies/cross-listed-courses/)
- Deadlines (https://bulletin.marquette.edu/business-administration/policies/deadlines/)
- Dual/Joint Programs of Study (https://bulletin.marquette.edu/business-administration/policies/dual-joint-programs/)
- Graduate Credit (https://bulletin.marquette.edu/business-administration/policies/graduate-credit/)
- Independent Study Courses (https://bulletin.marquette.edu/business-administration/policies/independent-study-courses/)
- Intellectual Property (https://bulletin.marquette.edu/business-administration/policies/intellectual-property/)
- Inter-University Visitation (https://bulletin.marquette.edu/business-administration/policies/inter-university-visitation/)
- Law Student Consent to Take a GSM Course (https://bulletin.marquette.edu/business-administration/policies/law-student-consent-take-gsm-course/)
- Temporary Withdrawal from a Graduate Program (https://bulletin.marquette.edu/business-administration/policies/temporary-withdrawal/)
- Time Limitations (https://bulletin.marquette.edu/business-administration/policies/time-limitations/)
- Undergradaute Students in Graduate Courses (https://bulletin.marquette.edu/business-administration/policies/undergraduate-students-in-graduate-courses/)