Computer Science MS with Data Science Track

Course Checklist

CS MS Prerequisite Courses* (0-12 units, as indicated in admission letter from CS MS Program Director and milestones assigned in Student Center)

- COSC 501 Fundamentals of Data Structures and Algorithms (6 units)
- COSC 502 Computer Organizational and Assembly Language for Non-CS/IS Majors (3 units)
- MATH 263 Discrete Mathematics (3 units)

OR

- No prerequisites necessary

Core Requirements for All Tracks (15 units)

1. COSC 519 Operating Systems Principles (3 units)
2. COSC 578 Database Management Systems (3 units)
3. COSC 600 Advanced Structures and Algorithm Analysis (3 units)
4. COSC 612 Software Engineering (3 units)
5. COSC 650 Computer Networks (3 units)

Project/Thesis** Requirement for All Tracks (3-6 units) Select one of the following:

1. COSC 880 COSC Project (3 units)
2. COSC 897/COSC 898 Computer Science Thesis (6 units)

Data Science Track-Required Courses (9 units):

COSC 757 Data Mining (3 units)

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AND

Select two of the following (6 units):

1. COSC 657 Database Management Systems II (3 units)
2. COSC 683 Security and Internet Algorithms (3 units)
3. COSC 710 Social Network Analysis (3 units)
4. COSC 760 Big Data Analytics (3 units)

Elective Courses (3-6 units) Any 600/700 level COSC courses that are NOT taken in Core or Track Courses will be counted as electives

1. ________________________________
2. ________________________________
3. ________________________________
Notes

* COSC 501, COSC 502, and MATH 263 fulfil prerequisite requirements only and cannot be counted towards CS MS elective requirements; these courses do not fulfil any CS MS degree requirements and should not be taken unless assigned at admission.

** Students choosing the thesis option will complete 15 units of Core Courses, 6 units of thesis coursework, 9 units of Track Courses, and 3 units of Elective Courses. Students choosing the non-thesis option will complete 15 units of Core Courses, 3 units of Project coursework, 9 units of Track Courses, and 6 units of Elective Courses.

** COSC 880 Project, COSC 885 Project Continuum, COSC 897/COSC 898 Computer Science Thesis require a proposal and program permission to enroll.

Awarding of CS MS degree also subject to additional graduation requirements, including but not limited to: Overall GPA of 3.0, 7-year time limit starting with the first course used to fulfil degree requirements, no more than two 500-level courses; See Graduate Catalog for complete details (catalog.towson.edu/graduate)

Computer Science Electives (Any 600/700 level COSC courses NOT taken in Core or Track Courses); See Graduate Catalog for Complete Prerequisites

- COSC 571 Computer Performance Evaluation (3 units)
- COSC 581 Artificial Intelligence (3 units)
- COSC 583 Design and Analysis of Algorithms (3 units)
- COSC 601 Software Requirements Engineering (3 units)
- COSC 602 Computer Vision and Image Processing (3 units)
- COSC 603 Software Testing and Maintenance (3 units) †
- COSC 605 Human Factors and Human Computer Interaction (3 units)
- COSC 609 Software Project Management (3 units) †
- COSC 611 Computer Simulation (3 units)
- COSC 614 Software Engineering II (3 units)
- COSC 617 Advanced Web Development (3 units)
- COSC 618 Enterprise Architecture (3 units)
- COSC 638 Advanced Computer Architecture (3 units)
- COSC 639 Operating Systems II (3 units)
- COSC 641 Intro to E-Commerce (3 units)
- COSC 643 Internet Supply Chain Management (3 units)
- COSC 644 Introduction to Information Assurance (3 units)
- COSC 645 Applied Cryptology (3 units) †
- COSC 647 Application Software Security (3 units)
- COSC 650 Computer Networks (3 units)
- COSC 657 Database Management Systems II (3 units)
- COSC 661 Artificial Intelligence Programming and Adaptive Systems (3 units)
- COSC 665 Expert System Design and Development (3 units)
- COSC 670 Special Topics in Computer Science (3 units)
- COSC 680 Seminar in Computer Science (3 units)
- COSC 683 Security and Internet Algorithms (3 units)
- COSC 685 Information Security and Risk Management (3 units)
- COSC 686 Computer Graphics (3 units)
- COSC 695 Independent Study in Computer Science (3 units)
- COSC 697 Graduate Internship (3 units)-requires permission to enroll
- COSC 710 Social Network Analysis (3 units)
- COSC 714 Fuzzy Logic in Control Applications (3 units)
- COSC 715 Robotics (3 units)
- COSC 716 Object Oriented Methodology (3 units) †
- COSC 725 Process Control and Real Time Systems (3 units)
- COSC 730 Network Management Systems (3 units)
- COSC 732 Wireless Networks and Mobile Communications (3 units)
- COSC 734 Network Security (3 units)
- COSC 735 Advanced Topics in Computer Networks (3 units)
- COSC 740 Parallel Computing (3 units)
- COSC 741 E-Commerce Case Studies (3 units)
- COSC 745 Advanced Topics in Computer Security (3 units)
- COSC 750 Neural Networks and Deep Learning (3 units)
- COSC 757 Data Mining (3 units)