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)

- ☐ 3. COSC 757 Data Mining (3 units)

AND

Select two of the following (6 units):

- ☐ 1. COSC 657 Database Management Systems 11(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 11(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)