COMPUTER SCIENCE (MSCS)

Master of Science

This program is offered on the Aurora campus.

Program Description

The Master of Science in Computer Science (MSCS) is more than a traditional program— it's a catalyst for innovators seeking to lead in a rapidly evolving digital world. With a curriculum that emphasizes foundational knowledge, emerging technologies, and sustainable strategic approaches, students gain the expertise and leadership skills to redefine how technology serves society. From programming to policy, this program prepares graduates to create a lasting impact at the intersection of technology and innovation.

Program Features and Goals

- Innovative Curriculum — The MSCS program stands out through its innovative pedagogy, combining experiential learning, interdisciplinary approaches, and cuttingedge technology to prepare students for leadership in the ever-evolving tech landscape. This dynamic curriculum fosters creativity and critical thinking, empowering students to shape the future of technology in transformative ways.
- Strategic Technology Leadership - Students will develop skills in technology strategy and sustainable innovation, empowering them to lead digital transformation initiatives that address societal needs and promote global progress.
- Interdisciplinary Integration—The program takes a holistic approach and incorporates interdisciplinary principles from business, ethics, and systems thinking to ensure that graduates can approach challenges with a broader perspective.
- Hands-On Learning — Through project-based coursework, capstone experiences, and exposure to real-world case studies, students will translate theory into practice, tackling complex problems with creativity and rigor.
- Focus on Emerging and Disruptive Technologies - Courses are tailored to examine the societal, organizational, and ethical implications of rapidly evolving technologies, preparing graduates to evaluate and shape policies, frameworks, and innovations that drive technological and human progress.
- Global and Sustainable Impact - Recognizing the role of technology in shaping the future, the program emphasizes the development of solutions that are not only innovative but also sustainable, fostering a positive and lasting impact on communities and the environment.

Program Structure

The MSCS program requires students to complete a total of 36 credits, comprising 27 core credits and 9 elective/specialization credits. Typical students must take 9 credit hours each semester, with program completion in 2 years. Courses will be offered in a hybrid format.

Curricular Practical Training

For students seeking practical experience, the MSCS program includes a Curricular Practical Training (CPT) component. CPT provides students with the opportunity to apply their knowledge in real-world settings through internships or cooperative learning experiences with industry partners. This practical experience ensures graduates are well prepared for immediate and impactful contributions to their organizations.

Program Requirements

Code	Title	Credits
Core Requirements		
CSC-5010	Foundations of Emerging Technologies	3
CSC-5050	Ethics and Sustainability in Tech Policy	3
CSC-5100	Big Data Technologies and Architectures	3
CSC-5150	Computer Systems Architecture and Engineering	3
CSC-5200	Cyber-Physical Systems and Security	3
CSC-5300	Cloud Computing	3
CSC-5400	Human-Computer Interaction	3
CSC-5500	Machine Learning and Large Language Models	3
CSC-5600	Advanced Programming Paradigms	3
Specialization Courses		**9**
Students must complete either the Cybersecurity track or the Data Science track		
Cybersecurity		
CSC-5700	Supply Chain and BlockChain Resistance	
CSC-5800	Incident Response & Digital Forensics	
CSC-5900	Cloud Security and Infrastructure Protection	
CSC-5911	Cyber-Physical Systems and Security [1]	
Data Science		
CSC-5750	Data Visualization, Storytelling, and Communication	
CSC-5850	Big Data Analytics and Cloud Computing	
CSC-5950	Data Engineering & Scalable Systems	
CSC-5911	Cyber-Physical Systems and Security [1]	
Total Credits		**36**

[1] This course is required for students pursuing a practical component to their track. It may be taken once each semester the student is enrolled, and must be started in the first year in order to complete 3 semester hours.

Graduate Degree Requirements

1. Completion of all coursework specified by the graduate program.
2. Cumulative GPA of at least 3.0 on a 4.0 scale, or higher if specified by the graduate program.
3. Submission of all pre-graduation materials required by the graduate program.
4. Acceptance of thesis or other required final project by the graduate program.
5. Submission of two copies of approved thesis or project in a specified form together with payment of binding fee where applicable.
6. Submission of Application for Graduation and payment of any graduation fees assessed by the university.
7. In the case of certification programs, submission of all governmental forms.

8. Residency Requirement: A minimum of 25% percent of the total credits required for the completion of the graduate degree or post-baccalaureate certificate or credential must be earned at Aurora University. Individual programs may establish more extensive residency requirements, including requirements that specific coursework be completed at Aurora University.

Learning Outcomes

1. Students should be able to apply concepts from machine learning, secure computing architectures, big data technologies, and cloud computing to solve real-world challenges.
2. Students should be able to develop technology strategies that address societal needs focusing on sustainable innovation.
3. Students should be able to integrate interdisciplinary principles from business, ethics, and systems thinking to approach technological challenges.
4. Students should be able to evaluate implications of emerging technologies on communities and the environment.