

Spring 2027 MSCS Courses	
Category A: In-person Courses	Category A: Online Courses
CSCI 5573: Operating Systems Instructor: Ilkyeun Ra MW 3:30pm-4:45pm	CSCI 5593: Advanced Computer Architecture Instructor: Gita Alaghband
Category B: In-Person Courses	Category B: Online Courses
CSCI 5172: Complexity and Problem Solving Instructor: Tom Altman MW 11:00am-12:15pm *Monday In-Person; Wednesday Zoom	CSCI 5743: Cyber/Infrastructure Defense Instructor: Haadi Jafarian
CSCI 5742: Cybersecurity Programming and Analysis Instructor: Haadi Jafarian TTH 11:00am-12:15pm	CSCI 5773: Introduction to Emerging System Security Instructor: Zhenxiong Li
CSCI 5750: Satellite Communication & Networking Instructor: Xiaojian Wang MW 2:00pm-3:15pm	CSCI 5930: Machine Learning Instructor: Ashis Biswas
CSCI 5800-001: AI and Quantum Instructor: Ashis Biswas TTH 9:30am-10:45am	CSCI 5951: Big Data Systems Instructor: Farnoush Banaei-Kashani
Category C: In-Person	
CSCI 5011: Software Project Management Support Instructor: Paul Newell F 9:30am-11:45am	

Spring 2027 Courses to Satisfy MS Course Project

CSCI 5172: Complexity and Problem Solving

Instructor: Tom Altman

MW 11:00am-12:15pm

*Monday In-Person; Wednesday Zoom

CSCI 5742: Cybersecurity Programming and Analysis

Instructor: Haadi Jafarian

TTH 11:00am-12:15pm

CSCI 5743: Cyber/Infrastructure Defense

Instructor: Haadi Jafarian

Online

CSCI 5750: Satellite Communication & Networking

Instructor: Xiaojian Wang

MW 2:00pm-3:15pm

CSCI 5773: Introduction to Emerging System Security

Instructor: Zhenxiong Li

Online

CSCI 5930: Machine Learning

Instructor: Ashis Biswas

Online

CSCI 5951: Big Data Systems

Instructor: Farnoush Banaei-Kashani

Online

Special Topics Course Descriptions:

CSCI 5800-001: AI and Quantum- This course explores the emerging intersection of artificial intelligence, machine learning, quantum computing, and optimization, with an emphasis on using AI methods to improve the design, control, operation, and performance of quantum computing systems. Topics include machine learning for quantum-device characterization and calibration, reinforcement learning for quantum control, AI-assisted quantum circuit synthesis and compilation, optimization of variational quantum algorithms, noise modeling, error mitigation, and AI-assisted quantum error correction. The course also examines hybrid classical-quantum optimization for AI and engineering applications, including binary optimization, QUBO and Ising formulations, QAOA, warm-start and learning-assisted quantum optimization, and applications such as feature selection, active learning, scheduling, clustering, resource allocation, and other combinatorial problems. Students gain hands-on experience using Python-based quantum computing and machine-learning frameworks, including PennyLane and Qiskit, while critically evaluating the capabilities and limitations of current quantum technologies.

A central goal of the course is to prepare students for the transition from today's noisy, hybrid quantum systems toward increasingly capable, scalable, and fault-tolerant quantum computing platforms. By developing skills that span AI, optimization, quantum algorithms, and quantum-system intelligence, students will be equipped to contribute to the next generation of quantum computing in which AI is expected to play an important role in automating, optimizing, and scaling quantum technologies.