

APPLIED COMPUTER SCIENCE MASTER OF SCIENCE

Leading to a Master of Science Degree in Applied Computer Science

Artificial Intelligence (AI) & Machine Learning (ML) have revolutionized the way we live and work. As organizations continue to find new uses for this exciting technology, the demand for computer scientists trained in their application continues to skyrocket. The thesis-based Master of Science in Applied Computer Science, with concentration in AI, gives students the theoretical and practical skills needed to advance their career and stand out in today's competitive job market. The Master of Science in Applied Computer Science is available in a 4+1 specifically for computer science or closely related majors at Wentworth students completing eight credits of graduate level courses during their senior spring and summer semesters, a 2-Year program which is a more traditional masters degree for students with a baccalaureate degree in computer science or related field, and a 3-Year program which prepares students who have little or no programming experience for entry into the 2-Year program, further allowing any student regardless of their background, to pursue a Master of Science in Applied Computer Science degree.

Program Educational Objectives

At the end of this program, students will be able to:

- Model, analyze, and design computing processes and systems
- Demonstrate mastery of leading-edge techniques and technologies
- Evaluate current and emerging issues in computing

Student Outcomes

Graduates of the Master of Science in Applied Computer Science graduates will:

- Demonstrate and function effectively in a team, engage in the process of modeling, designing, and implementing computer-based systems of varied complexity utilizing multiple technologies.
- Maintain effective communication with stakeholders in a typical software development environment by preparing and delivering effective technical presentations using appropriate technologies writing clear and accurate technical documents.
- Learn new models, techniques, and technologies as they emerge, and appreciate the necessity for continuing professional development.
- Demonstrate an ability to model, analyze and design computing processes and systems.
- Analyze a current significant software technology, articulate its strengths and weaknesses, and specify and promote improvements or extensions to that technology.
- Recognize and analyze social and professional issues and responsibilities faced by computing professionals.

4 +1 Masters of Science in Applied Computer Science: Requirements which include two courses (8 credits) completed during senior year and one additional graduate year starting in the fall. 32 credits

Course	Title	Credits
Spring Semester: Undergraduate Senior Year		
COMP5050	MODERN COMPUTING	4

Course	Title	Credits
Summer Semester: Undergraduate Senior Year		
COMP5700	CLASSICAL ARTIFICIAL INTELLIGENCE	4
Grade of B or higher required in undergraduate courses to satisfy requirements in the Master of Science in Applied Computer Science		
Year One: Fall		
COMP5705	DATA MINING	3
	or COMP5710	PRINCIPLES OF MACHINE LEARNING
AI Elective ²		3
AI Elective ²		3
COMP7500	THESIS I	3
Spring		
AI Elective ²		3
ACS Elective ³		3
General Elective ¹		3
COMP7550	THESIS II	3
Total Credits		32

2-Year Program Master of Science in Applied Computer Science: Requirements for students with a baccalaureate degree in computer science, or related field.

35 credits

Course	Title	Credits
Year 1: Fall		
COMP5050	MODERN COMPUTING	4
General Elective ¹		3
MATH5750	APPLIED STATISTICS	4
Spring		
COMP5700	CLASSICAL ARTIFICIAL INTELLIGENCE	4
AI Elective ²		3
ACS Elective ³		3
Year 2: Fall		
COMP5705	DATA MINING	3
	or COMP5710	PRINCIPLES OF MACHINE LEARNING
AI Elective ²		3
COMP7500	THESIS I	3
Spring		
AI Elective ²		3
COMP7550	THESIS II	3
Total Credits		35

3-Year Program Master of Science in Applied Computer Science: Requirements for students with any baccalaureate degree to earn a Masters of Science in Applied Computer Science. 55 credits

Course	Title	Credits
Year 1: Fall		
COMP5900	PROGRAMMING FUNDAMENTALS	6
MATH5200	METHODS OF CALCULUS	4
Spring		
COMP5925	DATA STRUCTURES & ALGORITHMS	6
MATH5750	APPLIED STATISTICS	4
Year 2: Fall		
COMP5050	MODERN COMPUTING	4
COMP5710	PRINCIPLES OF MACHINE LEARNING	3

Course	Title	Credits
General Elective ¹		3
Spring		
COMP5700	CLASSICAL ARTIFICIAL INTELLIGENCE	4
AI Elective ²		3
ACS Elective ³		3
Year 3: Fall		
COMP5705 or COMP5710	DATA MINING PRINCIPLES OF MACHINE LEARNING	3
AI Elective ²		3
COMP7500	THESIS I	3
Spring		
AI Elective ²		3
COMP7550	THESIS II	3
Total Credits		55

¹ Any graduate level course

² Choose from AI Electives: COMP5750 EMBEDDED ARTIFICIAL INTELLIGENCE, COMP5775 ADVANCED PARALLEL COMPUTING, COMP6760 COMPUTER VISION,* COMP7800 GRADUATE SPECIAL TOPICS IN APPLIED COMPUTER SCIENCE *requires school approval

³ Any graduate level course with a COMP prefix or MATH5710 Machine Learning