

MASTER OF SCIENCE IN ARTIFICIAL INTELLIGENCE

The Master of Science in Computer Science at Concordia University Wisconsin prepares graduate students to advance their expertise in computing through rigorous study of algorithms, systems design, and emerging technologies while integrating ethical reflection and professional responsibility. The program combines core technical mastery with opportunities for specialization in areas such as software engineering, cybersecurity, and data science, and culminates in applied capstone experiences that emphasize real-world problem solving. Graduates emerge with **deep technical competency, strategic thinking, and leadership skills** that empower them to innovate responsibly in industry, research, and service, grounded in the university's commitment to purposeful Christian-informed engagement.

By fulfilling all of the course requirements for the Master of Science in Artificial Intelligence, students will be able to:

1. Evaluate and implement AI systems with ethical and legal integrity, addressing bias, fairness, transparency, privacy, accountability, and issues related to economic access and potential harm. Articulate a vocational understanding of artificial intelligence as a means of serving others, guided by a Christian worldview that informs responsible innovation, professional humility, and care for the common good.
2. Conduct data acquisition, including collecting, cleaning, storing, and analyzing data from multiple sources using APIs, databases, and machine learning algorithms to solve real-world problems. Design and integrate domain-specific AI agents, enabling secure and flexible task execution with real-time knowledge integration.
3. Apply foundational AI theory and mathematics, including neural networks, probabilistic models, evolutionary computation, language theory, and search algorithms. Evaluate and implement AI systems with ethical and legal integrity, addressing bias, fairness, transparency, privacy, accountability, and issues related to economic access and potential harm.
4. Develop AI systems and intelligent agents using supervised, unsupervised, and reinforcement learning. Engineer effective prompts to guide large language models (LLMs) for better alignment, formatting, and adaptability in practical applications.
5. Communicate AI concepts, results, and ethical considerations effectively to both technical and non-technical audiences with clarity and responsibility. Define and evaluate Artificial Intelligence, distinguishing between semantic, historical, and popular definitions.
6. Utilize LLMs in industrial settings through APIs, embeddings, and structured deployment in embedded systems and enterprise environments. Assess the performance and limitations of AI models using appropriate evaluation metrics, and iteratively refine models based on diagnostic results.

Curriculum

Code	Title	Hours
CSC 5010	AI Ethics and Vocation	3
CSC 5015	Applied Artificial Intelligence	3
CSC 6210	Applied Restful APIs and Integrations	3
CSC 6270	Applied Research Practicum	3
CSC 5025	Cybersecurity	3

CSC 6220	Language Theory	3
CSC 6230	Industrial AI Application and Practice	3
CSC 6240	Data Acquisition and Management	3
CSC 6250	Neural Networks and Deep Learning	3
CSC 6260	Natural Language Processing	3

Total Hours **30**

Plan

Course	Title	Hours
Semester 1		
CSC 5010	AI Ethics and Vocation	3
CSC 5015	Applied Artificial Intelligence	3
Hours		6
Semester 2		
CSC 6210	Applied Restful APIs and Integrations	3
CSC 5025	Cybersecurity	3
Hours		6
Semester 3		
CSC 6220	Language Theory	3
CSC 6230	Industrial AI Application and Practice	3
Hours		6
Semester 4		
CSC 6240	Data Acquisition and Management	3
CSC 6250	Neural Networks and Deep Learning	3
Hours		6
Semester 5		
CSC 6260	Natural Language Processing	3
CSC 6270	Applied Research Practicum	3
Hours		6
Total Hours		30

Course options and schedule are subject to change.