

ARTIFICIAL INTELLIGENCE (GRADUATE CERTIFICATE)

Description

The graduate certificate in artificial intelligence lets either existing graduate students or working professionals gain exposure to cutting-edge topics in contemporary AI. Available courses cover many AI interest areas, including: Generative language models such as Llama and ChatGPT, Theory and application of machine learning, Robotics and planning. The certificate can be pursued alone, or as part of another graduate degree. All classes are offered in-person only. Students enrolled in the program have access to UNH's innovative DeepThought AI infrastructure, which provides both inference and fine-tuning access to hosted Llama models, including a retrieval-augmented generation (RAG) infrastructure.

Requirements

Certificate Requirements

Incoming students must have at least one semester of computer programming or equivalent experience. Some courses require extensive programming background and others require extensive math background. Students interested in the certificate should have at least one of these two possible backgrounds.

Required Courses

- Students complete four courses for the certificate.
- *It is recommended that students select one of the pathways outlined below. Or, the certificate may be completed by selecting any four courses from the list of elective courses.*

Code	Title	Credits
<i>AI and Robotics</i>		
CS 830	Introduction to Artificial Intelligence	4
CS 833	Mobile Robotics	4
CS 931	Planning for Robots	3
CS 933	Human Robot Interaction	3
Code Title Credits		
<i>AI for Text</i>		
CS 852	Foundations of Neural Networks	4
CS 853	Information Retrieval and Generation Systems	4
CS 859A	Natural Language Processing	4
CS 881	Data Science for Knowledge Graphs and Text	4
Code Title Credits		
<i>Mathematical Foundations of ML</i>		
CS 850	Machine Learning	4
CS 852	Foundations of Neural Networks	4
CS 857	Mathematical Optimization for Applications	4
CS 950	Advanced Machine Learning	3
Code Title Credits		
<i>AI for the Physical Sciences</i>		
CS 850	Machine Learning	4
CS 851A	Reinforcement Learning	4
CS 852	Foundations of Neural Networks	4
CS 959	Fair, Accountable and Transparent Machine Learning	3

Code	Title	Credits
<i>AI for Business and Finance</i>		
CS 850	Machine Learning	4
CS 851A	Reinforcement Learning	4
or CS 852	Foundations of Neural Networks	
CS 859A	Natural Language Processing	4
CS 959	Fair, Accountable and Transparent Machine Learning	3
Code Title Credits		
<i>AI for the Social Sciences, Law, and Medicine</i>		
CS 850	Machine Learning	4
CS 852	Foundations of Neural Networks	4
or CS 853	Information Retrieval and Generation Systems	
CS 859A	Natural Language Processing	4
CS 959	Fair, Accountable and Transparent Machine Learning	3
Code Title Credits		
Elective Courses		
Select four courses from the following: ¹		
CS 830	Introduction to Artificial Intelligence	4
CS 833	Mobile Robotics	4
CS 850	Machine Learning	4
CS 851A	Reinforcement Learning	4
CS 852	Foundations of Neural Networks	4
CS 853	Information Retrieval and Generation Systems	4
CS 855	Computer Vision	4
CS 857	Mathematical Optimization for Applications	4
CS 859A	Natural Language Processing	4
CS 881	Data Science for Knowledge Graphs and Text	4
CS 931	Planning for Robots	3
CS 933	Human Robot Interaction	3
CS 950	Advanced Machine Learning	3
CS 959	Fair, Accountable and Transparent Machine Learning	3

¹ It is recommended that students complete one of the four pathways listed. However, this certificate may be completed by taking any four of the courses from the list of electives.