

Artificial Intelligence, M.S.

Degree Offered

- Master of Science

Nature of the Program

The Lane Department of Computer Science and Electrical Engineering offers the Master of Science in Artificial Intelligence (M.S.A.I.), a fully online graduate program designed to prepare students for real-world, industry-ready roles in today's rapidly evolving AI landscape. Tailored for professionals and recent graduates with foundational knowledge or practical experience in computer science or related fields, the program blends theoretical foundations with applied skills in machine learning, intelligent systems, and data-driven decision-making. With five core courses and five electives that can be customized to individual interests, students gain the ability to design, implement, test, and critically evaluate AI techniques across a range of domains, including healthcare, cybersecurity, energy systems, and intelligent automation. The flexible structure supports full-time professionals, career changers, recent graduates, and aspiring researchers alike, providing a rigorous yet accessible pathway into one of the most in-demand fields of the future.

Program Educational Objectives

The objective of the program is to produce graduates who have the knowledge, skills, and mindset that will ensure success in professional positions in business, industry, research, or governmental service. After completing the required core and elective courses, students will achieve proficiency in:

- Artificial Intelligence Concepts and Methodologies, including supervised, unsupervised, and generative AI.
- Application of AI Techniques across a variety of domains such as robotics, health informatics, cybersecurity, and energy systems.
- Development of Novel AI Solutions, with the ability to design, implement, and evaluate new algorithms and tools.
- AI Research Methods, including the ability to conduct and interpret research and communicate results effectively to diverse audiences.
- Ethical and Societal Implications of AI, including understanding bias, fairness, accountability, and the broader impact of AI technologies.

Admissions for 2026-2027

- Submit a personal statement. Personal statements should be 750 to 1,000 words and double-spaced. This is an opportunity to tell the admissions committee more about your reasons to earn this degree and should not repeat the information on your resume.
- Submit two (2) professional and/or educational references.
- Submit official transcripts showing degree completion of a bachelor's degree in computer science, computer engineering, cybersecurity, or a closely related field from an accredited University, with a minimum cumulative grade point average of 3.0 (on a 4-point scale) or better.
 - Students with a degree in other fields of study from accredited institutions, but having at least one year experience in cybersecurity/AI/ML may be considered for provisional admission. One year experience should be highlighted through reference letter(s) and other documents. Provisional students will be required to complete three core courses with a 'B' or above. After successful completion of three core courses, the student will move to regular graduate status.
- Submit a resume that reflects your education and experience.
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- International applicants must meet the WVU requirement of English language proficiency.

Major Code: 3028

Curriculum in Master of Science in Artificial Intelligence

A candidate for the M.S. degree in artificial intelligence must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Lane Department of Computer Science and Electrical Engineering.

Program Requirements

All M.S. degree candidates are required to follow a planned program of study. The student's faculty advisor, in conjunction with the student's Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student's needs. The Masters of Science in Artificial Intelligence degree is designed to students a solid grounding and competence in the theories, technologies and applications of artificial intelligence. This degree program offers students a robust curriculum in computer science and data science topic while, also offering students with an opportunity to explore artificial intelligence developments and applications in other discipline areas.

Curriculum Requirements

Code	Title	Hours
A minimum cumulative GPA of 3.0 is required		
Up to six (6) credit hours can be at the 400 level		
Required Courses		
CS 560	Big Data Engineering	3
CS 574	Responsible and Safe AI	3
CS 677	Pattern Recognition	3
CS 676	Machine Learning	3
CPE 520	Application of Neural Networks	3
Elective Courses		15
CPE 553	Advanced Networking Concepts	
CPE 620	Deep Learning	
CS 460	Introduction to Big Data Engineering	
CS 472	Artificial Intelligence	
CS 573	Advanced Data Mining	
CS 678	Computer Vision	
CS 693	Special Topics *	
CYBE 564 or SENG 564	Software Engineering of Mobile Applications	
CYBE 650 or SENG 650	Cloud Computing for the Internet of Things	
EE 513	Stochastic Systems Theory	
EE 465	Introduction to Digital Image Processing	
EE 565	Advanced Image Processing	
EE 668	Information Theory	
*A maximum of six credit hours of CS 693 may applied to degree completion.		
Total Hours		30

Major Learning Outcomes

ARTIFICIAL INTELLIGENCE

- Have knowledge of the general concepts and principles of artificial intelligence, and the various areas of artificial intelligence technologies and methodologies.
- Understand the applicability of artificial intelligence technologies and methodologies across a range of problem domains.
- Have the ability to develop new artificial intelligence (AI) techniques, and to apply principles and methods of AI to a variety of application domains.
- Have the ability to engage in artificial intelligence research, to interpret the findings of artificial intelligence research, and to communicate findings to technical and non-technical audiences.
- Have the ability to apply artificial intelligence methodologies to address issues in a professional or academic area of interest.
- Understand the ethical and societal implications of artificial intelligence development and deployment in modern society.