



Master of Artificial Intelligence



PennState
World Campus

**A world of possibilities.
Online.**

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“Artificial intelligence is no longer a future technology, it is a disruptive force reshaping how organizations innovate, compete, and create value. From engineering design and scientific discovery to business operations, health care, manufacturing, finance, and education, AI is reshaping products, services, and entire industries.

“The Master of Artificial Intelligence program at Penn State is designed for this moment. It prepares professionals from diverse backgrounds — engineering, computing, business, social science, and other applied fields — to understand AI deeply and apply it responsibly. The program spans the foundations and frontiers of AI, including machine learning, deep learning, natural language processing, computer vision, predictive analytics, AI ethics, generative AI, agentic AI, autonomous systems, and digital transformation.

“What distinguishes this program is its combination of academic rigor, practical relevance, and innovative online pedagogy. Students learn not only the theories and methods behind AI, but also how to design, evaluate, and deploy AI-centered systems in real organizational settings. Through flexible pathways like technically rigorous engineering courses and applied low-code/no-code approaches, working professionals can align their studies with their experience, career goals, and industry needs.

“As demand accelerates for professionals who can lead AI adoption with technical depth, strategic insight, and ethical judgment, this program offers an exceptional Penn State education built for the future of work. Our goal is to prepare graduates not simply to use AI, but to lead the responsible innovation that AI makes possible.”

—Youakim Badr, Ph.D., HDR
Artificial intelligence program

Earn a Master of Artificial Intelligence — Online

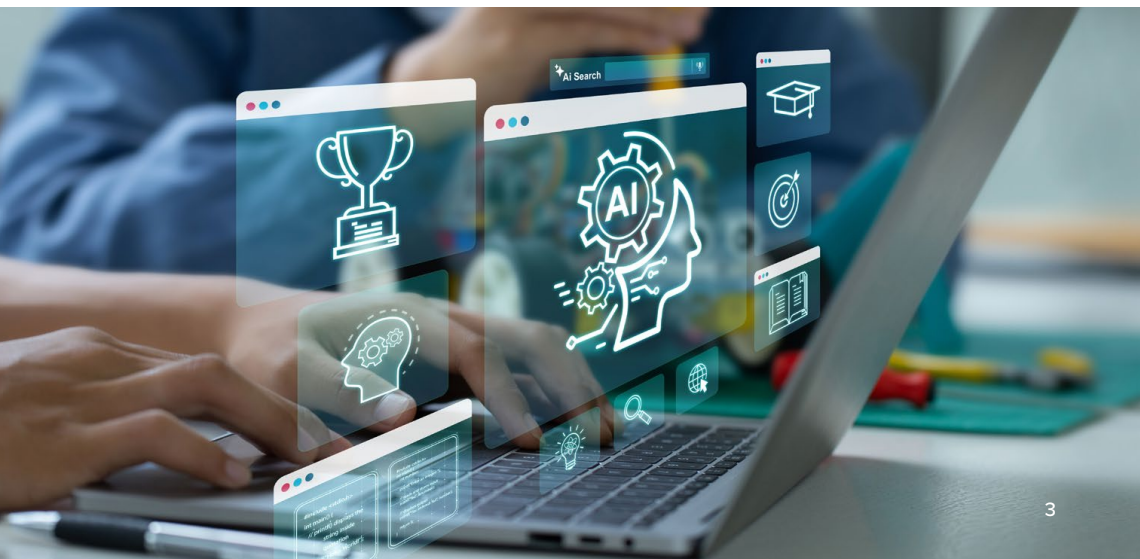
The Master of Artificial Intelligence (MAI) is a 30-credit, interdisciplinary graduate program designed to prepare professionals to lead the design, development, and deployment of artificial intelligence (AI) and machine learning (ML) solutions across a wide range of industries.

The program's two specialized options — AI Engineering and Applied and Generative AI — allow students to align their studies with their career goals and technical experience.

The **AI Engineering Option** is a technically rigorous, **systems-focused track designed for students with prior programming experience**. It emphasizes the design, implementation, and deployment of AI and ML systems, with advanced course work in areas

such as deep learning, natural language processing, predictive analytics, computer vision, and scalable AI system architecture. This option prepares graduates for hands-on, engineering-focused roles in AI.

The **Applied and Generative AI Option** is designed for professionals looking to leverage AI to drive innovation, improve decision-making, and support digital transformation within their organizations. With an emphasis on **low-code and no-code tools**, as well as generative AI platforms, this option equips graduates to strategically implement AI solutions, bridge technical and business teams, and deliver measurable operational efficiencies and growth through AI-enabled innovation.



Curriculum

The Master of Artificial Intelligence program is constructed of **three core courses** that all students will take, regardless of their choice of option.

- > Quantitative Methods
- > Foundations of Artificial Intelligence
- > Ethics of Artificial Intelligence

Depending on the chosen option, students will take three prescribed courses as follows:

AI Engineering Option	Applied and Generative AI Option
Deep Learning	Artificial Intelligence in Practice
Natural Language Processing	Generative AI
Foundations of Predictive Analytics	Applied Machine Learning

Students will work with their academic advisers to choose 3 additional elective courses that fit their goals.

The final 3-credit course is the culminating capstone course in which students apply the knowledge of the theories, methods, processes, and tools of AI learned throughout the program.

Because many of our students are working professionals who have other commitments, the curriculum is designed to provide the flexibility needed to balance both personal and professional schedules. You can finish the program in as little as two years, based on the successful completion of two courses each semester.





Stackable Graduate Certificates

You can earn three valuable graduate certificates to recognize your new skills and knowledge while you work toward your master’s degree — without any additional course work, course fees, or application fees. Stackable credentials are a great way to gain new skills, update your résumé, and accelerate the ROI of your master’s program. These certificates can be earned on their own or applied toward the Master of Artificial Intelligence options.

Embedded Credentials		Master of Artificial Intelligence	
		AI Engineering Option	Applied and Generative AI Option
Graduate Certificate	Foundations of Artificial Intelligence	X	X
	Natural Language Processing	X	
	Computer Vision	X	
	Artificial Intelligence for Business and Innovation		X
	Artificial Intelligence for Digital Transformation		X

Artificial Intelligence Graduate Certificates

Earning graduate certificates from Penn State World Campus is a great way to gain new skills and quickly add valuable credentials to your résumé.

Graduate Certificate in Foundations of Artificial Intelligence

This 9-credit certificate focuses on the foundations of artificial intelligence, including machine learning and intelligent agents. The certificate explores the process of identifying AI-related problems and then developing data-centric, AI-based systems. The program also emphasizes the importance of evaluating ethics and fairness when creating systems, serving as a cornerstone for building advanced AI skills. Courses include: Foundations of Artificial Intelligence, Applied Statistics, and Ethics of Artificial Intelligence.

Graduate Certificate in Natural Language Processing

This 9-credit certificate focuses on the interaction between computers and human language. The curriculum includes topics such as developing data-centric AI systems using predictive analytics and statistical methods, designing and training deep neural networks, and identifying natural

language processing (NLP) tasks like language translation, chatbots, speech recognition, and language modeling. Additionally, it covers the design and implementation of NLP pipelines for collecting and preprocessing textual data. Courses include: Deep Learning, Natural Language Processing, and Foundations of Predictive Analytics.

Graduate Certificate in Computer Vision

This 9-credit certificate focuses on the design and application of computer-based, machine vision systems that can interpret visual information and make decisions. In this program, you will explore the following topics: identifying computer vision tasks and problems (image classification, object detection, image segmentation, activity detection, etc.), designing computer vision pipelines to collect and preprocess images and videos, implementing advanced data visualization, and building and deploying reinforcement learning for autonomous vehicles with computer vision models. Courses include: Reinforcement Learning, Machine Vision, and Data Visualization.

Graduate Certificate in Artificial Intelligence for Business and Innovation

This 9-credit certificate helps you to develop skills in practical (or generative) AI and applied machine learning and to understand their application in business and entrepreneurship. The certificate shows professional workers without extensive programming experience how to utilize low-code/no-code tools to facilitate AI learning and application in a wide range of business problems. Courses include: Artificial Intelligence in Practice, Generative Artificial Intelligence, and Applied Machine Learning.

Graduate Certificate in Artificial Intelligence for Digital Transformation

This 9-credit certificate helps students turn AI into real business value. You'll gain practical skills in responsible AI, autonomous agent systems, and AI-driven automation to improve organizational processes. The program emphasizes ethical use through strong governance, risk management, and evaluation. Courses include: Responsible AI, Autonomous AI Agents, and AI-Driven Automation and Planning.





Career Opportunities

Artificial intelligence is transforming how organizations operate and innovate across industries including health care, manufacturing, finance, education, transportation, defense, science, and the arts. As AI becomes embedded in products, services, and decision-making, demand continues to grow for professionals who can responsibly advance, apply, and lead AI initiatives in industry, academia, and research environments.

› Graduates of the **AI Engineering Option** are prepared for advanced technical and leadership roles focused on building and deploying AI systems. Common career outcomes include machine learning engineer, AI scientist, computer vision engineer, AI platform engineer, software engineer (ML), technical architect, and chief engineer. These graduates contribute to the advancement of AI through innovative system design, technical depth, and responsible engineering practices.

› Graduates of the **Applied and Generative AI Option** are positioned to lead organizational AI adoption and digital transformation efforts. Career opportunities include AI application analyst, AI product lead or manager, innovation consultant, digital transformation manager, and operations analytics lead, where graduates bridge technical capabilities and business strategy to deliver measurable impact.





Why Penn State World Campus?

Penn State World Campus is an industry leader in online education, delivering more than 200 undergraduate and graduate degree and certificate programs to adult learners. Our mission is to provide the real Penn State educational experience, focused on convenience, flexibility, and quality. We have teams of professionals focused solely on providing students with the custom academic and support services they need to succeed.

› Reputation of excellence

Putting a Penn State degree or certificate on your résumé is a great way to broaden your career options and prove to employers that you are a well-educated professional.

› Flexibility and convenience

Penn State knows that adults need flexible and convenient learning options in order to continue meeting their professional and personal commitments. You can study when and where you please, earning your credential at the pace that makes sense for you.

› Student support services

As a Penn State World Campus student, you will be supported by a team of knowledgeable and caring staff who

understand the unique challenges of balancing work and personal responsibilities while learning online. You will have access to traditional student support services, such as 24/7 technical support, career services, and a dedicated student affairs team, along with access to the University Libraries system and the opportunity to join online clubs and organizations.

› Military and veteran services

We have aligned our online programs, student support services, policies, and procedures to support military personnel, veterans, and military family members.

Begin Your Application Today

To be considered for admission, prospective students should submit an online application form and a complete application portfolio. Admissions decisions for the Master of Artificial Intelligence are based on a review of your complete application portfolio and the quality of your credentials relative to those of other applicants.

Your master's degree application portfolio must include:

- › application form (completed and submitted online)
- › copy of official transcripts from each undergraduate and graduate institution attended
- › references
- › statement of purpose
- › résumé
- › TOEFL or IELTS score, if applicable

GRE/GMAT test scores are not required.

Bridge Course Work

Some programs may have additional mathematics and programming requirements. Applicants who don't meet the requirements may be asked to complete flexible, self-paced bridge course work before starting the program. These preparatory courses build essential foundational skills for graduate study in artificial intelligence, support a smooth transition into the program, and culminate in a digital badge recognizing successful completion. Please contact bridgeinfo@psu.edu with any questions regarding these courses.

For application deadlines and up-to-date details about the program and admissions process, visit: worldcampus.psu.edu/ai

Did You Know?

- › Penn State World Campus is consistently ranked as a top provider of online education by *U.S. News & World Report*.
- › Penn State World Campus has enrolled students from all 50 states and all 7 continents.
- › Our online courses involve frequent interactions among students and faculty.

Contact Us

Admissions Questions

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worldcampus.psu.edu/admissions

Program Questions

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