ARTIFICIAL INTELLIGENCE

Graduate Program Head	Raghu Sangwan
Program Code	AI
Campus(es)	World Campus (M.P.S.)
Degrees Conferred	Master of Professional Studies (M.P.S.)
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/?searchType=fac&prog=AI)

The MPS in Artificial Intelligence (MPS-AI) degree is a 33-credit online, interdisciplinary master's program that aims to prepare students to drive the design, development, and deployment of AI and machine learning (ML) products and services across a broad array of application domains to meet contemporary social and technical challenges. Graduates will work in positions that require them to identify and acquire datasets and design and prototype AI systems utilizing data mining, deep learning, neural networks, and collective intelligence using state-of-the-art toolsets and platforms.

Admissions Requirements

Applicants apply for admission to the program via the Graduate School application for admission (https://gradschool.psu.edu/graduate-admissions/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (https://gradschool.psu.edu/graduate-education-policies/).

Admission to the M.P.S. in Artificial Intelligence program will be based on baccalaureate academic records, applicable work experience, and two letters of recommendation from a previous professor or supervisor who can attest to the applicant's academic potential. Applicants with undergraduate degree in a computer science, engineering or mathematics may apply. Students from other disciplines will be considered based on prior coursework (including the Entrance Requirements for Mathematics and Programming stated below) and standardized test scores. Applications must include a statement of professional goals, a curriculum vita or resume, and two letters of recommendation. An undergraduate cumulative grade-point average of 3.0 or better on a 4.0 scale in the final two years of undergraduate studies is required.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. See GCAC-305 Admission Requirements for International Students (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/) for more information.

Entrance Requirement regarding Mathematics: Applicants must complete Calculus I equivalent to Penn State University's MATH 140 and one semester of probability or statistics.

Entrance Requirement regarding Programming: Applicants must complete two introductory-level programming courses where both courses used the same language. If an applicant believes his/her work experience satisfy the background, he/she should include a recommendation letter from a technical colleague describing the applicant's coding contributions at work.

Degree Requirements

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (https://gradschool.psu.edu/graduate-education-policies/).

The MPS-AI degree is conferred upon students who earn a minimum of 33 credits at the 400, 500, or 800 level while maintaining an average grade-point average of 3.0 or better in all course work, including at least 18 credits at the 500 level or 800 level (with at least 6 credits at the 500 level). The program curriculum includes 21 credits of required courses, 9 credits of electives, and a 3-credit capstone course.

Code	Title	Credits
Required Courses		
STAT 500	Applied Statistics	3
DAAN 570	Deep Learning	3
DAAN 862	Analytics Programming in Python	3
A-I 879	Machine Vision	3
A-I 574	Natural Language Processing	3
A-I 801	Foundation of Artificial Intelligence	3
STS 589	Ethics and Values in Science and Technology	3
Electives		
An additional 9 credits of elective courses must be selected from the approved list of elective courses maintained by the graduate program office.		9
Culminating Experience		
A-I 894	Capstone Experience	3
Total Credits		**33**

Culminating Experience

All students will complete their program of study with the 3-credit capstone course (A-I 894) that provides students with an opportunity to apply their knowledge of the theories, methods, processes, and tools of AI, learned throughout their program, in a culminating and summative experience. The choice of project topic and exact form will be mutually determined by the instructor and each student. A written paper based on the applied project is required and must contain project description, analysis, and interpretation of its findings. Students will be encouraged to upload their capstone work products to be available publicly via ScholarSphere (https://scholarsphere.psu.edu/) and to participate in the World Campus Graduate Capstone Exhibition.

Minor

A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policies listed under GCAC-600 Research Degree Policies (https://gradschool.psu.edu/graduate-education-policies/) and GCAC-700 Professional Degree Policies (https://gradschool.psu.edu/graduate-education-policies/), depending on the type of degree the student is pursuing:

- GCAC-611 Minor - Research Doctorate (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-611-minor-research-doctorate/)
- GCAC-641 Minor - Research Master's (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-641-minor-research-masters/)

- GCAC-709 Minor - Professional Doctorate (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-709-professional-doctoral-minor/)
- GCAC-741 Minor - Professional Master's (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-741-masters-minor-professional/)

Student Aid

World Campus students in graduate degree programs may be eligible for financial aid. Refer to the Tuition and Financial Aid section (https://www.worldcampus.psu.edu/tuition-and-financial-aid/) of the World Campus website for more information.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Learning Outcomes

The specific learning objectives of the MPS-AI program are to teach students to achieve proficiency in the following areas:

- KNOW: Graduates will be able to demonstrate appropriate breadth and depth of interdisciplinary knowledge, and comprehension of the major issues in artificial intelligence and machine learning.
- APPLY/CREATE: Graduates will be able to acquire relevant datasets and identify and develop appropriate AI/ML algorithms to solve contemporary challenges.
- COMMUNICATE: Effectively communicate the major issues of artificial intelligence and its applications including theories, approaches, findings, and implications both technical and ethical.
- THINK: Graduates will be able to discriminate between state-of-the-art techniques in neural network architecture, machine learning, deep learning, and collective intelligence to determine the appropriate approach for a given problem.
- PROFESSIONAL PRACTICE: Know and conduct themselves in accordance with the highest ethical standards, values, and, where these are defined, the best practices of the (as expressed in SARI training modules).

Contact

Campus	World Campus
Graduate Program Head	Raghu Sangwan
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Youakim Badr
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Program Website	View (https://www.worldcampus.psu.edu/degrees-and-certificates/penn-state-online-artificial-intelligence-masters-degree/overview/)