ARTIFICIAL INTELLIGENCE IN MEDICINE (MS)

This program was approved for students entering the university in the Summer 2025-Spring 2026 catalog year. For more information about catalog year, go to Catalog Year Information (https://catalog.louisville.edu/undergraduate/university-wide-unit-specific-policies/catalog-year/).

Master of Science in Artificial Intelligence in Medicine

Unit: Speed School of Engineering (http://engineering.louisville.edu) (GS);

Department: Bioengineering (https://engineering.louisville.edu/academics/departments/bioengineering/)
Academic Plan Code(s): AIM_MIS_O

This program is completed 100% online *(*https://louisville.edu/online/programs/masters/online-master-of-science-in-artificial-intelligence-in-medicine/*).*

The Master of Science in Artificial Intelligence in Medicine emphasizes the mastery of skills required to analyze medical data related to patients and public health, which include big data, medical imaging, biostatistics, experimental data (clinical and laboratory), and healthcare information. The academic goals of the master's program are mastery of methods for efficient and precise analysis of medical data and biostatistics.

The Master of Science in Artificial Intelligence in Medicine degree program is intended for persons having an accredited baccalaureate degree. Applicants without prior statistics or computer programing courses should expect to take some undergraduate background coursework. Students interested in the MS degree program should consult the Director of Graduate Studies.

Upon completion of the program a student will:

1. Demonstrate advanced knowledge of Artificial Intelligence applied to the field of Medicine or Public Health through the application of graduate level principles of programming and math, and effectively communicate this knowledge.
2. Students will gain hands-on and practical experience in Artificial Intelligence research topics through use of modern computing techniques/ tools to conduct appropriate experimentation, analysis, and interpretation of data, and to use scientific judgment to draw conclusions.

Academic Performance

The J.B. Speed School of Engineering has established the following performance policies:

1. The minimum grade point average requirement for good standing and satisfaction of degree requirements is 3.00 for all academic work completed while in graduate studies.
2. Any student who does not satisfy the published performance criteria shall be placed in probationary status. Please review the Academic Standing Section (https://catalog.louisville.edu/graduate/general-policies-procedures-requirements/) within this catalog in regard to Academic Probation.
3. Students who fail to meet performance goals or who do not meet other requirements as outlined in the admission letter, program requirements or the university catalog may be subject to academic dismissal from their programs. All degree requirements must be completed within six years from admission into the program.
4. All graduate students are expected to make steady and satisfactory progress toward the completion of degrees. Students who are not enrolled for a period of more than 12 months will be considered to have withdrawn from the program. Students who seek to return after such a period of time must contact the graduate program director.

Degree Requirements

The following degree requirements are mandatory of all Master of Science candidates:

1. The program of study must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements. Additionally, the program of study must be completed with a 3.00 GPA or better for all academic work attempted in graduate studies.
2. Master's students must take at least 24 credit hours of coursework at the University of Louisville to satisfy the residency requirement for the master's degree. A maximum of six (6) credit hours of graduate credit may be transferred from accredited institutions.
3. All program requirements must be completed within six years from admission into the program.

The requirements for the Master of Science degree are discussed in more detail in the Degree Requirements (https://catalog.louisville.edu/graduate/general-policies-procedures-requirements/degree-requirements/) section of this catalog.

Admission Standards

The admission standards for the Master of Science program in Artificial Intelligence in Medicine are as follows:

1. All admission applications for the program shall include:
   a. A completed application for admission (https://graduate.louisville.edu/admission/apply/) for the Graduate School,
   b. An application fee,
   c. At least two letters of recommendation,
   d. Written statement describing previous experience related to Artificial Intelligence in Medicine and how the Master of Science in Artificial Intelligence in Medicine will allow the applicant to fulfill their career goals, and
   e. Official transcript(s) for all previous post-secondary coursework. All transcripts not in English must be certified as authentic and translated verbatim into English.
2. The minimum requirement for admission is the baccalaureate degree or its equivalent from an accredited institution.
3. The successful applicant will typically have an undergraduate grade point average of 3.00 or above (on a 4.00 scale).
4. International students whose primary language is not English must show English language proficiency by a TOEFL score or demonstration of a degree awarded from an acceptable English language institution. The successful applicant will typically have a TOEFL score of 79 or higher or overall IELTS score of 6.5 or higher.

Degree Requirements

Code	Title	Hours
Program Core		
BE 604	Introduction to Artificial Intelligence in Bioengineering	3
BE 540	Machine Learning in Medicine	3
BE 542	Medical Image Computing	3
BE 691	Bioengineering Non-thesis Design/Research Project	3
PHMS 641	Data Mining I	3
PHMS 642	Data Mining II	3
PHST 620	Introduction to Statistical Computing	3
PHST 680	Biostatistical Methods I	3
Electives (Choose two from the following):		6
BE 530	Machine Learning in Python	
BE 543	Computer Tools for Medical Image Analysis	
BE 544	Artificial Intelligence Techniques in Digital Pathology	
BE 640	Computational Methods for Medical Image Analysis	
BE 645	Artificial Intelligence and Radiomics	
PHST 661	Probability	
Minimum Total Hours		**30**

The Master of Science degree must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements and all academic work attempted in graduate studies.