ARTIFICIAL INTELLIGENCE IN MEDICINE (MS)

This program was approved for students entering the university in the
Summer 2024—Spring 2025 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 entirely 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.

Academic Performance

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

a. 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.

b. 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.

c. 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.

Degree Requirements

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

a. 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.

b. 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.

c. 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:

a. All admission applications for the program shall include:
   i. A completed application for admission (http://louisville.edu/
   graduate/apply/) for the Graduate School,
   ii. An application fee,
   iii. At least two letters of recommendation,
   iv. 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
   v. Official transcript(s) for all previous post-secondary coursework.
      All transcripts not in English must be certified as authentic and
      translated verbatim into English.

b. The minimum requirement for admission is the baccalaureate degree
   or its equivalent from an accredited institution.

c. The successful applicant will typically have an undergraduate grade
   point average of 3.00 or above (on a 4.00 scale).

d. 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.

a.

Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Program Core</td>
<td></td>
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<tr>
<td>BE XXX Introduction to AI in Medicine</td>
<td>3</td>
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<tr>
<td>PHST 661 Probability</td>
<td>3</td>
<td></td>
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<tr>
<td>PHST 620 Introduction to Statistical Computing</td>
<td>3</td>
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<tr>
<td>PHMS 641 Data Mining I</td>
<td>3</td>
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<tr>
<td>BE 542 Medical Image Computing</td>
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<tr>
<td>BE 540 Machine Learning in Medicine</td>
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<tr>
<td>PHMS 642 Data Mining II</td>
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<tr>
<td>Electives (Choose two from the following):</td>
<td>6</td>
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<tr>
<td>BE 685 Modeling of Biological Phenomena</td>
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<td>BE 500 Special Topics in Bioengineering or BE 544</td>
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<tr>
<td>Artificial Intelligence Techniques in Digital Pathology</td>
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<td>BE 543 Computer Tools for Medical Image Analysis</td>
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<td>BE 530 Machine Learning in Python</td>
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<td>BE 600 Advanced Topics in Bioengineering</td>
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<tr>
<td>BE 640 Computational Methods for Medical Image Analysis</td>
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</table>

Project

BE 6XX Graduate Project in AI 3

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.