

ARTIFICIAL INTELLIGENCE IN HEALTH CARE (AIHC) – PROFESSIONAL MASTER'S

• David R. Holmes, III, Ph.D., *Program Director*

Pre-Requisite Course Work

1. Introduction to statistics: Data summarization and statistical testing (like)
2. Linear Algebra: Matrix Math
3. Calculus: Single variable ("Calc 1")
4. Introduction to Scientific Programming (Python and/or R preferred)

Application

Candidates must complete a Professional Master's Degree Application form. This form is available on the MCGSBS Master's Programs intranet site. Supporting documents include a program fee agreement form, transcripts from previous colleges, and two letters of recommendation - one preferred from your direct supervisor/manager.

Eligibility

Enrollment is restricted to current Mayo employees/appointees and is available at all three sites: Arizona, Florida, and Minnesota, as well as Mayo Clinic Health System. Visiting clinicians, research trainees, and research collaborators are not eligible.

Applicants must have received a bachelor's degree from an accredited college or university, must have taken appropriate undergraduate science courses to adequately prepare for the Master's program, and must have a minimum undergraduate grade point average that demonstrates a record of academic excellence.

Time Requirement

Time to completion can vary by student (three to five years), but all requirements for the Master's degree must be completed within five years. The five-year period begins on the start date of the term the student is appointed to. If the student's Mayo employment ends prior to completion of the program, the MCGSBS appointment will also end.

Registration Requirement

At least 75% of the coursework for the Master's degree must be completed in MCGSBS.

Minimum Credit Requirements

Students must complete a minimum of 45 credits, including MGS 6000 Responsible Conduct of Research. Didactic credits may vary by track - refer to specific program requirements for details.

Transfer Credits

A total of 9 didactic credits may be transferred into the Professional Master's Program. For more details, see the Credit Conversion, Transfer, Waiver and Substitution Policy on the MCGSBS intranet site.

Course Requirements

The curriculum for the Master's degree consists of 45 credits with maintenance of at least a 3.0 GPA are required for graduation. The student must complete all of the required courses listed below:

Code	Title	Hours
AI Methods Requirements (9 credits required)		
AIHC 5200	AI Math Foundations	2
AIHC 5615	Fundamentals of Statistics for Artificial Intelligence	2
AIHC 5100	AI Fundamentals for Healthcare Professionals	2
AIHC 5010	Introduction to Machine Learning	3
AIHC 5600	Foundations of Artificial Neural Networks	2
BME 6720	Deep Learning for Medical Imaging	3
Cloud Requirements (4 credits required)		
AIHC 5300	Introduction to Mayo Clinic Cloud	1
AIHC 5020	Introduction to Data	3
AIHC 6020	Data Curation in Healthcare	2
AIHC 6150	Special Topics: Generative AI Advanced Solutions Lab	2
Healthcare Implementing Requirements (4 credits required)		
AIHC 5030	Introduction to Deployment, Adoption & Maintenance of Artificial Intelligence Models/Algorithms	2
AIHC 5045	Healthcare Software & AI Management: Quality, Safety, & Implementation	1
CTSC 5370	Introduction to Epidemiology	2
CTSC 5390	Advanced Applied Epidemiological Methods	2
CTSC 5720	Clinical Trials Design and Conduct	1
Informatics Requirements (4 credits required)		
AIHC 5960	Introduction to Medical Informatics	2
AIHC 5961	Health Information Technology Evaluation: Clinical Informatics Methods	1
AIHC 5963	Health Information Security	1
AIHC 5964	AI & HIT Implementation	1
CTSC 5400	Introduction to Bioinformatics Concepts and Core Technologies for Individualized Medicine Approaches	1
Engagement Requirements		
MGS 6000	Responsible Conduct of Research	1
CTSC 5350	Ethical Issues in Artificial Intelligence and Information Technologies	1
AIHC 5500	Artificial Intelligence and Machine Learning Journal Club	1
AIHC 5000	AIHC Seminar Series	1
Remaining 2 credits to be discussed with Program Director		
Electives (12 credits required)		
Any course approved for graduate credit regardless of the "track" it is offered by. Student can select their elective credits based on recommendations from their advisor or based on their professional goals.		
Practicum Requirements (6 credits required)		
MGS 6400	Master's Capstone Project	6
Total Hours		45

Program milestones are included in the Academic Progress and Graduation Requirements for Masters Programs Policy. See below for BMB-specific program highlights and instruction.

Students are expected to make continuous and successful academic and professional progress toward graduation requirements for the M.S. degree. The concept of satisfactory progress mandates monitoring of a students' academic and professional performance through items including, but not limited to:

- Complete Degree Planning Tool (DPT)
- Project Advisor Selection
- Master's Capstone Project
- Meet any program-specific competencies as defined by the track

Full details are included in the Academic Progress and Graduation Requirements for Master's Programs Policy on the MCGSBS intranet site.

Minimum Grade Requirements

Students are expected to maintain a grade point average of 3.0 in didactic coursework. Students whose performance falls below this standard in a given quarter will be placed on academic probation, as described in the Deficiencies and Unsatisfactory Progress Policy and Warning, Probation, Dismissal and Appeal Policy outlined on the MCGSBS intranet site.

Degree Planning Tool

The use of a Degree Planning Tool (DPT) is required and allows students to list the coursework to fulfill degree requirements, including transfer credits. The DPT must be completed during the first academic year and should be updated as courses are completed throughout the training program. A final completed DPT must be submitted to the school when a tentative defense date has been determined to be cleared to graduate.

Project Advisor Selection

The Project Advisor is selected with counsel from the Program Director at any time during training, but no later than the end of the year. A list of Faculty with privileges can be found on the MCGSBS intranet site.

Master's Capstone Project

This is required for all students in the Professional Master's Program and serves as the final academic milestone of the degree. Projects may take the form of a critical review article, original research manuscript, case study, or another approved scholarly product suitable for presentation or publication. Students must register for MGS 6400 Master's Capstone Project during their final quarter in the program. The course may only be taken once for credit. Students must register with the Program Director for their track as the course director.

Cost

Mayo Clinic employees accepted into the Master's program continue to receive the salary from their primary appointment and do not receive a stipend from MCGSBS.

Program fees are charged for many Master's programs to cover administrative costs, due upon admission. The cost is covered by Mayo Clinic funds, either by the candidate's home department or lab.

Suggested Sequence

This is a suggested sequence based on a summer term start. Individual course plans may vary depending on true start date, program, employment/ personal commitments, and research interests. Be sure to confirm you have met your requirements using your degree planning tool. Course offerings may vary slightly. Current course offerings are posted in the course catalog.