

2021-2022 Curriculum Guide for Master of Science degree program with a specialization in BIOMEDICAL INFORMATICS

The Master of Science (MS) degree is intended for students whose interests in Biomedical Informatics (BMI) are academically oriented rather than directed toward professional practice. The MS degree is a natural entry point for students who are qualified to pursue a PhD degree which requires broader scope and depth of content via additional didactic courses and more intensive research emphasis. To reflect this research and academic orientation, the MS degree requires preparation and defense of a hypothesis based thesis. The MS degree typically can be completed within two years.

Students admitted to the MS degree program are assigned a faculty advisor who will provide guidance throughout the program. This document serves as a resource to be used by the student and the advisor in planning a program with a specialization in Biomedical Informatics, but is not inclusive of all important degree, college, and university requirements. All students are expected to be familiar with the College of Public Health (CPH) Graduate Student Handbook: <http://cph.osu.edu/students/graduate/handbooks> the Graduate School Handbook: <http://www.gradsch.ohio-state.edu/> and the CPH competencies: <https://go.osu.edu/cphcompetencies>.

PROGRAM OF STUDY

The MS-BMI curriculum requires 48 credits.

Required Foundation Courses (9 credits)

PUBHLTH 6010	Essentials of Public Health	3 credits
PUBHBIO 6210	Design & Analysis of Studies in the Health Sciences I	3 credits
PUBHEPI 6410	Principles of Epidemiology	3 credits

Required Specialization Courses (23-24 credits)

PUBHBIO 6211	Design & Analysis of Studies in the Health Sciences II	3 credits
PUBHBIO 6000+	Advanced Coursework in Biostatistics	3 credits
PUBHEPI 7410	Epidemiology II & Lab	4 credits
BMI 5710	Introduction to Biomedical Informatics	3 credits
BMI 5760	Public Health Informatics	3 credits
BMI 7891	Seminars in Biomedical Informatics	2 credits
BMI 7000+	Advanced Coursework in Biomedical Informatics	3 credits

Ethics course requirement - select one course:

BIOETHIC 6010	Biomedical Research Ethics	3 credits
BIOPHRM 7510	Professional and Ethical Issues in Biomedical Sciences	2 credits
NURSING 7781	Responsible Conduct of Research	3 credits
SURGERY 8814	Responsible Conduct of Research: Human Participants and the Use of Animals in Biomedical Research	2 credits

Recommended Electives** (9-10 Credits)

BMI 5730	Introduction to Bioinformatics	3 credits	BMI 5750	Methods in Biomedical Informatics	3 credits
BMI 5740	Introduction to Research Informatics	3 credits	BMI 5770	Health Analytics: Data to Discovery to Dissemination	3 credits
BMI 5780	Programming for Biomedical Informatics	3 credits	BMI 8050.01	Special Topics in Biomed Data Sci	varies
BMI 8040	Special Topics in Clin. & Transl. Informatics	3 credits	BMI 8130	Analysis and Applications of Genome-Scale Data	3 credits

*****Questions regarding the student's program of study should be directed to the advisor*****

BMI 8140	Measuring patient experiences and preferences	3 credits	BMI 8150	Rigorous and Reproducible Design & Data Analysis	3 credits
BMI 7040	Clinical Informatics	3 credits	PUBHBIO 6250	Regression Methods for the Health Sciences	3 credits
BMI 7810	Design & Methodological Approaches in BMI	3 credits	PUBHBIO 6270	Intro to SAS for Pub Hlth Students	2 credits
BMI 7830	Adv. Topics in Bioinformatics	3 credits	PUBHEHS 6310	Principles of Envi Health Science	3 credits
BMI 8030.01	Special Topics in Comp. Biol	Varies	PUBHHMP 7678	Approaches to Health Services Research	3 credits
PUBHEPI 6412	Prin Clinical & Transl. Science	2 credits	PUBHHMP 7682	Info Sys for Health Service Org	3 credits
PUBHEPI 6413	Conduct & Comm Research in CTS	2 credits	CSE 5231	Software Engineering Techniques	2 credits
PUBHEPI 6431	Design & Implement Health Surveys	3 credits	CSE 5241	Introduction to Database Systems	2 credits
PUBHEPI 7430	Epidemiology III	4 credits	CSE 5521	Survey of Artificial Intel I: Basic Tech	2 credits
PUBHBP 6510	Preventing Disease & Promoting Hlth through Behavioral Science	3 credits	CSE 5522	Survey of Artificial Intel II: Adv Tech	3 credits
PUBHHMP 6610	Intro Health Care Organization	3 credits			

**Students with a background in public health or medicine are encouraged to focus on computer science (CSE) electives to enhance their computational abilities. Similarly, students with backgrounds in computer science, electrical engineering, or information technology are encouraged to focus their electives to enhance their understanding of medicine and public health. Students should work with staff and faculty academic advisors in the Department of Biomedical Informatics to identify suitable electives.

Thesis (6 credits)

BMI 7999 Research in Biomedical Informatics 6 credits

Sample 2-year Curriculum Plan for the Master of Science in Biomedical Informatics ¹

Year 1 Autumn	PUBHBIO 6210 PUBHEPI 6410 BMI 5710 ELECTIVE	Design & Analysis of Studies in the Health Sciences I Principles of Epidemiology Introduction to Biomedical Informatics	3 credits 3 credits 3 credits 3 credits	AU, SP AU AU
Year 1 Spring	PUBHBIO 6211 PUBHEPI 7410 ELECTIVE PUBHLTH 6010 BMI 7891	Design & Analysis of Studies in the Health Sciences II Epidemiology II & Lab Essentials of Public Health Seminar in Biomedical Informatics	3 credits 4 credits 3 credits 3 credits 1 credit	AU, SP SP SP AU, SP
Year 1 Summer	ELECTIVE		2-3 credits	
Year 2 Autumn	PUBHBIO 6000+ BMI 5760 BMI 7999 BMI 7891	Public Health Informatics Research in Biomedical Informatics (Thesis) Seminar in Biomedical Informatics	3 credits 3 credits 6 credits 1 credit	AU, SP AU AU, SP
Year 2 Spring	BMI 7000+ ETHICS COURSE	Advanced Biomedical Informatics Coursework	3 credits 2-3 credits	AU, SP AU, SP

Grade Policy:

In addition to the general Graduate School requirements of a cumulative grade point average of 3.0 or higher, students must meet specific college policies regarding grades in Foundation and specialization courses. Students should familiarize themselves with Section 11 of the College of Public Health Graduate Student Handbook.

College of Public Health - Office of Academic Programs and Student Services (OAPSS)

OAPSS staff are available to provide assistance with College, Graduate School and University policies and procedures. (614) 292-8350/100 Cunz Hall/1841 Neil Ave/Columbus, Ohio/ 43210/cph.osu.edu

¹ A sample 3 year program is available by request from the Department of Biomedical Informatics. Please contact bmi.education@osumc.edu