

2017-2018 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. It is a natural entry point for students who are interested in pursuing a PhD degree or a career in research. Because of this orientation, the emphasis in the MS degree program is on building a strong foundation in a particular specialty field, along with the research methods important in that field. To reflect this research and academic orientation, the MS degree ordinarily requires the preparation of a thesis, though it is available under a non-thesis option at the discretion of the division of specialization.

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* (available at <http://cph.osu.edu/students/graduate/handbooks>) and with the *Graduate School Handbook* (available at <http://www.gradsch.ohio-state.edu/>).

PROGRAM OF STUDY

The MS-BMI curriculum consists of a minimum of 48 credits.

Required Core Courses (10 credits)

PUBHLTH 6010	Essentials of Public Health	3 credits
PUBHBIO 6210	Design & Analysis of Studies in the Health Sciences I	3 credits
PUBHEPI 6430	Epidemiology I with Lab	4 credits

Required Specialization Courses (26 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 5740	Introduction to Research 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
Varies	Ethics course for Biomedical Research	2 credits

Recommended Electives** (6 credits)

BMI 5720	Introduction to Imaging Informatics	3 credits	PUBHBIO 7225	Survey Sampling Methods	3 credits
BMI 5730	Introduction to Bioinformatics	3 credits	PUBHBIO 7235	Applied Survival Analysis	3 credits
BMI 5750	Methods in Biomedical Informatics	3 credits	PUBHEPI 7430	Epidemiology III	3 credits
BMI 5770	Health Analytics	3 credits	PUBHEPI 6412	Prin Clinical & Transl. Sci (CTS)	3 credits
BMI 7040	Clinical Informatics	3 credits	PUBHEPI 6413	Conduct & Comm Research in CTS	2 credits
BMI 7810	Adv. Topics in Clinical Informatics	3 credits	PUBHEPI 6401	Health Data Sources and Uses	3 credits
BMI 7820	Biological & Medical Image Analysis	3 credits	PUBHEPI 6414	Sci Writing Biomed & Clin Science	1 credit
BMI 7830	Adv. Topics in Bioinformatics	3 credits	PUBHHMP 6611	Intro Health Care Organization	3 credits
BMI 8030	Special Topics in Comp. Biol	Varies	PUBHBIO 6270	Intro to SAS for Pub Hlth Students	2 credits

BMI 8040	Special Topics in Clin. & Transl. Informatics	Varies	PUBHBIO 7220	Applied Logistic Regression	3 credits
BMI 8050	Special Topics in Biomed Data Sci	Varies	CSE 5231	Software Engineering Techniques	2 credits
BMI 8150	Rigorous and Reproducible Design & Data Analysis	3 credits	CSE 5232	Software Requirements Analysis	2 credits
PUBHHBP 7534	Research Methods in HBHP	3 credits	CSE 5241	Introduction to Database Systems	2 credits
PUBHHMP 7682	Info Sys Health Service Org	3 credits	CSE 5243	Introduction to Data Mining	3 credits
PUBHEPI 6431	Design & Implement Health Surveys	3 credits	CSE 5521	Survey of Artificial Intel I: Basic Tech	2 credits
PUBHHMP 7605	Intro to Health Policy	3 credits	CSE 5522	Survey of Artificial Intel II: Adv Tech	3 credits
PUBHHMP 7678	Intro Health Services Research	3 credits	CSE 5531	Introduction to Cognitive Science	3 credits
PUBHBIO 6212	Regression methods for the Health Sciences	3 credits	PUBHBIO 7255	Introduction to Causal Inference	3 credits
PUBHBIO 7230	Applied longitudinal Data Analysis	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 6430 BMI 5710 ELECTIVE	Design & Analysis of Studies in the Health Sciences I Epidemiology I & Lab Introduction to Biomedical Informatics	3 credits 4 credits 3 credits 3 credits	AU, SP AU AU ANY
Year 1 Spring	PUBHBIO 6211 PUBHEPI 7410 BMI 5740 PUBHLTH 6010 BMI 7891	Design & Analysis of Studies in the Health Sciences II Epidemiology II & Lab Introduction to Research Informatics Essentials of Public Health Seminar in Biomedical Informatics	3 credits 4 credits 3 credits 3 credits 1 credit	SP SP SP SP AU, SP
Year 1 Summer	ELECTIVE		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	SU, AU AU AU AU, SP
Year 2 Spring	BMI 7000+ ETHICS COURSE	Advanced Biomedical Informatics Coursework Consult with advisor to determine course	3 credits 2 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 Core and specialization courses. Students should familiarize themselves with Section 11 of the College of Public Health Graduate Student Handbook.

Office of Academic Programs and Student Services (OAPSS)

OAPSS staff are available to provide assistance with College, Graduate School and University policies and procedures. Students can make an appointment with a staff member in OAPSS by calling (614) 292-8350. OAPSS address: 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

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