

## 2018-2019 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 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 (26-27 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

#### Ethics course requirement Select one course:

BIOETHIC 6010	Biomedical Research Ethics	3 credits
BIOPHARM 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\*\* (5-6 Credits)

BMI 5730	Introduction to Bioinformatics	3 credits	BMI 8040	Special Topics in Clin. & Transl. Informatics	Varies
BMI 5750	Methods in Biomedical Informatics	3 credits	BMI 8050	Special Topics in Biomed Data Sci	Varies
BMI 5770	Health Analytics	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 7040	Clinical Informatics	3 credits	BMI 8150	Rigorous and Reproducible Design & Data Analysis	3 credits
BMI 7810	Design & Methodological Approaches in BMI	3 credits	PUBHBIO 6212	Regression Methods for the Health Sciences	3 credits
BMI 7830	Adv. Topics in Bioinformatics	3 credits	PUBHBIO 6270	Intro to SAS for Pub Hlth Students	2 credits
BMI 8030	Special Topics in Comp. Biol	Varies	PUBHEHS 6310	Principles of Envi Health Science	3 credits
PUBHEPI 6412	Prin Clinical & Transl. Science	3 credits	PUBHHMP 7678	Approaches to Health Services Research	3 credits
PUBHEPI 6413	Conduct & Comm Research in CTS	2 credits	PUBHHMP 7682	Info Sys for Health Service Org	3 credits
PUBHEPI 6431	Design & Implement Health Surveys	3 credits	CSE 5231	Software Engineering Techniques	2 credits
PUBHEPI 7430	Epidemiology III	4 credits	CSE 5241	Introduction to Database Systems	2 credits
PUBHBP 6510	Preventing Disease & Promoting Hlth through Behavioral Science	3 credits	CSE 5521	Survey of Artificial Intel I: Basic Tech	2 credits
PUBHHMP 6610	Intro Health Care Organization	3 credits	CSE 5522	Survey of Artificial Intel II: Adv Tech	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 <sup>1</sup>

<b>Year 1 Autumn</b>	PUBHBIO 6210	Design & Analysis of Studies in the Health Sciences I	3 credits	AU, SP
	PUBHEPI 6430	Epidemiology I & Lab	4 credits	AU
	BMI 5710	Introduction to Biomedical Informatics	3 credits	AU
	ELECTIVE		3 credits	ANY
<b>Year 1 Spring</b>	PUBHBIO 6211	Design & Analysis of Studies in the Health Sciences II	3 credits	SP
	PUBHEPI 7410	Epidemiology II & Lab	4 credits	SP
	BMI 5740	Introduction to Research Informatics	3 credits	SP
	PUBHLTH 6010	Essentials of Public Health	3 credits	SP
	BMI 7891	Seminar in Biomedical Informatics	1 credit	AU, SP
<b>Year 1 Summer</b>	ELECTIVE		3 credits	
<b>Year 2 Autumn</b>	PUBHBIO 6000+		3 credits	SU, AU
	BMI 5760	Public Health Informatics	3 credits	AU
	BMI 7999	Research in Biomedical Informatics (Thesis)	6 credits	AU
	BMI 7891	Seminar in Biomedical Informatics	1 credit	AU, SP
<b>Year 2 Spring</b>	BMI 7000+	Advanced Biomedical Informatics Coursework	3 credits	AU, SP
	ETHICS COURSE		2-3 credits	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.

### 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

<sup>1</sup> A sample 3 year program is available by request from the Department of Biomedical Informatics. Please contact [bmi.education@osumc.edu](mailto:bmi.education@osumc.edu)