

2023-2024 Curriculum Guide for Master of Public Health degree program with a specialization in Biomedical Informatics

The Master of Public Health (MPH) degree is intended for students whose interests in Biomedical Informatics (BMI) are oriented towards professional practice within the public health and/or healthcare domains. It includes courses within public health's foundation disciplines of biostatistics, environmental health science, epidemiology, health behavior & health promotion, and health services management and policy. This broad training is complemented by the more in-depth course work within the specialization including an Applied Practice Experience and Integrative Learning Experience.

Students admitted to the Master of Public Health (MPH) 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. This is not considered an on-line degree program; however, students will enroll in a combination of courses designed for on-campus in-person delivery (IP), distance learning (DL), or hybrid (HY). 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*: <https://gradsch.osu.edu/handbook> and the CPH competencies: <https://go.osu.edu/competencies>.

PROGRAM OF STUDY

The MPH-BMI curriculum consists of a minimum of 45 credit hours organized into five curricular domains:

1. MPH Integrated Foundational curriculum including the Buck-IPE* (12 credit hours)
2. Specialization courses (19-20 credit hours)
3. Elective courses (8-9 credit hours)
4. Applied Practice Experience (2 credit hours)
5. Integrative Learning Experience (3 credit hours)

*In addition to credit hour requirements, The Ohio State University College of Public Health requires all Master of Public Health students to participate in interprofessional practice and education activities. To meet this requirement, first-year students will participate in Buck-IPE, a longitudinal curriculum for students in health science and allied health professional programs at The Ohio State University. Information about participation and assessment will be shared with MPH students as part of the Integrated Foundational Curriculum (in PUBHLTH 6002 and 6004).

MPH Integrated Foundational curriculum (12 credit hours)

Every student in the MPH-BMI program must take the following MPH Integrated Foundational curriculum:

| | | |
|--------------|---|----------------|
| PUBHLTH 6001 | Methods in Quantitative Data Analysis | 4 credit hours |
| PUBHLTH 6002 | History, Values and Essential Services of the U.S. Public Health System | 2 credit hours |
| PUBHLTH 6003 | Methods in Public Health Planning and Evaluation | 2 credit hours |
| PUBHLTH 6004 | Essentials of Population Health | 4 credit hours |

Required Specialization courses (19-20 credit hours)

| | | |
|------------------|---|----------------|
| PUBHBIO 6211 | Applied Biostatistics II | 3 credit hours |
| BMI 5710 | Introduction to Biomedical Informatics | 3 credit hours |
| BMI 5740 | Introduction to Research Informatics | 3 credit hours |
| BMI/PUBHLTH 5760 | Public Health Informatics | 3 credit hours |
| BMI 7000+ | Advanced Coursework in Biomedical Informatics | 3 credit hours |
| BMI 7891 | Seminars in Biomedical Informatics | 2 credit hours |

Ethics course requirement - Select one course:

| | | |
|---------------|---|----------------|
| BIOETHIC 6010 | Biomedical Research Ethics | 3 credit hours |
| BIOPHARM 7510 | Professional and Ethical Issues in Biomedical Sciences | 2 credit hours |
| NURSING 7781 | Responsible Conduct of Research | 3 credit hours |
| SURGERY 8814 | Responsible Conduct of Research: Human Participants and the Use of Animals in Biomedical Research | 2 credit hours |

Recommended Electives* (8-9 credit hours)

| Course | Course Title | Cr Hrs | Course | Course Title | Cr Hrs |
|--------------|--|--------|--------------|--|--------|
| BMI 5551 | Survey of AI/ML in Digital Health | 3 | BMI 8040.01 | Special Topics in BMI: CT Informatics | Varies |
| BMI 5552 | AI/ML Applications in Medical Imaging | 3 | BMI 8050 | Special Topics in BMI: Data Sci | Varies |
| BMI 5553 | Predictive Analytics in Electronic Health Records | 3 | BMI 8130 | Analysis & Applications Genome-Scale | 3 |
| BMI 5554 | Natural Language Processing in Biomedical Research | 3 | BMI 8150 | Rigorous & Reproducible Design & Data Analysis | 3 |
| BMI 5730 | Introduction to Bioinformatics | 3 | PUBHBIO 6250 | Regression Methods | 3 |
| BMI 5750 | Methods in Biomedical Informatics | 3 | PUBHBIO 6270 | Intro to SAS for Pub Hlth Students | 2 |
| BMI 5770 | Health Analytics | 3 | PUBHHMP 7678 | Approaches to Health Services Research | 3 |
| BMI 5780 | Programming for BMI | 3 | PUBHHMP 7682 | Info Sys for Health Service Org | 3 |
| BMI 7040 | Clinical Informatics | 3 | CSE 5231 | Software Engineering Techniques | 2 |
| BMI 7810 | Design & Approaches in BMI | 3 | CSE 5241 | Introduction to Database Systems | 2 |
| BMI 7830 | Systems Biology | 3 | CSE 5521 | Survey of Artificial Intel I: Basic Tech | 2 |
| BMI 8030 | Special Topics in Comp. Biol | Varies | CSE 5522 | Survey of Artificial Intel II: Adv Tech | 3 |
| BMI 8140 | Measuring patient experiences | 3 | | | |
| PUBHEPI 6412 | Basic Prin Clinical & Transl. Science | 2 | | | |
| PUBHEPI 6413 | Conduct & Comm Research in CTS | 2 | | | |
| PUBHEPI 6431 | Design & Implement Health Surveys | 3 | | | |

*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 advisors in the Department of Biomedical Informatics to identify suitable electives.

Applied Practice Experience (2 credit hours)

PUBHLTH 7189 Applied Practice Experience in Public Health 2 credit hours

Integrative Learning Experience (3 credit hours)

PUBHLTH 7998 Integrative Learning Experience in Public Health 3 credit hours

Sample Curriculum Plan for the Master of Public Health in Biomedical Informatics

| TERM | COURSE | COURSE TITLE | CREDIT HOURS | TERM(S) OFFERED | DELIVERY MODE |
|--------------------------|------------------|---|--------------|-----------------|---------------|
| Year 1 Autumn | PUBHLTH 6001 | Methods in Quantitative Data Analysis | 4 | AU | DL |
| | PUBHLTH 6002 | History, Values & Essential Services U.S. PH System | 2 | AU | DL |
| | BMI 5710 | Introduction to Biomedical Informatics | 3 | AU | DL |
| | BMI 7891 | Seminar in Biomedical Informatics | 0-1 | AU, SP | DL |
| Year 1 Spring | PUBHLTH 6003 | Methods in Public Health Planning and Evaluation | 2 | SP | DL |
| | PUBHLTH 6004 | Essentials of Population Health | 4 | SP | DL |
| | PUBHBIO 6211 | Applied Biostatistics II | 3 | AU, SP | IP or DL |
| | BMI 5740 | Introduction to Research Informatics | 3 | SP | |
| | BMI 7891 | Seminar in Biomedical Informatics | 0-1 | AU, SP | |
| Year 1 Summer | PUBHLTH 7189 | Applied Practice Experience | 2 | ANY | |
| | ELECTIVE | Recommend: BMI 5750 Methods in Biomedical Informatics | 3 | ANY | DL |
| Year 2 Autumn | BMI/PUBHLTH 5760 | Public Health Informatics | 3 | AU | DL |
| | BMI 7000+ | Advanced Biomedical Informatics Coursework | 3 | AU | |
| | ELECTIVE | | 3-4 | ANY | |
| | BMI 7891 | Seminar in Biomedical Informatics | 0-1 | ANY | |
| | ETHICS COURSE | | 2-3 | ANY | |
| Year 2 Spring | PUBHLTH 7998 | Integrative Learning Experience in Public Health | 3 | ANY | |
| | ELECTIVE | | 3-4 | ANY | |
| | BMI 7891 | Seminar in Biomedical Informatics | 0-1 | ANY | |

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 12 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.
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