PROGRAM GUIDE: Master of Public Health - Biostatistics

Information in this document is updated annually. Please refer to the document for the year you entered the program. Student resources, policies, and procedures applicable to all School of Public Health graduate students can be found on the SPH website, www.ohsu-psu-sph.org.

Overview

Director: Rongwei (Rochelle) Fu, PhD
ohsu-psu-sph.org/mph-in-biostatistics

The MPH Biostatistics program provides training for biostatistics methods as they apply to public health. Courses in this program emphasize intermediate to advanced applied statistical methods and statistical programming commonly used in public health research and practice, and program competencies highlight population-based study design, analytic methods, data interpretation, and communication. Epidemiological study design and methods are also an important component of the training provided by this program. Graduates of the program will be equipped to pursue careers in local, state and federal agencies, health and medical centers, and research institutions.

Program Competencies

Graduates of this program will be able to:

- Apply appropriate principles of research design and population-based concepts to assess health problems.
- Apply appropriate descriptive and inferential statistical methods to analyze risk determinants of disease and health conditions.
- Apply descriptive and inferential statistical methods that are appropriate to the different study designs used in public health research.
- Interpret and summarize results and communicate them to lay and professional audiences, in the contest of proper public health principles and concepts.
- Evaluate strengths and weaknesses of alternative designs and analytic methods, and critically review and assess statistical analyses presented in public health literature.
- Apply basic ethical principles pertaining to the collection, maintenance, use, and dissemination of public health data.
- Identify cultural dimensions of conducting research, including culturally sensitive recruitment of study participants, and develop strategies for interpretation of data in the larger cultural context.

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MPH: Biostatistics Program of Study

Course Number	Course Title	Credits
Core Required Coursework (22 Credits)		
BSTA 511	Estimation and Hypothesis Testing for Applied Biostatistics	4
EPI 512	Epidemiology I	4
ESHH 511	Concepts of Environmental Health	3
HSMP 574	Health Systems Organization	3
PHE 512	Principles of Health Behavior	3
Exam	Certified in Public Health Examination	0; Pass
BSTA	Practice Experience	4
BSTA	Integrative Project	1
Exam	*Comprehensive Examination: written section*	0; Pass
Exam	*Comprehensive Examination: lab section*	0; Pass
Program Required Coursework (28 Credits)		
UNI 504*	Qualitative Methods for Health Professionals	2
BSTA 512	Linear Models	4
BSTA 513	Categorical Data Analysis	4
BSTA 515	Data Management and Analysis in SAS	3
BSTA 516	Design and Analysis of Surveys	3
BSTA 519	Applied Longitudinal Data Analysis	3
HSMP 573	Values & Ethics in Health	3
EPI 513	Epidemiology II (Methods)	4
EPI 566	Current Issues in Public Health	2
Elective courses from the following (10 Credits)		
BSTA 500	Reading and Research in Biostatistics	1-3
BSTA 514	Survival Analysis	3
BSTA 517	Statistical Methods in Clinical Trials	3
BSTA 521	Bayesian Methods for Data Analysis	3
BSTA 522	Statistical Learning and Big Data	3
BSTA 523	Design of Experiments: Statistical Principles of Research Design & Analysis	3
BSTA 524	Statistical Methods for Next Generation Sequencing Data	3
BSTA 550	Introduction to Probability	3
BSTA 551	Mathematical Statistics I	3
BSTA 552	Mathematical Statistics II	3
EPI 514	Epidemiology III	4
PHE 519	Introduction to the Etiology of Disease	3
	Total Credits	**60**

* UNI 504 fulfills 2 foundational competency degree reqs in 1 course: the Inter-professional Education Experience (IPE) and qualitative methods. Alternatively and in consultation with Faculty Advisors, students may seek permission to take (a) PHE 520 Qual Rsrch Design (3 cr.) or HSMP 588 Prgm Eval/Mgmt in Hlth Srvcs (3 cr.) to fulfill the qualitative methods req, and (b) a different IPE course for the inter-professional req.

MPH: Biostatistics Recommended Course Sequencing

Year 1			
Fall	**Winter**	**Spring**	**Summer**
BSTA 511 Est/Hypothesis Tstng Applied BIOS (4 cr.)	BSTA 512 Linear Models (4 cr.)	BSTA 513 Categorical Data Anlys (4 cr.)	Comp Exam: Written
EPI 512 Epidemiology I (4 cr.)	EPI 513 Epidemiology II (Methods) (4 cr.)	BSTA 516 Design & Anlys Surveys (3 cr.)	Elective (3 cr.) e.g. BSTA 517 Stat Mthds in Clinical Trials (3 cr.)
Choose 1: ESHH 511 Cncpts Env Hlth (3 cr.) HSMP 574 Hlth Sys Org (3 cr.) PHE 512 Prin Hlth Behvr (3 cr.)	Choose 1: ESHH 511 Cncpts Env Hlth (3 cr.) HSMP 574 Hlth Sys Org (3 cr.) PHE 512 Prin Hlth Behvr (3 cr.)	Choose 1: ESHH 511 Cncpts Env Hlth (3 cr.) HSMP 574 Hlth Sys Org (3 cr.) PHE 512 Prin Hlth Behvr (3 cr.)	
Year 2			
Fall	**Winter**	**Spring**	**Summer**
BSTA 519 Appld Lngtdnl Data Anlys (3 cr.)	EPI 566 Current Issues in Pblc Hlth (2 cr.)	BSTA Integrative Project (1 cr.)	
BSTA 515 Data Mngmt & Anlys (3 cr.)	BSTA Practice Experience (2 or 4 cr.)	BSTA Practice Experience (2 or 4 cr.)	
HSMP 573 Values & Ethics in Hlth (3 cr.)	Elective(s)	Comp Exam: Lab	
UNI 504 Qual Mthds Hlth (2 cr.)		Elective	

Always consult your Faculty Advisor regarding your program of study and course selection to determine the schedule that fits best for you.

Grades

Students are not permitted to progress through the BSTA 511-513 course sequence unless they achieve at least a B- in each of the courses.

Biostatistics Comprehensive Exam

The biostatistics comprehensive exam is a degree requirement for students in the MPH Biostatistics program. The exam is graded Pass or No Pass, based on specific criteria set by the comprehensive exam committee, and is offered twice a year: on the Wednesday and Thursday of the second week of May, and the Wednesday and Thursday of last week of August.

The exam has two parts: a written part and a laboratory part, which are administered on separate days. Students may take each part of the exam only after completion of the relevant coursework. Each student is permitted two opportunities to pass the exam.

The exam is closed-book. Scratch paper and all necessary formulas and tables will be supplied. Use of calculators is permitted.

The MPH Biostatistics comprehensive exam assesses students' ability to integrate statistical knowledge and skills covered in their biostatistics coursework. Students must demonstrate mastery of the subject matter, skills of critical thinking and independent problem solving, and interpretation of results in the context of a research question. The comprehensive examination comprises questions reflective of five required courses:

- BSTA 511 Estimation and Hypothesis Testing for Applied Biostatistics
- BSTA 512 Linear Models
- BSTA 513 Categorical Data Analysis
- BSTA 516 Design and Analysis of Surveys
- BSTA 519 Applied Longitudinal Data Analysis

Specifically, the examination evaluates the following program learning competencies:

- Apply appropriate descriptive and inferential statistical methods to analyze social and other determinants of health.
- Apply descriptive and inferential statistical methods that are appropriate to the different study designs used in public health research.
- Identify strengths and weaknesses of alternative designs and analytic methods, and critically review and assess statistical analyses presented in public health literature.

The written part of the MPH exam takes two and a half hours, with three applied questions covering materials from the course sequence BSTA 511, 512, and 513. The lab part takes three hours and covers materials from BSTA 516 and 519, with two data analysis questions and one question to assess the appropriateness of the statistical methods used in a published journal article.

Students with questions regarding the comprehensive exam should contact Miguel Marino (marinom@ohsu.edu), the Chair of the Comprehensive Exam Committee, or Rochelle Fu (fur@ohsu.edu), the Program Director (https://ohsu-psu-sph.org/faculty-directory/)

Biostatistics & Design Program (BDP)
The Biostatistics & Design Program (BDP) is one of the OHSU shared resource cores, and is hosted by the Biostatistics group. BDP provides biostatistics support to basic, clinical and population science at all phases of research from grant submission, protocol development, and study design to statistical analysis, interpretation of analysis results and manuscript preparation. Many biostatistics faculty are involved in BDP. BDP also has many PhD and MS level staff providing statistical support and consultation. The BDP handles hundreds of research projects each year and provides many internship opportunities for students. Students should talk to the director of BDP, Dr. Jodi Lapidus, for internship opportunities.

Knight Cancer Institute Biostatistics Shared Resources (Knight BSR)
The Knight Cancer Institute Biostatistics Shared Resource (Knight BSR) is supported by the National Cancer Institute's Cancer Center Support Grant. Knight BSR provides comprehensive and integrated biostatistics support to basic, clinical and population science researchers conducting cancer research at OHSU. The BSR also provides students with opportunities to work on ongoing cancer research projects. Students may contact the BSR Director (Dr. Tomi Mori) or Associate Director (Dr. Byung Park) for opportunities for an internship and/or work experience.

Graduate Student Resources, Policies, and Procedures

Policies and procedures applicable to all School of Public Health graduate students can be found on the SPH website, www.ohsu-psu-sph.org. Please review the student policies and procedures listed there, including but not limited to the following sections:

- ☐ Advising
- ☐ Academic Standing
- ☐ Academic Dismissal
- ☐ Academic Dishonesty
- ☐ Codes of Conduct
- ☐ Educational Records Privacy
- ☐ Minimum Course Grade Requirements
- ☐ Recognition of Prior Earned Credit
- ☐ Course Waiver Policy
- ☐ Incomplete Coursework
- ☐ Course Approvals (Electives)
- ☐ Independent Study
- ☐ International Travel and Coursework
- ☐ Continuous Enrollment
- ☐ Leave of Absence
- ☐ Withdrawal Policy
- ☐ Time Limits
- ☐ Grievance Resolution
- ☐ Degree and Certificate Conferral

Resources and support services available to SPH graduate students are listed on the SPH website, www.ohsu-psu-sph.org. Please review the resources listed there.