



SCHOOL OF
PUBLIC HEALTH

**Department of Epidemiology and Biostatistics
Master of Public Health (MPH) Programs
Student Manual**

Department of Epidemiology and Biostatistics
2234 School of Public Health
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EPIB Graduate Student Handbook

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A. Overview of the Department of Epidemiology and Biostatistics

The fields of epidemiology and biostatistics provide the foundational logic, methodology, and tools for public health practice. Epidemiology is the study of the distribution and determinants of disease and injuries, and other health states in human populations. As the fundamental science of public health practice, epidemiology provides the conceptual and applied tools necessary for the study of public health problems. Biostatistics is a science that addresses theory and techniques for describing, analyzing, and interpreting health data. The discipline is primarily focused on applications to problems in the health, medical, and biological sciences.

The mission of the Department of Epidemiology and Biostatistics at the University of Maryland School of Public Health is to:

1. Conduct methodological and collaborative research to examine, develop, test, and apply established and novel epidemiological and biostatistical methods for the purpose of addressing the public health needs of populations at risk for chronic diseases through a social behavioral lens.
2. Offer educational programs, training, and mentoring in the design and analysis of public health programs through the application of epidemiological and biostatistical methods.
3. Provide services to the School, university, and community that further the mission of the Department and the School.

B. MPH Program Concentrations

The Department of Epidemiology and Biostatistics offers two MPH concentrations in epidemiology and biostatistics. Our students have full access to faculty who will guide you through all phases of the program to ensure your educational goals are met. Our Washington, DC area location provides unparalleled opportunities for research experiences in public health, including placements at the U.S. Department of Health and Human Services (e.g., National Institutes of Health, National Center for Health Statistics), Children's National Medical Center, the Maryland Department of Health and Mental Hygiene, and many other national, state, and local health agencies.

Our MPH degree programs use a competency-based format for instruction. Each student is expected to meet minimum requirements for a basic set of competencies through prior experience, course work, and field experience.

a. MPH in Biostatistics Concentration Overview

The goal of the MPH in Biostatistics is to train students in the science that addresses theory and techniques for describing, analyzing, and interpreting health data. The discipline is primarily focused on applications to problems in health, medical, and biological sciences. Students are not only trained through formal coursework, but also through active engagement in research, departmental activities, research seminars, and through attendance at professional meetings at the state, regional, national, and international levels.

The MPH with a concentration in biostatistics is a 43-credit professional degree that prepares graduates to work in public health services as practitioners, researchers, administrators, and consultants. A full-time student may complete our program in 2 years. Part-time students may take up to 4 years to complete the program. The majority of courses are offered in the evenings.

In addition to coursework, all biostatistics master’s students are required to complete a capstone experience that occurs after all courses are completed and includes 1) an independent project, and 2) an internship of at least 240 hours.

i. MPH in Biostatistics requirements

	Course Title	Credits
Required MPH Core (15 Credits)	EPIB 610 Foundations of Epidemiology	3
	EPIB 650 Biostatistics I	3
	HLSA 601 Introduction to Health Systems	3
	HLTH 665 Health Behavior I	3
	MIEH 600 Foundations of Environmental Health	3
Required Cognate Area (16 Credits)	EPIB 651 Biostatistics II	3
	EPIB 652 Categorical Data Analysis	3
	EPIB 653 Applied Survival Data Analysis	3
	EPIB 655 Longitudinal Data Analysis	3
	EPIB 697 Public Health Data Management	3
	EPIB 641 Public Health and Research Ethics	1
Electives (6 Credits)	Selected with Advisement	6
Capstone (6 Credits)	EPIB 785 Internship in Public Health	3
	EPIB 786 Capstone Project in Public Health	3
	Total Credits MPH in Biostatistics	43

ii. Biostatistics MPH Program Competencies

By the end of the MPH in Biostatistics, students will master the following competencies:

Biostatistics Common Core Competencies

1. Describe the role biostatistics serves in the discipline of public health.
2. Describe basic concepts of probability, random variables, and commonly used statistical probability distributions.
3. Distinguish among the different measurement scales or types of variables and select appropriate descriptive statistical methods for summarizing public health data.
4. Select appropriate inferential statistical methods to answer research questions relevant to public health research.
5. Conduct descriptive and inferential statistical analyses that are appropriate to different basic study designs used in public health research.
6. Interpret results of statistical analyses found in public health studies.
7. Critically review and summarize statistical analyses presented in public health literature.
8. Perform appropriate sample size and power calculations to ensure that the study is sufficiently powered to achieve the scientific aims.
9. Use a basic software package to describe, explore, and summarize data as well as perform the basic conventional statistical procedures.

Biostatistics Cognate Competencies

10. Identify limitations in public health studies.
11. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use, and dissemination of public health data.
12. Demonstrate skills in public health data collection and management.
13. Identify statistical approaches to address threats to validity in epidemiologic studies.
14. Communicate results of statistical analyses to lay and professional audiences.

iii. Biostatistics MPH Course Sequence

Prior to starting their first semester students should plan out their courses for the entire program. Some courses are offered every semester (MPH core courses) whereas others are only offered in the fall or spring semesters. Some courses are also offered during the summer term, such as all of the MPH core courses. Sample full and part-time course sequences for the Biostatistics MPH are provided below:

Sample Full-Time Biostatistics MPH Course Sequence (2 years, without summer courses)

Fall Semester 1		
Course	Title	Credits
EPIB 610	Foundations in Epidemiology*	3
EPIB 650	Biostatistics I (pre-req for EPIB651)*	3
EPIB 697	Public Health Data Management	3
HLTH 665	Health Behavior I (or other core MPH course)*	3
Spring Semester 1		
EPIB 651	Biostatistics II	3
EPIB 641	Public Health Research Ethics	1
HLSA 601	Introduction to Health Systems (or other core MPH course)*	3
Elective	Selected with Advisement	3
Fall Semester 2		
EPIB 652	Categorical Data Analysis	3
EPIB 655	Longitudinal Data Analysis	3
MIEH 600	Foundations of Environmental Health (or other core MPH course)*	3
Elective	Selected with Advisement	3
Spring Semester 2		
EPIB 653	Applied Survival Data Analysis	3
EPIB 785	Internship in Public Health	3
EPIB 786	Capstone Project in Public Health	3

*The 5 core MPH courses are taught every semester. They are also taught online during the summer session.

Sample Part-Time Biostatistics MPH Course Sequence (3 ½ years, without summer courses)

Course	Title	Credits
Fall Semester 1		
EPIB 610	Foundations in Epidemiology*	3
EPIB 650	Biostatistics I*	3
Spring Semester 1		
EPIB 651	Biostatistics II	3
EPIB 697	Public Health Data Management (also offered in summer term)	3
EPIB 641	Public Health Research Ethics	1
Fall Semester 2		
PIB 665	Categorical Data Analysis	3
EPIB 655	Longitudinal Data Analysis	3
Spring Semester 2		
EPIB 653	Applied Survival Data Analysis	3
HLTH 665	Health Behavior I (or other core MPH course)*	3
Fall Semester 3		
HLSA 601	Introduction to Health Systems (or other core MPH course)*	3
Elective	Selected with Advisement	3
Spring Semester 3		
MIEH 600	Foundations of Environmental Health (or other core MPH course)*	3
Elective	Selected with Advisement	3
Fall Semester 4		
EPIB 785	Internship in Public Health	3
EPIB 786	Capstone Project in Public Health	3

*The 5 core MPH courses are taught every semester. They are also taught online during the summer session.

Sample Part-Time Biostatistics MPH Course Sequence (3 years, with summer courses)

Course	Title	Credits
Summer Term 1		
EPIB 610	Foundations in Epidemiology (or other core MPH course)*	3
Fall Semester 1		
EPIB 650	Biostatistics I*	3
EPIB 697	Public Health Data Management (also offered in summer term)	3
Spring Semester 1		
EPIB 651	Biostatistics II	3
HLTH 665	Health Behavior I (or other core MPH course)*	3
EPIB 641	Public Health Research Ethics	1
Summer Term 2		
MIEH 600	Foundations of Environmental Health (or other core MPH course)*	3
Fall Semester 2		
EPIB 665	Categorical Data Analysis	3
EPIB 655	Longitudinal Data Analysis	3
Spring Semester 2		
EPIB 653	Applied Survival Data Analysis	3
Elective	Selected with Advisement	3
Summer Term 3		
HLSA 601	Introduction to Health Systems (or other core MPH course)*	3
Fall Semester 3		
EPIB 785	Internship in Public Health	3
Elective	Selected with Advisement	3
Spring Semester 3		
EPIB 786	Capstone Project in Public Health	3

*The 5 core MPH courses are taught every semester. They are also taught online during the summer session.

b. MPH in Epidemiology Concentration Overview

The goal of the MPH in Epidemiology is to train students for future careers in public health. Epidemiology is the study of the distribution and determinants of disease and injuries, and other health states in human populations. As the fundamental science of public health practice, epidemiology provides the conceptual and applied tools necessary for the study of public health problems. Students are not only trained through formal coursework, but also through active engagement in research, departmental activities, research seminars, and through attendance at professional meetings at the state, regional, national, and international levels.

The MPH with a concentration in Epidemiology is a 43-credit professional degree that prepares graduates to work in public health services as practitioners, researchers, administrators, and consultants. A full-time student may complete our program in 2 years. Part-time students may take up to 4 years to complete the program. The majority of courses are offered in the evenings.

In addition to coursework, all epidemiology master's students are required to complete a capstone experience that occurs after all courses are completed and includes 1) a project (usually data analysis or report suitable for publication), and 2) an internship of at least 240 hours

i. Epidemiology MPH requirements

	Course Title	Credits
Required MPH Core (15 Credits)	EPIB 610 Foundations of Epidemiology	3
	EPIB 650 Biostatistics I	3
	HLSA 601 Introduction to Health Systems	3
	HLTH 665 Health Behavior I	3
	MIEH 600 Foundations of Environmental Health	3
Required Cognate Area (13 Credits)	EPIB 611 Intermediate Epidemiology	3
	EPIB 612 Epidemiologic Study Design	3
	EPIB 651 Biostatistics II	3
	EPIB 697 Public Health Data Management	3
	EPIB 641 Public Health and Research Ethics	1
Electives (9 Credits)	Selected with Advisement	9
Capstone (6 Credits)	EPIB 785 Internship in Public Health	3
	EPIB 786 Capstone Project in Public Health	3
	Total Credits MPH in Epidemiology	43

ii. Epidemiology MPH Program Competencies

By the end of the MPH in Epidemiology program, students will be able to:

Epidemiology Common Core Competencies

1. Identify vital statistics and other key sources of data for epidemiological purposes.
2. Describe a public health problem in terms of magnitude, person, time and place.
3. Discuss the principles and limitations of public health screening programs.
4. Comprehend basic ethical and legal principles pertaining to the collection, maintenance, use and dissemination of epidemiologic data.
5. Explain the importance of epidemiology for informing scientific, ethical, economic and political discussion of health issues.
6. Apply the basic terminology and definitions of epidemiology.
7. Calculate basic epidemiology measures.
8. Communicate epidemiologic information to lay and professional audiences.
9. Differentiate among the criteria for causality.
10. Draw appropriate inferences from epidemiologic data.
11. Describe epidemiologic study designs and assess their strengths and limitations.
12. Evaluate the strengths and limitations of epidemiologic reports.

Epidemiology Cognate Competencies

13. Calculate advanced epidemiology measures.
14. Design, analyze, and evaluate an epidemiologic study.
15. Demonstrate skills in public health data collection and management.
16. Design interventions to reduce prevalence of major public health problems.
17. Demonstrate program administration and organizational leadership.

i. Epidemiology MPH Course Sequence

Prior to starting their first semester students should plan out their courses for the entire program. Some courses are offered every semester (MPH core courses) whereas others are only offered in the fall or spring semesters. Some courses are also offered during the summer term, such as all of the MPH core courses. Full and part-time sample course sequences for the Epidemiology MPH are provided below:

Sample Full-Time Course Sequence for the Epidemiology MPH (2 years, without summer courses)

Fall Semester 1		
Course	Title	Credits
EPIB 610	Foundations in Epidemiology*	3
EPIB 650	Biostatistics I*	3
EPIB 697	Public Health Data Management (also offered in summer term)	3
HLTH 665	Health Behavior I (or other core MPH course)*	3
Spring Semester 1		
EPIB 611	Intermediate Epidemiology	3
EPIB 651	Biostatistics II	3
EPIB 641	Public Health Research Ethics	1
HLSA 601	Introduction to Health Systems (or other core MPH course)*	3
Elective	Selected with Advisement	3
Fall Semester 2		
EPIB 612	Epidemiologic Study Design	3
MIEH 600	Foundations of Environmental Health (or other core MPH course)*	3
Elective	Selected with Advisement	3
Elective	Selected with Advisement	3
Spring Semester 2		
EPIB 785	Internship in Public Health	3
EPIB 786	Capstone Project in Public Health	3

*The 5 core MPH courses are taught every semester. They are also taught online during the summer session.

Sample Part-Time Course Sequence for the Epidemiology MPH (3 ½ years, without summer courses)

Course	Title	Credits
Fall Semester 1		
EPIB 610	Foundations in Epidemiology*	3
EPIB 650	Biostatistics I*	3
Spring Semester 1		
EPIB 611	Intermediate Epidemiology	3
EPIB 651	Biostatistics II	3
EPIB 641	Public Health Research Ethics	1
Fall Semester 2		
EPIB 612	Epidemiologic Study Design	3
EPIB 697	Public Health Data Management (also offered in summer term)	3
Spring Semester 2		
HLTH 665	Health Behavior I (or other core MPH course)*	3
Elective	Selected with Advisement	3
Fall Semester 3		
HLSA 601	Introduction to Health Systems (or other core MPH course)*	3
Elective	Selected with Advisement	3
Spring Semester 3		
MIEH 600	Foundations of Environmental Health (or other core MPH course)*	3
Elective	Selected with Advisement	3
Fall Semester 4		
EPIB 785	Internship in Public Health	3
EPIB 786	Capstone Project in Public Health	3

*The 5 core MPH courses are taught every semester. They are also taught online during the summer session.

Sample Part-Time Course Sequence Epidemiology MPH (3 years, with summer courses)

Course	Title	Credits
Summer Term 1		
MIEH 600	Foundations of Environmental Health (or other core MPH course)*	3
Fall Semester 1		
EPIB 610	Foundations in Epidemiology (or other core MPH course)*	3
EPIB 650	Biostatistics I*	3
Spring Semester 1		
EPIB 611	Intermediate Epidemiology	3
EPIB 651	Biostatistics II	3
EPIB 641	Public Health Research Ethics	1
Summer Term 2		
HLTH 665	Health Behavior I (or other core MPH course)*	3
Fall Semester 2		
EPIB 612	Epidemiologic Study Design	3
EPIB 697	Public Health Data Management (also offered in summer term)	3
Spring Semester 2		
Elective	Selected with Advisement	3
Elective	Selected with Advisement	3
Summer Term 3		
HLSA 601	Introduction to Health Systems (or other core MPH course)*	3
Fall Semester 3		
EPIB 785	Internship in Public Health	3
Elective	Selected with Advisement	3
Spring Semester 3		
EPIB 786	Capstone Project in Public Health	3

*The 5 core MPH courses are taught every semester. They are also taught online during the summer session.

C. Capstone Experience

The capstone is comprised of two experiences, the MPH internship and the MPH project. Since these are capstone activities they must be completed after all program cognate courses have been completed, usually during the last semester of the program. Students are responsible for determining which of their MPH program competencies (Biostatistics or Epidemiology) will be addressed between both experiences; between the two they should address all competencies.

a. Project (EPIB 786)

All Master of Public Health students are required to complete a project (EPIB 786, 3 credits). The purpose of the project is to provide students with a culminating experience where he/she applies the knowledge and skills learned in the MPH program to a specific public health issue or problem. When designing the project students should review the MPH competencies for their program. Students must address each competency between the internship and project. All core program competencies must be met between both culminating experiences (internship and project).

The project is 3 credits and is typically in the form of a comprehensive literature review or research report which includes data analysis. Project committee chairs are typically students' academic advisors, but this is not always the case. If you think another faculty member would be more appropriate for your project, you should first discuss this with your advisor and the other faculty member before you begin work on your project. You may also discuss this process with the EPIB Director of Graduate Studies.

You should begin to discuss your project ideas with your advisor or project chair in the beginning of the semester before you will conduct your project so that you have time to get everything in order for your work in the last semester. Students must present their project proposals by the end of the semester before they will complete the work (i.e. Propose in the fall semester and defend the final project in the spring semester). Students must also follow the timeline requirements of the proposal and final defense meetings. For example, you must give your committee 10 working days to review prior to your proposal/final defense meetings and announce your meetings 10 days in advance. The Graduate School has strict deadlines for when your final project must be completed by in order to graduate in a semester, please see the Graduate School deadlines when you are creating your timelines

http://www.gradschool.umd.edu/current_students/deadlines_for_graduate_students.html.

Students should turn in a hard copy of their approved project proposal and an electronic copy of their approved final project to the Director of Graduate Studies. The full description, timeline, and instructions for the completion of the project requirement can be found the [EPIB MPH Project Handbook](#), which is to be reviewed carefully as you begin to develop your research plan.

If you are interested in the thesis option for the capstone experience (EPIB799 – 6 credits) you must discuss this option with your academic advisor by the end of your first year in the program.

b. MPH Internship Experience (EPIB 785)

A public health internship is a requirement for the Master of Public Health degree. It is a separate experience from the project requirement. The internship is an opportunity to apply classroom-learned skills in a supervised professional environment. All core program competencies must be met between both culminating experiences (internship and project).

The 240 hour internship is designed to enable students to gain practical experience as professionals under conditions conducive to educational development. The internship is a time-limited, supervised period of epidemiology and/or biostatistical activities carried out in a public health organization that works with epidemiologic studies and/or uses biostatistics methods. The internship provides students with the opportunity to integrate and apply knowledge and skills obtained in the MPH program.

All students planning to do their internship must meet as a group with the faculty member coordinating the internship experience the semester prior to starting the internship. An e-mail will be sent to all EPIB students in the first 4 weeks of each semester to schedule the internship planning meeting. During this meeting students will go over the requirements and discuss progress on finding their internship and discuss potential sites.

EPIB students have found internships at a wide variety of organizations, including: National Center for Health Statistics, National Cancer Institute, National Institute of Mental Health, Food and Drug Administration, National Human Genome Institute, Centers for Medicare and Medicaid Services, Adventist HealthCare, Pan American Health Organization, IOWA Foundation for Medical Care, and Consortium Health Plans.

The full description, timeline, and instructions for the completion of the internship requirement can be found the [EPIB MPH Internship Handbook](#), which is to be reviewed carefully prior to the beginning your internship search.

D. EPIB Advising

All EPIB graduate students are assigned an academic advisor. Advisors will provide students with approval to register each semester, assist students in determining elective courses, and work with students to identify internship sites. Advisors also typically supervise the project experience and act in the role of the chair of the committee. If a student would like a different faculty member to be their project chair, they should first discuss this with the EPIB faculty member whom they would like to be their project committee chair. Once this EPIB faculty member agrees to be your project committee chair the student should discuss the change with their advisor. This should all take place prior to starting work on your project.

Every semester students must complete an [MPH Program Plan](#) for their specific program detailing the courses they have taken and the courses they will register for the next semester. This form must be discussed with and approved by the student's academic advisor. Once the approval has been given students should give the signed form to the EPIB Director of Graduate Studies who will give you permission to register for courses. If a student is interested in taking a course offered in another SPH department, the EPIB Director of Graduate Studies will receive approval for you. If you want to register

for a course offered by another school (e.g. Anthropology), you must seek permission from the course instructor and their department's Director of Graduate Studies.

Each year students must complete a [Student Degree Progress Report](#) and should meet with their advisor to review their progress in the program. This form should be completed, reviewed with the advisor, and given to the EPIB Director of Graduate Studies by May 1 each year.

If at any point you encounter difficulty during your time in the program (e.g., death in the family, housing issues, other emergencies, illness, etc.) please reach out to your advisor or the Director of Graduate Studies for support and advice. The sooner we know about these issues the better able we may be to assist you.

E. Minimum Requirements for Satisfactory Progress

Students must meet *minimum* requirements for “satisfactory progress” each year in the master’s program to be allowed to continue. Students must meet all the degree *Milestones* within the time requirements and must maintain a 3.0 GPA throughout their program (See Graduate School policy on Academic Standing). All graduate students must register for at least 1 credit hour each semester until graduation. Students should register for the number of credits that will, in the judgment of the graduate program faculty, accurately reflect their involvement in graduate study (Graduate School Requirements).

Students must receive at least a “B-” in individual MPH program cognate courses for satisfactory progress. If a student receives a “C+” or lower in an Epidemiology or Biostatistics MPH program cognate course, the student must repeat the course and receive a satisfactory grade (at least a B-). If the student does not receive a satisfactory grade the second time, they will not be allowed to continue in the program.

F. EPIB Course Waiver Policy & Inclusion of Credit

MPH students may request a waiver of a required course in their program if they can demonstrate that they have achieved the competencies through another course. The EPIB MPH programs are 43 credits, so if a student waives out of a course they must make sure they complete 43 credits in their program by taking an additional elective or independent study. EPIB 611 and EPIB 612 may not be waived. The EPIB course waiver policy includes:

1. EPIB 610 & EPIB 650 may be waived only if a student has taken a comparable course at another school of public health and passes a competency-based waiver exam with a 70% or higher score. The waiver exam is offered twice per year prior to the start of the fall and spring semesters. If you pass the exam, students must complete the **SPH Request for Waiver or Substitution of a Public Health Core Requirements** form, attach the placement exam results, and give the form to the EPIB Director of Graduate Studies.
2. To waive one of the other five MPH core courses (HLTH665, MIEH600, HLSA601) students must prepare a waiver package which includes the **SPH Request for Waiver or Substitution of a Public Health Core Requirements** form, transcripts, a copy of the course syllabi, and possibly letters of support from faculty. The approved waiver form should be given to the EPIB Director of Graduate Studies.

3. To waive other courses students must prepare a waiver package which includes the **SPH Request for Waiver or Substitution of a Graduate Course Requirement** form, transcripts, a copy of the course syllabi, and possibly letters of support from faculty. The approved waiver form should be given to the EPIB Director of Graduate Studies.

If you have taken an EPIB or other SPH course as an Advanced Special Student or another graduate level course in public health and want to have these added to your degree transcript, you must complete the Graduate School's **Request for Transfer or Inclusion of Credit for the Master's Degree** form. Only 12 credits as an Advanced Special Student may be applied to a degree program and will be calculated in the GPA. Only 6 credits from another institution may be transferred. These credits may not have been used to satisfy a previous degree. Please see the form for additional requirements.

G. Student Travel Policy & Funding

If you have the opportunity to present your research at a professional conference, there are a number of funding opportunities for conference travel which include forms and requirements to follow.

Students must complete a "Travel Authorization Request (TAR)" if traveling for academic purposes. The TAR is also required for reimbursement of travel expenses. The TAR should be completed as soon as you know you will be traveling to a conference so that your information can be entered into the system (<http://sph.umd.edu/department/epib/facultystaff>). Students should keep copies of all receipts from their trip in order to request reimbursement. Alcohol should not be included on any receipts.

Students may apply for a travel grant from the Graduate School to fund a portion of their conference travel (http://www.gradschool.umd.edu/current_students/travel_awards.html), including the "International Conference Student Support Awards" and "Jacob K. Goldhaber Travel Grant". These grants are received by the Graduate School on a rolling basis. The Goldhaber Travel Grants may not exceed the amount contributed by a college, department, or other source regardless of funds available or destination. A student may receive a Goldhaber Travel Grant twice during their tenure at the University regardless of degrees earned. Instructions for how to apply for the Goldhaber award are at <http://www.gradschool.umd.edu/images/uploads/goldhaberapplication.pdf>. The EPIB department will match the funds received by the Goldhaber travel award. Students should submit their application to the EPIB Director of Graduate Studies for departmental funding approval prior to submitting an application to the Graduate School.

H. Student Forms

All MPH program related forms can be found on the EPIB website (<http://sph.umd.edu/department/epib/information-and-forms>). Graduate School forms are located on the Graduate School website (<http://www.gradschool.umd.edu/>). Forms specifically for the project are located at <http://sph.umd.edu/department/epib/checklist-required-forms-projectthesisdissertation-meetings>.

I. EPIB Faculty

Information on Department of Epidemiology and Biostatistics faculty can be found at <http://sph.umd.edu/department/epib/faculty>.

Core Faculty:

Olivia Carter-Pokras, PhD, Professor: Translation of epidemiologic research into policy and practice, health disparities, Latino health, cultural competency

Shuo Chen, PhD, Assistant Professor: High-dimensional data analysis, Bayesian methods, machine learning, neuroimaging statistics, proteomics

Raul Cruz-Cano, PhD, Assistant Research Professor: Computational statistics, bioinformatics, data analysis

Cher Dallal, PhD, Assistant Professor: Epidemiology of breast, endometrial and ovarian cancer, hormonal and lifestyle factors, molecular epidemiology, cancer prevention

Typhanye Penniman Dyer, PhD, Assistant Professor: HIV/AIDS, women's health, disparities, substance use, infectious disease, mental health, sexual minorities, incarceration, social networks

Robert Gold, PhD, Professor and Chair: Application of technology in health education and health promotion

Xin He, PhD, Assistant Professor: Longitudinal data analysis and survival analysis

Graciela Jaschek, PhD, Assistant Research Professor and EPIB MPH Internship Coordinator: Social determinants of health, health disparities, Latino populations

Mei-Ling Ting Lee, PhD, Professor: Statistical and bioinformatics methods with applications in genomic research, time-to-event analysis, epidemiological studies, cancer clinical trials, environmental research, and infectious diseases

Sunmin Lee, ScD, Associate Professor: Social determinants of health, health disparities, Asian American health, cancer prevention and survivorship

Hongjie Liu, PhD, Professor: Social and behavioral aspects of HIV/AIDS, social networks, research methodology

Brit Saksvig, PhD, Assistant Chair, Director of Graduate Studies, Associate Research Professor: Nutrition and physical activity, school-based interventions, social networks

Natalie Bea Slopen, PhD, Assistant Professor: Social influences on health, health disparities, and psychological and biological mechanisms

Jing Zhang, PhD, Assistant Professor: Meta-analysis, clinical trials, diagnostic tests, Bayesian Analysis, and missing data.

J. EPIB Graduate Courses

EPIB 610 Foundations of Epidemiology (3 credits)

Prerequisite: Completion of EPIB300 or equivalent undergraduate statistics or biostatistics course with a grade of C- or higher OR score a minimum of 70% on EPIB300 placement exam. Introduction to the discipline of epidemiology and its applications to health issues and practices. Basic epidemiologic concepts and methods will be covered.

Instructor: Dr. Carter-Pokras; Dr. Dyer. **Offered in the Fall, Spring, and Summer.**

EPIB 611 Intermediate Epidemiology (3 credits)

Prerequisite: EPIB610.

Analysis of epidemiologic methods as applied to epidemiologic research, analysis of bias, confounding, effect modification issues, overview of design, implementation, and analysis of epidemiologic studies.

Instructor: Dr. Sunmin Lee; Dr. Dallal. **Offered in the Spring.**

EPIB 612 Epidemiologic Study Design (3 credits)

Prerequisite: EPIB610, EPIB611, and EPIB650.

Application of epidemiologic study designs, analytic methods used for analysis of cohort, case-control, cross-sectional, and clinical trials research.

Instructor: Dr. Liu. **Offered in the Fall.**

EPIB 620 Chronic Disease Epidemiology (3 credits)

Prerequisite: EPIB610.

Overview of prevalence and risk factors for major chronic diseases. Discussion of methodological issues unique to specific chronic disease.

Instructor: Dr. Carter-Pokras. **Offered in the Spring and occasionally Summer.**

EPIB 621 Infectious Disease Epidemiology (3 credits)

Prerequisite: EPIB610.

Overview of the unique aspects of infectious diseases and the epidemiological methods used in their study, prevention, and control.

Instructor: TBD. **Offered in the Fall.**

EPIB 622 Social Determinants of Health (3 credits)

Prerequisite: EPIB610.

Overview of the major social variables that affect public health, including socioeconomic status, poverty, income distribution, race, social networks/support, community cohesion, psychological stress, gender, and work and neighborhood environment.

Instructor: Dr. Sunmin Lee; Dr. Slopen. **Offered in the Fall.**

EPIB 623 Epidemiology of Health Disparities (3 credits)

Prerequisite: EPIB610.

Determinants that influence health outcomes of the most disadvantaged populations in the United States. Focus on social factors contributing to health disparities and inequities in the US.

Instructor: TBD

EPIB 624 Genetics in Public Health (3 credits)

Prerequisite: EPIB610.

Emerging role of genetics in public health; overview of basic tenets of human genetics; examination of how public health practices and research are influenced by genetics and ethical issues specific to genetics.

Instructor: TBD

EPIB 625 Epidemiology of Physical Activity (3 credits)

Prerequisite: EPIB610.

Overview of evidence of the epidemiological association of physical activity to a variety of health outcomes, application of epidemiological methods to the science of physical activity and health.

Instructor: TBD

EPIB 626 Epidemiology of Obesity (3 credits)

Prerequisite: EPIB610.

Overview of the epidemiological, prevention, and treatment of obesity, its causes and consequences, and energy balance issues; application of epidemiologic methods to the study of obesity epidemiology.

Instructor: Dr. Dallal. **Offered in the Fall.**

EPIB 627 Epidemiologic Methods for Primary Research (3 credits)

Prerequisite: EPIB 610 or permission from instructor.

This course provides students with the knowledge and skills to design and implement epidemiologic research studies and to collect primary data. This course presents an overview of types of research designs, sampling methodologies, measurement issues, questionnaire design, and guidelines for recruiting and interacting with participants.

Instructor: TBD.

EPIB 630 Epidemiologic Methods in Sexual and Reproductive Health Research (3 credits)

Prerequisite: EPIB610 or permission from instructor.

Examination of epidemiologic methods (quantitative and qualitative) for collecting and analyzing data on sexual and reproductive health. The emphasis will be to introduce students to the appropriate methods used for challenging and sensitive research topics such as sexual behavior, HIV/STI, drug use, sexual abuse.

Instructor: Dr. Dyer. **Offered in the Fall.**

EPIB 631 Cancer Epidemiology

Prerequisite: EPIB610 or permission from instructor.

This course will combine public health disciplines including epidemiological methods, molecular biology, pathology, clinical and social/behavioral sciences to explore modern cancer epidemiology, prevention and control in the United States and internationally. Emphasis will be placed on those cancers of high prevalence or unique biological characteristics that illustrate interesting epidemiological or etiological characteristics.

Instructor: Dr. Dallal. **Offered in the Fall.**

EPIB 641 Public Health and Research Ethics (1 credits)

Overview and discussion of ethical issues that face public health practitioners and researchers.

Instructor: Drs. Clark and Alving. **Offered in the Spring.**

EPIB 650 Biostatistics I (3 credits)

Prerequisite Completion of EPIB300 or equivalent undergraduate statistics or biostatistics course with a grade of C- or higher OR score a minimum of 70% on EPIB300 placement exam. Basic statistical concepts and procedures for Public Health. Focuses on applications, hands-on-experience, and interpretations of statistical findings.

Instructor: Dr. He; Dr. Zhang; Dr. Cruz-Cano. **Offered in the Fall and Spring.**

EPIB 651 Biostatistics II (3 credits)

Prerequisite: EPIB650. Recommended: EPIB698C (SAS Basics) or EPIB697 Public Health Data Management. Introduction to a variety of statistical tools with applications in public health, including one- and two-sample inference, nonparametric methods, categorical data, ANOVA, simple and multiple regression.

Instructor: Dr. Chen. **Offered in the Spring.**

EPIB 652 Categorical Data Analysis (3 credits)

Prerequisite: EPIB650 and EPIB651. Recommended: EPIB698C (SAS Basics) or EPIB697 Public Health Data Management.

Methods for analysis of categorical data as applied to public health research, including contingency tables, logistic regression, multcategory logic models, loglinear models, and models for matched-pairs.

Instructor: Dr. Chen. **Offered in the Fall.**

EPIB 653 Applied Survival Data Analysis (3 credits)

Prerequisite: EPIB650 and EPIB651.

Overview of statistical methods for analyzing censored survival data, including the Kaplan-Meier estimator and the log-rank test.

Instructor: Dr. Mei-Ling Lee. **Offered in the Spring.**

EPIB 654 Clinical Trial Analysis (3 credits)

Prerequisite: EPIB650 and EPIB651.

Principles of clinical trial design, including randomization strategies, design and analytic issues to minimize threats to validity, sample size and power calculations, intention to treat analyses.

Instructor: TBD

EPIB 655 Longitudinal Data Analysis (3 credits)

Prerequisite: EPIB650, EPIB651

Statistical models for drawing scientific inferences from longitudinal data, longitudinal study design, repeated measures and random effects to account for experimental designs that involve correlated responses, handling of missing data.

Instructor: Dr. He. **Offered in the Fall.**

EPIB 656: Applied Bayesian Data Analysis (3 credits)

This course is intended as an introduction to spatial statistics and aims to provide students with the background necessary to investigate geographically represented data. Lectures will cover the three main areas of spatial statistics: geostatistical data, lattice (areal) data, and point patterns.

Instructor: Dr. Chen. **Offered Every Other Year in the Fall.**

EPIB 657: Spatial Statistics for Public Health Data (3 credits) Prerequisite: EPIB651, EPIB652, or permission of instructor.

Overview of the three main areas of spatial statistics: point patterns, geostatistical data, and lattice (areal) data. Application of spatial statistical models including CSR, k-function, krigging, semivariogram, CAR, SAR, GWR, spatial GLM, and multilevel model to public health and environmental data analysis.

Instructor: Dr. Chen. **Offered Every Other Year in the Spring.**

EPIB 663: SAS Programming (3 credits)

Designed for students who want to learn how to analyze and summarize data using SAS. It begins by introducing the students to basic SAS programming and data manipulation techniques. More advanced themes, such as preliminary data analysis and graphs, are explored later in the semester. Finally, the class covers the implementation of several advanced statistical concepts in SAS, including T-tests, ANOVA, non-parametric tests, regression and normality tests.

Instructor: Dr. Cruz-Cano. **Offered in the Summer.**

EPIB 672 Public Health Informatics (3 credits)

Restriction: Instructor permission is required for students not enrolled in a degree seeking program in the School of Public Health. Also offered as: HLTH672. Additional information: Course hashtag - #umdphi12. A basic overview of Informatics and its application in a public health setting. The major goal is for students to understand the basic tools and building blocks needed to utilize this technology in order to improve their professional productivity

Instructor: Dr. Gold. **Offered in the Fall.**

EPIB697: Public Health Data Management (3 credits)

This course is designed to provide students with the expertise needed to effectively manage research data using SAS as the statistical programming language.

Instructor: Dr. Cruz-Cano. **Offered in the Fall.**

EPIB 710 Epidemiologic Research Methods (3 credits)

Prerequisite: EPIB610, EPIB611, EPIB612, EPIB650 and EPIB651.

In-depth study of the knowledge and skills needed to design, conduct, and evaluate an epidemiologic research study. Development of a complete research project.

Instructor: TBD. **Offered every other year in the Spring.**

EPIB 740 Advanced Methods in Epidemiology (3 credits)

Prerequisite: EPIB610, EPIB611, EPIB612, EPIB650, and EPIB651.

In-depth investigation of epidemiologic methods for making causal inferences and solving complex methodological problems. Multivariate models emphasized.

Instructor: Dr. Liu. **Offered every other year in the Spring.**

EPIB 785 Internship in Public Health (3 credits)

Prerequisite: Permission of SPHL-Epidemiology & Biostatistics department

Internship and seminar providing an opportunity to apply previously acquired knowledge and skills in a health or allied health organization. Setting of the internship will depend upon the student's background and career goals.

Instructor: Dr. Jaschek. **Offered in the Fall and Spring.**

EPIB 786 Capstone Project in Public Health (3 credits)

Prerequisite: Permission of SPHL- Epidemiology & Biostatistics department.

Capstone experience providing opportunity to apply knowledge and skills to a specific public health problem or issue. Completion of project relevant to public health under the direction of an advisor.

Instructor: Departmental Faculty. **Offered in the Fall and Spring.**

EPIB 788 Critical Readings in Epidemiology and Biostatistics (1-3 credits)

Prerequisite: Must have completed or be concurrently enrolled in EPIB610. Repeatable to 6 credits if content differs.

Open to master and doctoral students to discuss critical readings in Epidemiology and Biostatistics.

Instructor: Departmental Faculty. **Offered in the Fall.**

EPIB 798 Independent Study (1-6 credits)

Prerequisite: Permission of SPHL-Epidemiology and Biostatistics department. Repeatable to 9 credits if content differs.

Master or doctoral students who desire to pursue special research problems under the direction of a faculty member of the department may register for 1-6 hours of credit under this number.

Instructor: Departmental Faculty. **Offered in the Fall and Spring.**

EPIB 799 Master's Thesis Research (6 credits)

Prerequisite: Permission of SPHL-Epidemiology and Biostatistics department.

K. Authorship Policies

The Department of Epidemiology and Biostatistics has developed authorship guidelines for students and faculty. These guidelines will help students who are working on manuscripts with faculty, may prepare a manuscript for publication through a course, or plan to submit their project for publication.

Authorship has professional benefits such as for promotion and tenure, fulfilling PhD requirements, and professional recognition.¹ The 1995 report of HHS Commission on Research Integrity strongly encouraged that institutions develop practice guidelines regarding “data management and retention, authorship, and on supervision of students, fellows, and technicians.”² However, uncertainty regarding authorship and concerns about potential authorship abuse persist among epidemiology trainees. In our disciplines, few papers are published with a single author.

¹ Strange K. Authorship: why not just toss a coin? *Am J Physiol Cell Physiol* 2008;295(3), C567-575. doi: [10.1152/ajpcell.00208.2008](https://doi.org/10.1152/ajpcell.00208.2008).

² Department of Health and Human Services. Integrity and Misconduct in Research: Report of the Commission on Research Integrity. 1995. Retrieved April 24, 2015 from https://ori.hhs.gov/images/ddblock/report_commission.pdf

The University of Maryland College Park considers **improprieties of authorship as an example of scholarly misconduct. This includes:** “improper assignment of credit, such as excluding or insufficiently citing others; misrepresentation of the same material as original in more than one publication; inclusion of individuals as authors who have not made a contribution to the work published; or submission of multi-authored publications without the concurrence of all authors.”³

The Department of Epidemiology and Biostatistics follows the following guidelines in order to facilitate discussion regarding authorship and avoid potential conflict, confusion, and improprieties of authorship:

1. Discuss authorship early and often, including who will be the lead author, other key author(s), and contributing author(s).
2. Authors should meet the Uniform Requirements for Manuscripts from the International Committee of Medical Journal Editors (ICMJE) on authorship:⁴
 - a. “Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
 - b. Drafting the work or revising it critically for important intellectual content; AND
 - c. Final approval of the version to be published; AND
 - d. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.”
3. Document joint decisions on authorship assignment and order leaving some flexibility for changes in ability to contribute to the publication.
4. The primary author should prepare a concise written description of how authorship order was decided (often requested by journals).
5. Masters and doctoral students should be first authors of publications stemming from their theses or dissertations which are prepared within a reasonable timeframe (e.g., two years following graduation).
6. Students are encouraged to involve their advisors and committee members early in development of manuscripts stemming from their theses and dissertations so that they can appropriately credit intellectual contributions, strengthen manuscripts, improve chances of publication, as well as ensure that ICMJE authorship requirements are met.

³ University of Maryland. **III-1.10(A) UNIVERSITY OF MARYLAND PROCEDURES FOR SCHOLARLY MISCONDUCT. In:** Consolidated USM and UMD Policies and Procedures. 2009. Retrieved April 24, 2015 from <http://www.president.umd.edu/policies/iii110a.html>

⁴ International Committee of Medical Journal Editors. Defining the Role of Authors and Contributors. 2015. Retrieved April 24, 2015 from: <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>

7. Prior approval should be sought to acknowledge someone's contributions when not listed among the authors (required by many journals).

Additional resources at UMCP regarding authorship and how to mediate conflicts:

- Responsible Conduct of Research: <http://www.umresearch.umd.edu/RCR/publications.html>
- Academic Integrity: <http://www.lib.umd.edu/tl/guides/academic-integrity>
- Ombuds Office: <http://www.umd.edu/ombuds/>
- University of Maryland Procedures for Scholarly Misconduct: <http://www.president.umd.edu/policies/docs/III-110A.pdf>

L. Graduate School and Graduate Catalog

The Graduate School website provides important information for our students on graduate policies, requirements, forms, and graduation deadlines. All students should be familiar with these resources and keep up to date on the deadlines and policies.

- *Graduate Student Deadlines:*
http://www.gradschool.umd.edu/current_students/deadlines_for_graduate_students.html
- *Graduate Student Forms:*
http://www.gradschool.umd.edu/current_students/general_forms_for_graduate_students.htm
- *The Graduate Catalog:*
<http://www.gradschool.umd.edu/catalog/> provides information on policies and procedures for admissions, academics, registration, financial aid and student support policies.
- *Graduate School Fellowship Opportunities:*
http://www.gradschool.umd.edu/prospective_students/gf_fellowships.html
- *Graduate Student Prizes and Awards:*
http://www.gradschool.umd.edu/current_students/prizes_and_awards.html