

EPIDEMIOLOGY, PHD

Doctor of Philosophy Degree Program

The PhD program in Epidemiology (<https://publichealth.jhu.edu/academics/phd-dept-of-epidemiology/>) is anchored in public health and quantitative population research and analysis. Students approach research using epidemiologic methods to understand complex human health problems. The PhD comprises two years of coursework followed by two (or more) years of research. Students are required to complete a teaching training curriculum and serve as teaching assistants for methods and topical courses. Additionally, students must successfully complete a written comprehensive exam, a practice oral exam, a preliminary oral exam, multiple oral and poster presentations, and a final dissertation including presentation and defense. The doctoral degree program is designed for individuals with specific career goals in public health research, teaching, and/or leadership.

PhD students focus on the creation of new and innovative knowledge through their research. Training is offered through a core methodologic sequence with the addition of more focused courses in specialized areas. Students are expected to tailor their curricula, working with their advisers to create a comprehensive plan of study and research. PhD dissertations must be based on original research, worthy of publication, and approved by the Department and a committee of thesis (dissertation) readers. PhD students must also be engaged in primary data collection as a component of their dissertation research or embedded in other research during their training here.

The PhD program requires that students:

- Complete at least 64 credits of coursework with a cumulative 3.0 GPA (B or higher average in required courses);
- Successfully pass the departmental comprehensive examination at the doctoral level;
- Complete the teaching assistantship (TA) curriculum, including serving as a TA in 3 departmental courses;
- Present their proposed doctoral research as a professional seminar to the Department;
- Pass the Departmental Oral Examination;
- Pass the Graduate Board Preliminary Oral Examination;
- Fulfill the primary data collection requirement;
- Develop and conduct independent research culminating in a doctoral dissertation in an approved format;
- Present their completed dissertation research in a formal seminar (open to the public);
- Successfully defend their dissertation during the Final Oral Examination.

Students work closely with their advisers and Thesis Advisory Committee to develop their research questions and design their projects to address those questions and to conduct the dissertation research.

Program Requirements

Course location and modality is found on the BSPH website (<https://www.jhsph.edu/courses/>).

Doctoral students in the Department of Epidemiology train to be public health leaders and educators. By following an apprenticeship model, students take courses, learn to teach methods and concepts to a wide

audience, conduct a rigorous examination of the existing science, and discover and contribute new knowledge to the field. Thus we require students to complete a residency and participate fully in journal clubs, research-in-progress meetings, programmatic activities, and scientific poster sessions and conferences. Doctoral students serve as teaching assistants, conduct research, and prepare a dissertation of the caliber expected of graduates of Johns Hopkins University.

Residency

A minimum of 64 credits is required to complete a doctoral degree. The residency requirement (completed by maintaining full-time registration of four consecutive terms of at least 16 credits each) must be completed during the first year of the program. To broaden perspective and to enhance the student's capabilities for work in public health or disease-related fields, at least 18 credits of coursework are required in courses from at least two other departments outside the student's primary department. At least nine of these credits must be taken at BSPH. Students who have completed a master's degree at Johns Hopkins Bloomberg School of Public Health, and are continuing into the doctoral program, must complete 18 new credits outside of Epidemiology, in at least two different departments of the school **and** complete 18 credits within the Department of Epidemiology, to establish the grade point average. Of note: University and Schoolwide requirements do not count toward the 18 credits outside of the department.

PhD students are expected to complete the core required courses for a letter grade and earn a B or better in required courses. The minimum grade point average for PhD students is 3.0 on the 4.0 scale.

Track Specific Activities

Each Track holds journal clubs, research-in-progress meetings, and other activities, which Track students are expected to attend. PhD students should take on leadership roles after their first year of study. These activities are opportunities to engage and interact with Track faculty, fellow students, and post-doctoral fellows, and to participate and present in the topic area of the Track. All doctoral students are expected to participate in their Track. If a student for some reason wishes to switch tracks during the course of their degree, they must schedule a meeting with the Senior Academic Program Manager, Frances Burman (FranBurman@jhu.edu), and the intended track director to ascertain whether a switch is feasible to still meet graduation requirements in time and to complete a formal form.

Quarterly Doctoral Meetings

Doctoral students and the Doctoral Program Directors meet quarterly. The agenda is developed by the Epidemiology Student Organization (ESO) doctoral student representatives in consultation with the program co-directors. These meetings provide a forum to learn about academic policies and deadlines, for students to raise questions and concerns, and for all to hear the answers. All doctoral students are expected to attend these meetings.

Annual Advising and Planning Meetings with Adviser (Individualized Development Plan)

PhD students must meet at least annually with their primary academic adviser for a formal review of their progress with written feedback and discuss plans for the upcoming year. This is accomplished using the Individualized Development Plan ([https://my.jhsph.edu/sites/EPI/students/DocumentLibrary/JHSPH_Annual-Discussion-and-Planning-Document_form\[1\].pdf](https://my.jhsph.edu/sites/EPI/students/DocumentLibrary/JHSPH_Annual-Discussion-and-Planning-Document_form[1].pdf)) (IDP). A critical part of any learning is the ability to review knowledge and skills gained, identify gaps, and identify ways

to obtain the knowledge, skills, and abilities needed for academic and professional success. Therefore, each PhD student is expected to (at least once annually) review their goals and objectives for pursuing the program, evaluate the progress they have made in obtaining the training desired, and set forth goals for the upcoming academic year. Each student reviews these with their academic adviser to discuss their progress and address any suggested areas for exploration by completing the Individualized Development Plan (IDP). The IDP is not a graded assignment but rather a guidepost for personal growth and reflection. The Johns Hopkins University Provost's Office provides resources (<https://provost.jhu.edu/education/graduate-and-professional-education-resources/phd-professional-development-policies-and-resources/>) on its website and a guided form (https://provost.jhu.edu/wp-content/uploads/2019/08/Annual-Discussion-and-Planning-Documents_pdf-form-1.pdf) for use. Additionally, a handy and thorough example is linked here (<https://myidp.sciencecareers.org/>) and designed by Science Careers.

Any template for an IDP may be used; however, the form must include sections for the student to complete on the following topics. There must also be space for adviser comments and feedback:

- Academic and/or thesis research progress of the past year and specific academic and/or research goals for the upcoming year;
- Ideas for ways in which the adviser can help the student achieve the student's academic or research goals for the coming year;
- Short and long-term professional goals and the types or range of professional sectors of possible interest;
- Specific skills the student wants to develop, or professional areas about which the student wants to learn more; and
- Provide ways the adviser can help the student achieve, or connect the student to resources for, these professional goals.

Doctoral Teaching Assistant (TA) Curriculum Requirements

PURPOSE OF THE DOCTORAL TA CURRICULUM

Learning how to be an effective teacher and communicator about epidemiologic principles and methods is an integral part of doctoral education in epidemiology. Teaching is an opportunity for students to meet several Departmental doctoral program core competencies, enabling students to:

- Interpret and critique epidemiological studies;
- Interpret epidemiologic data and make valid inferences from study findings;
- Communicate effectively in oral and written formats with students, professionals, and the public on issues related to epidemiology and public health; and
- Provide epidemiologic critique and advice by advising students and professionals on epidemiologic concepts and methods and conducting peer review activities

Practicing these skills also prepare students for Department and Preliminary Oral Examinations and for their future careers, whether in academia or in other venues. The full description of the Teaching Curriculum is outlined in the Policy tab. (p. 16)

Course Requirements

Academic & Research Ethics (and Avoiding Plagiarism) Course Requirement

All doctoral students must enroll in PH.550.860 Academic & Research Ethics at BSPH during the first term of doctoral enrollment at the School. The Avoiding Plagiarism at JHU training developed by JHU's Sheridan Libraries course material is contained within the PH.550.860 Academic & Research Ethics at BSPH course. This online course is administered through CoursePlus. All students are required to complete this online course by the end of their first term enrolled. In the course, students are asked to upload two certificates to a CoursePlus DropBox showing completion of both parts of this course:

- Certificate from JHU for the Avoiding Plagiarism module
- Certificate from SPH for completion of the Responsible Conduct of Research module

Students must also send a copy of the certificates to the Senior Academic Program Manager, Frances Burman (FranBurman@jhu.edu) with their name and "Academic & Research Ethics Requirement" in the subject line of the e-mail.

Responsible Conduct of Research Course Requirement

All doctoral students must fulfill the Responsible Conduct of Research requirement. Please note, while there is a Responsible Conduct of Research module within the PH.550.860 Academic & Research Ethics at BSPH.82, this is a separate requirement and is not fulfilled by that module contained within PH.550.860 Academic & Research Ethics at BSPH.82.

Additionally, doctoral students who are supported by a National Institutes of Health (NIH) training grant, career development award (individual or institutional), research education grant, or dissertation research grant (including D43, D71, F05, F30, F31, F32, F33, F34, F37, F38, K01, K02, K05, K07, K08, K12, K18, K22, K23, K24, K25, K26, K30, K99/R00, KL1, KL2, R36, T15, T32, T34, T35, T36, T37, T90/R90, TL1, TU2, and U2R) must repeat this in-person requirement every four years.

This requirement can be met by completing either of the following two courses:

- PH.550.600 Living Science Ethics - Responsible Conduct of Research (1st term)
or
- PH.306.665 Research Ethics and integrity (3rd term)

CEPH Cells to Society Courses

The Council on Education in Public Health designates core knowledge for all public health professionals. The list of courses and term offerings is located online (<https://publichealth.jhu.edu/academics/course-directory/schedule-of-cells-to-society-course-offerings/>). Epidemiology degree students are required to complete 8 of the 12 sessions as listed below. Each course is 0.5 credits and is offered only online. Many of these courses can be used as introductions to full-term courses offered in multiple modalities throughout the year.

Code	Title	Credits
PH.552.601	Foundational Principles of Public Health	0.5
PH.552.603	The Role of Qualitative Methods and Science in Describing and Assessing a Population's Health	0.5
PH.552.607	Essentials of Environmental Health	0.5

PH.552.608	Biologic, Genetic and Infectious Bases of Human Disease	0.5
PH.552.609	Psychological and Behavioral Factors That Affect A Population's Health	0.5
PH.552.610	The Social Determinants of Health	0.5
PH.552.611	Globalization and Population Health	0.5
PH.552.612	Essentials of One Health	0.5

Departmental Core and Required Courses [subject to change]

The Doctoral Level Core Requirements are listed by year and term for all Epidemiology doctoral students. Students complete **CEPH Cells to Society Courses, Core Courses, Track-Specific Courses, a course outside of their track**, and recommended courses appropriate to provide a base for their intended research. Students who group their electives and recommended courses in a cohesive theme may wish to complete one of the many Certificates (<https://www.jhsph.edu/academics/certificate-programs/>) offered by the Department and School. Doctoral students who have a strong interest in methodology may apply for and complete the Concurrent MHS in Biostatistics (<https://www.jhsph.edu/departments/biostatistics/academics-and-student-life/degree-programs/mhs/>) while enrolled in the doctoral program.

REQUIRED: Core Courses for all doctoral students in Epidemiology

Core Courses should be completed during the first year of enrollment in preparation for the Written Comprehensive Examinations and as preparation for the Teaching Curriculum.

Course	Title	Credits
First Year		
First Term		
Summer Before Year 1		
Online Incoming Epi Students 2021 Orientation includes:		
	Introduction to Online Learning	
	Sexual Harassment and Sexual Violence Prevention Training (Title IX)	
	Unconscious Bias Training	
First Term		
PH.140.621 or PH.140.651	Statistical Methods in Public Health I or Methods in Biostatistics I	4
PH.340.860	Current Topics in Epidemiologic Research	1
	Select out-of-track, recommended, or elective courses to total 16 credits per term	6
PH.340.761	Epidemiologic Methods for EPI Doctoral Students I	5
Credits		16
Second Term		
PH.140.622 or PH.140.652	Statistical Methods in Public Health II or Methods in Biostatistics II	4
PH.340.860	Current Topics in Epidemiologic Research	1
PH.550.865	Public Health Perspectives on Research ¹	2
	Select out-of-track, recommended, or elective courses to total 16 credits per term	4
PH.340.762	Epidemiologic Methods for EPI Doctoral Students II	5
Credits		16

Third Term		
PH.140.623 or PH.140.653	Statistical Methods in Public Health III or Methods in Biostatistics III	4
PH.340.860	Current Topics in Epidemiologic Research	1
	Select out-of-track, recommended, or elective courses to total 16 credits per term	6
PH.340.763	Epidemiologic Methods for EPI Doctoral Students III (Epidemiologic Methods for Epi Doctoral Students III)	5
Credits		16

Fourth Term		
PH.140.624 or PH.140.654	Statistical Methods in Public Health IV or Methods in Biostatistics IV	4
PH.340.764	Epidemiologic Methods for EPI Doctoral Students IV (Epidemiologic Methods for Epi Doctoral Students IV)	5
PH.340.820	Thesis Research Epidemiology (varies)	1 - 3
PH.340.860	Current Topics in Epidemiologic Research	1
	Select out-of-track, recommended, or elective courses to total 16 credits per term	5

Department Comprehensive Examination

Pass Parts A&B - immediately following Fourth Term

Second Year		
First Term		
PH.340.820	Thesis Research Epidemiology (with thesis adviser, credits variable)	1 - 5
PH.340.863	Doctoral Seminars in Epidemiology	3
PH.340.865	Teaching Epidemiologic Methods and Concepts At the Graduate Level (Select this course to coincide with TA positions fulfilling requirement)	1 - 3
	Select recommended and elective courses to total 16 credits per term	11

Second Term		
PH.340.820	Thesis Research Epidemiology (with thesis adviser, credits variable)	1 - 5
PH.340.863	Doctoral Seminars in Epidemiology	3
PH.340.865	Teaching Epidemiologic Methods and Concepts At the Graduate Level (Select this course to coincide with TA positions fulfilling requirement)	1 - 3
	Select recommended and elective courses to total 16 credits per term	11

Third Term		
PH.340.820	Thesis Research Epidemiology (with thesis adviser, credits variable)	1 - 5
PH.340.863	Doctoral Seminars in Epidemiology	3
PH.340.865	Teaching Epidemiologic Methods and Concepts At the Graduate Level (Select this course to coincide with TA positions fulfilling requirement)	1 - 3

Select recommended and elective courses to total 16 credits per term 11

Credits		16-22
Fourth Term		
PH.340.820	Thesis Research Epidemiology (with thesis adviser, credits variable)	1 - 5
PH.340.715	Problems in the Design of Epidemiologic Studies: Proposal Development and Critique	5
PH.340.865	Teaching Epidemiologic Methods and Concepts At the Graduate Level (Select this course to coincide with TA positions fulfilling requirement)	1 - 3
Select recommended and elective courses to total 16 credits per term		9
Credits		16-22
Total Credits		128-154

¹ May be waived if student holds MPH from a CEPH accredited program in past 10 yrs

Courses approved for the "OUTSIDE OF TRACK" requirement

All students must complete one introductory topical epidemiology course outside of the chosen track. Courses approved by the Curriculum Committee to meet this requirement are listed below:

Code	Title	Credits
Select one of the following:		
PH.340.616	Epidemiology of Aging (Term 1)	3-4
PH.340.731	Principles of Genetic Epidemiology 1 (Term 1)	
PH.340.682	Pharmacoepidemiology Methods (Term 2)	
PH.330.603	Psychiatric Epidemiology (Term 2)	
PH.340.624	Etiology, Prevention, and Control of Cancer (Term 2)	
PH.340.627	Epidemiology of Infectious Diseases (Term 2)	
PH.340.645	Introduction to Clinical Trials (Term 2)	
PH.340.699	Epidemiology of Sensory Loss in Aging (Term 3)	
PH.340.607	Introduction to Cardiovascular Disease Epidemiology (Term 3)	
PH.340.680	Environmental and Occupational Epidemiology (Term 4)	
PH.380.664	Reproductive and Perinatal Epidemiology (Term 4)	
PH.340.666	Foundations of Social Epidemiology (Term 4)	
Total Credits		3-4

DEPARTMENT-WIDE RECOMMENDED COURSES

Code	Title	Credits
PH.340.860	Current Topics in Epidemiologic Research (Term 1-4, credits variable) ^{1,2}	1
PH.340.770	Public Health Surveillance (Term 2 or Term 3) ²	3
PH.340.769	Professional Epidemiology Methods (Term 3)	4
PH.340.840	Special Studies and Research Epidemiology (Term 1-4, credits variable) ¹	1 - 22

¹ 1 term, can be taken in any term 1 through 4

² Recommended for all four terms during year 2

Specific track requirements will be cross-referenced with the course directory and course system database before listing below.

Track Course Requirements (subject to change)

In addition to the Department-wide Core Requirements, each track requires additional coursework specific to their fields to prepare students to conduct research and serve as leaders. Please see the track-specific requirements and recommended courses listed below. Additionally, the first-year course content is covered in the annual Written Comprehensive Exams. All students may take courses in any of the tracks listed and are encouraged to do so.

Cancer Epidemiology

Courses Required for Doctoral Students in Cancer Epidemiology First Year

Term 1

Code	Title	Credits
PH.340.731	Principles of Genetic Epidemiology 1	4

Term 2

Code	Title	Credits
PH.340.624	Etiology, Prevention, and Control of Cancer	4
PH.340.732	Principles of Genetic Epidemiology 2	3

Second Year

Term 1

Code	Title	Credits
ME.510.706	Fundamentals of Cancer: Cause to Cure (Fundamentals of Cancer: Cause - to - Cure) offered alternate years - check catalog listing	2.5
PH.120.624	Cancer Biology (may be completed instead of term 1 of Cause to Cure)	3

Term 2

Code	Title	Credits
ME.510.706	Fundamentals of Cancer: Cause to Cure (Fundamentals of Cancer: Cause - to - Cure) offered alternate years - check catalog listing	2.5
PH.180.650	Fundamentals of Clinical Oncology for Public Health Practitioners (may be completed instead of term 2 of Cause to Cure)	3

Term 3

Code	Title	Credits
PH.180.640	Molecular Epidemiology and Biomarkers in Public Health	4

Additional Recommended Courses for doctoral students in Cancer Epidemiology

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

Term 1

PH.140.651 Methods in Biostatistics I
 PH.340.616 Epidemiology of Aging (fulfills an out-of-track requirement)
 PH.340.696 Spatial Analysis I: ArcGIS
 PH.340.660 Practical Skills in Conducting Research in Clinical Epidemiology and Investigation ideally taken in year 2
 PH.340.728 Advanced Methods for Design and Analysis of Cohort Studies should be completed in year 2 or later

Term 2

PH.140.652 Methods in Biostatistics II
 PH.340.774 Advanced Theory and Methods in Epidemiology
 PH.140.630 Introduction to Data Management
 PH.180.650 Fundamentals of Clinical Oncology for Public Health Practitioners (becomes recommended only when used in addition to Cancer: Cause to Cure)
 PH.330.603 Psychiatric Epidemiology (fulfills an out-of-track requirement)
 PH.340.645 Introduction to Clinical Trials (fulfills an out-of-track requirement)
 PH.340.666 Foundations of Social Epidemiology (fulfills an out-of-track requirement)
 PH.340.682 Pharmacoepidemiology Methods (fulfills an out-of-track requirement)
 PH.340.697 Spatial Analysis II: Spatial Data Technologies

Term 3

PH.140.653 Methods in Biostatistics III
 PH.140.655 Analysis of Multilevel and Longitudinal Data
 PH.140.664 Causal Inference in Medicine and Public Health I
 PH.340.606 Methods for Conducting Systematic Reviews and Meta-Analyses
 PH.340.694 Power and Sample Size for the Design of Epidemiological Studies I

Term 4

PH.140.632 Introduction to the SAS Statistical Package
 PH.140.654 Methods in Biostatistics IV
 PH.140.656 Multilevel and Longitudinal Models - Data Analysis Workshop
 PH.340.644 Epidemiology of Diabetes and Obesity
 PH.340.600 Stata Programming
 PH.340.680 Environmental and Occupational Epidemiology (fulfills an out-of-track requirement)
 PH.120.624 Cancer Biology (becomes recommended only when used in addition to Cancer: Cause to Cure)
 PH.380.664 Reproductive and Perinatal Epidemiology (fulfills an out-of-track requirement)

Cardiovascular and Clinical Epidemiology

Courses Required for doctoral students in Cardiovascular and Clinical Epidemiology

First Year

Code	Title	Credits
PH.260.600	Introduction to the Biomedical Sciences (offered over the summer prior to enrollment for students without a prior background in biology or medicine)	4
PH.550.630	Public Health Biology (for students WITHOUT a background in biology or medicine)	3

PH.340.855	SS/R: Biological Basis of Cardiovascular Disease Epidemiology (for students WITHOUT a background in biology or medicine)	2
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Term 1:

Code	Title	Credits
PH.340.871	Welch Center Research Seminar (2 terms are required, students normally complete all 4 during first year)	1

Term 2:

Code	Title	Credits
PH.340.871	Welch Center Research Seminar	1
PH.340.645	Introduction to Clinical Trials (fulfills an out-of-track requirement)	3

Term 3:

Code	Title	Credits
PH.340.871	Welch Center Research Seminar	1

Term 4:

Code	Title	Credits
PH.340.871	Welch Center Research Seminar	1

Second Year

Please consider recommended courses appropriate to augment your knowledge in fields of interest

Additional Required Courses for Doctoral Students focusing on Cardiovascular Epidemiology

Term 3

Code	Title	Credits
PH.340.607	Introduction to Cardiovascular Disease Epidemiology	4
PH.340.730	Assessment of Clinical Cardiovascular Disease (for students WITHOUT a background in biology or medicine)	2

Term 4

Code	Title	Credits
PH.340.803	Advanced Topics in Cardiovascular Disease Epidemiology	2
PH.340.855	SS/R: Biological Basis of Cardiovascular Disease Epidemiology (for students WITHOUT a background in biology or medicine)	2

Additional Required Course for Doctoral Students focusing on Clinical Epidemiology

First Year

Term 2

Code	Title	Credits
PH.340.620	Principles of Clinical Epidemiology	2

Second Year

Please consider recommended courses appropriate to augment your knowledge in fields of interest

Recommended Courses for Doctoral Students in Cardiovascular and Clinical Epidemiology

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

Term 1

- PH.340.687 Epidemiology of Kidney Disease 2
 PH.340.731 Principles of Genetic Epidemiology 1 (fulfills and out of track requirement) 4
 PH.340.616 Epidemiology of Aging (fulfills and out of track requirement) 3

Term 2

- PH.340.624 Etiology, Prevention, and Control of Cancer (fulfills and out of track requirement) 4
 PH.340.627 Epidemiology of Infectious Diseases (fulfills and out of track requirement) 4

Term 3

- PH.180.640 Molecular Epidemiology and Biomarkers in Public Health 4
 PH.340.606 Methods for Conducting Systematic Reviews and Meta-Analyses* 4 *usually taken in Year 2

Term 4

- PH.340.644 Epidemiology of Diabetes and Obesity (fulfills and out of track requirement) 3

Skills Courses (*can be taken Year 1 or later with commensurate progress in Biostats series*)

Term 4

- PH.340.600 Stata Programming 2
 PH.140.632 Introduction to the SAS Statistical Package 3

Advanced Methods Courses (recommended in Year 2, review course catalogue for prerequisites)

Term 1

- PH.140.641 Survival Analysis 3
 PH.140.776 Statistical Computing 3
 PH.340.660 Practical Skills in Conducting Research in Clinical Epidemiology and Investigation 3

Term 2

- PH.340.717 Health Survey Research Methods 4

Term 3

- PH.140.655 Analysis of Multilevel and Longitudinal Data 4
 PH.140.664 Causal Inference in Medicine and Public Health I 4

Additional Recommended Courses for Doctoral Students with a focus in Cardiovascular Epidemiology

Term 1

- PH.140.651 Methods in Biostatistics I 4

Term 2

- PH.140.652 Methods in Biostatistics II 4
 PH.340.620 Principles of Clinical Epidemiology 2

Term 3

- PH.140.653 Methods in Biostatistics III 4

Term 4

- PH.140.654 Methods in Biostatistics IV 4

Additional Recommended Courses for Doctoral Students with a focus in Clinical Epidemiology

Term 3

- PH.340.607 Introduction to Cardiovascular Disease Epidemiology 4
 PH.340.730 Assessment of Clinical Cardiovascular Disease 2

Term 4

- PH.340.803 Advanced Topics in Cardiovascular Disease Epidemiology 2
 PH.340.855 SS/R: Biological Basis of Cardiovascular Disease Epidemiology 2

Clinical Trials and Evidence Synthesis

Courses Required for Doctoral Students in Clinical Trials and Evidence Synthesis

First Year

Term 2

Code	Title	Credits
PH.340.645	Introduction to Clinical Trials	3

Term 3

Code	Title	Credits
PH.340.633	Data Management in Clinical Trials	3

Term 4

Code	Title	Credits
PH.340.648	Clinical Trials Management	3

Second Year

Term 3

Code	Title	Credits
PH.340.606	Methods for Conducting Systematic Reviews and Meta-Analyses	4
PH.140.655	Analysis of Multilevel and Longitudinal Data	4

Total Credits 8

Recommended Courses for Doctoral Students in Clinical Trials and Evidence Synthesis

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

Term 1

- PH.140.651 Methods in Biostatistics I 4
 PH.221.722 Quality Assurance Management Methods for Developing Countries 4
 PH.340.653 Epidemiologic Inference in Outbreak Investigations 3
 PH.340.660 Practical Skills in Conducting Research in Clinical Epidemiology and Investigation 3
 PH.340.728 Advanced Methods for Design and Analysis of Cohort Studies 5
 PH.390.631 Principles of Drug Development 2
 PH.390.673 Ethical and Regulatory Issues in Clinical Research 3
 PH.317.600 Introduction to the Risk Sciences and Public Policy 4

Term 2

- PH.140.630 Introduction to Data Management 3
 PH.140.652 Methods in Biostatistics II 4
 PH.340.717 Health Survey Research Methods 4

PH.410.710 Concepts in Qualitative Research for Social and Behavioral Sciences 3

Term 3

PH.140.634 Non-Inferiority and Equivalence Clinical Trials 2

PH.140.642 Design of Clinical Experiments 3

PH.140.653 Methods in Biostatistics III 4

PH.223.664 Design and Conduct of Community Trials 4

PH.340.694 Power and Sample Size for the Design of

Epidemiological Studies I 1

PH.340.775 Measurement Theory and Techniques in Epidemiology 4

PH.140.664 Causal Inference in Medicine and Public Health I 4

Term 4

PH.140.654 Methods in Biostatistics IV 4

PH.140.632 Introduction to the SAS Statistical Package 3

PH.140.656 Multilevel and Longitudinal Models - Data Analysis Workshop 4

PH.221.616 Ethics and Global Public Health Practice 2

PH.223.705 Good Clinical Practice: A Vaccine Trials Perspective 4

PH.224.691 Qualitative Data Analysis 3

PH.390.675 Outcomes and Effectiveness Research 3

Summer Inst

PH.330.621 Mixed Methods for Research in Public Health 2

Environmental Epidemiology

Course Required for Doctoral Students in Environmental Epidemiology

First Year

Term 4

PH.340.680 Environmental and Occupational Epidemiology

Recommended Courses for Doctoral Students in Environmental Epidemiology

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

Term 1

PH.182.615 Airborne Particles 4

PH.187.610 Public Health Toxicology 4

PH.188.680 Fundamentals of Occupational Health 3

PH.317.600 Introduction to the Risk Sciences and Public Policy 4

Term 2

PH.182.625 Principles of Occupational and Environmental Hygiene 4

PH.317.610 Risk Policy, Management and Communication 3

PH.340.624 Etiology, Prevention, and Control of Cancer 4

PH.340.717 Health Survey Research Methods 4

Term 3

PH.180.601 Environmental Health 5

PH.180.640 Molecular Epidemiology and Biomarkers in Public Health 4

PH.317.605 Methods in Quantitative Risk Assessment 4

Term 4

PH.188.681 Onsite Evaluation of Workplace and Occupational Health Programs 5

PH.317.615 Topics in Risk Assessment 2

Epidemiology of Aging

Course Required for Doctoral Students in Epidemiology of Aging

First Year

Term 1

PH.340.616 Epidemiology of Aging

Recommended Courses for Doctoral Students in Epidemiology of Aging

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

First Year

each term PH.330.802 Seminar on Aging, Cognition and Neurodegenerative Disorders 1

Term 1

PH.140.641 Survival Analysis 3

PH.380.604 Life Course Perspectives on Health 4

Term 2

PH.340.620 Principles of Clinical Epidemiology 2

PH.340.666 Foundations of Social Epidemiology 3

PH.380.603 Demographic Methods for Public Health 4

Term 3

PH.340.699 Epidemiology of Sensory Loss in Aging 3

PH.260.665 Biological Basis of Aging++ 3

Term 4

PH.330.623 Brain and Behavior in Mental Disorders 3

PH.140.656 Multilevel and Longitudinal Models - Data Analysis Workshop 4

PH.330.618 Mental Health in Later Life++ 3

++offered every other year

Second Year

Term 1

PH.330.657 Statistics for Psychosocial Research: Measurement 4

PH.340.728 Advanced Methods for Design and Analysis of Cohort Studies 5

Term 2

PH.140.658 Statistics for Psychosocial Research: Structural Models 4

PH.309.605 Health Issues for Aging Populations 3

Term 3

PH.140.655 Analysis of Multilevel and Longitudinal Data 4

General Epidemiology and Methodology

Courses Required for Doctoral Students in General Epidemiology and Methodology

First Year

Term 1

PH.340.731 Principles of Genetic Epidemiology 1 4 (recommended for year 1 but may be taken in year 2, satisfies the out-of-track requirement as well)

Term 2

PH.340.645 Introduction to Clinical Trials 3 (recommended for year 1 but may be taken in year 2)

Terms 1 - 4

PH.340.875 GEM Research Seminar 1 (required for each student each term in year 1)

Second Year

CHOOSE AT LEAST TWO of these 3 courses in Public Health Research

Skills:

Term 1: PH.340.660 Practical Skills in Conducting Research in Clinical Epidemiology and Investigation 3

Term 2: PH.340.717 Health Survey Research Methods 4

Term 3: PH.340.648 Clinical Trials Management 3

Recommended Courses for Doctoral Students in General Epidemiology and Methodology

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

Doctoral Students with a Methodology Focus:

Term 1

PH.330.657 Statistics for Psychosocial Research: Measurement 4

PH.340.646 Epidemiology and Public Health Impact of HIV and AIDS 4

PH.340.616 Epidemiology of Aging 3

PH.340.653 Epidemiologic Inference in Outbreak Investigations 3

Term 2

PH.140.658 Statistics for Psychosocial Research: Structural Models 4

PH.183.631 Fundamentals of Human Physiology 4

PH.260.631 Immunology, Infection and Disease 3

PH.330.603 Psychiatric Epidemiology 3

PH.340.620 Principles of Clinical Epidemiology 2

PH.340.624 Etiology, Prevention, and Control of Cancer 4

PH.340.666 Foundations of Social Epidemiology* 3

PH.340.732 Principles of Genetic Epidemiology 2 3

Term 3

PH.140.640 Statistical Methods for Sample Surveys 3

PH.180.640 Molecular Epidemiology and Biomarkers in Public Health 4

PH.222.647 Nutrition Epidemiology 3

PH.224.690 Qualitative Research Theory and Methods 3

PH.309.616 Introduction to Methods for Health Services Research and Evaluation I 2

PH.340.607 Introduction to Cardiovascular Disease Epidemiology 4

PH.340.609 Concepts and Methods in Infectious Disease Epidemiology 3

PH.340.733 Principles of Genetic Epidemiology 3 3

Term 4

PH.140.656 Multilevel and Longitudinal Models - Data Analysis Workshop 4

PH.224.691 Qualitative Data Analysis 3

PH.309.617 Introduction to Methods for Health Services Research and Evaluation II 2

PH.340.641 Healthcare Epidemiology 4

PH.340.677 Infectious Disease Dynamics: Theoretical and Computational Approaches 3

PH.340.680 Environmental and Occupational Epidemiology 4

PH.380.664 Reproductive and Perinatal Epidemiology 4

PH.390.675 Outcomes and Effectiveness Research 3

*alternates online and in-person every other year

++ alternate year course

Second Year courses:

Term 1

PH.340.728 Advanced Methods for Design and Analysis of Cohort Studies 5

Term 2

PH.340.774 Advanced Theory and Methods in Epidemiology 4

Term 3

PH.140.664 Causal Inference in Medicine and Public Health I 4

PH.140.655 Analysis of Multilevel and Longitudinal Data 4

PH.340.606 Methods for Conducting Systematic Reviews and Meta-Analyses 4

Recommended statistical programming courses:

Term 1

PH.140.776 Statistical Computing 3

Term 4

PH.140.632 Introduction to the SAS Statistical Package 3

PH.340.600 Stata Programming 2

Doctoral Students with a Pharmacoepidemiology and Drug Safety Focus:

Strongly Recommended courses for Doctoral Students with a Pharmacoepidemiology Focus:

Term 1

PH.317.600 Introduction to the Risk Sciences and Public Policy 4

PH.390.631 Principles of Drug Development 2

Term 2

PH.317.610 Risk Policy, Management and Communication 3

Term 3

PH.140.664 Causal Inference in Medicine and Public Health I 4

PH.340.684 Pharmacoepidemiology: Drug Utilization 3 (alternate year format)

PH.221.610 Pharmaceuticals Management for Under-Served Populations 3

Term 4

PH.410.680 Social Ecological Approaches to Health Regimen Adherence in Chronic Conditions 3

Recommended courses for Doctoral Students with a Pharmacoepidemiology Focus:

Term 1

PH.317.605 Methods in Quantitative Risk Assessment 4

Term 4

PH.317.615 Topics in Risk Assessment 2

the following courses are offered outside of BSPH and require interdivisional registration and instructor permission

AS.410.651 Clinical Development of Drugs and Biologics 4

AS.410.627 Translational Biotechnology: From Intellectual Property to Licensing 4

ME.330.809 Analytic Methods for Clinical Pharmacology variable

NR.110.508 Clinical Pharmacology 3

Individualized Focus:

Students designing their own educational programs should, in conjunction with their advisor, choose three to four graduate-level courses (taken for a letter grade) in their field from among the offerings of the University in addition to taking the GEM Required courses listed above.

Genetic Epidemiology

Courses Required for Doctoral Students in Genetic Epidemiology

First Year

Term 1

PH.340.731 Principles of Genetic Epidemiology 1 4

Term 2

PH.340.732 Principles of Genetic Epidemiology 2 3

Term 3

PH.340.733 Principles of Genetic Epidemiology 3 3

Term 4

PH.340.734 Principles of Genetic Epi 4: Emerging and Advanced Methods 2

Second Year

Term 1

PH.120.602 Concepts of Molecular Biology (Pass/Fail, or Grade) 4

Recommended Courses for Doctoral Students in Genetic Epidemiology

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

Analytic Methods Courses (ideal for year 2)

Term 1

PH.140.641 Survival Analysis 3

PH.140.651 Methods in Biostatistics I* 4

PH.140.776 Statistical Computing 3

Term 2

PH.140.638 Analysis of Biological Sequences 3

PH.140.652 Methods in Biostatistics II 4

PH.140.778 Statistical Computing, Algorithm, and Software Development 3

PH.340.774 Advanced Theory and Methods in Epidemiology* 4

Term 3

PH.140.644 Statistical Machine Learning: Methods, Theory, and Applications 4

PH.140.653 Methods in Biostatistics III 4

PH.140.655 Analysis of Multilevel and Longitudinal Data 4

Term 4

PH.140.688 Statistics For Genomics 3

Biology and Molecular Methods Courses

Term 1

PH.260.611 Principles of Immunology I 4

Term 2

PH.260.612 Principles of Immunology II 4

PH.183.631 Fundamentals of Human Physiology 4 (*For non-physician trained students only)

Term 3

PH.180.640 Molecular Epidemiology and Biomarkers in Public Health 4

Term 4

PH.120.608 Gene Editing, Therapy and Manipulation 3

Topic-Specific Electives

Term 3

PH.340.775 Measurement Theory and Techniques in Epidemiology 4

Term 4

PH.330.619 Psychiatric Genomics 3

PH.415.624 Ethical, Legal and Social Implications in Genetics and Genomics Over Time (offered in alternate years)

Infectious Disease Epidemiology

Courses Required for Doctoral Students in Infectious Disease Epidemiology

[Terms and offerings change each year. Always check the course directory for the most up-to-date offerings]

First Year

Term 1

Code	Title	Credits
PH.340.653	Epidemiologic Inference in Outbreak Investigations	3

Term 2

Code	Title	Credits
PH.340.627	Epidemiology of Infectious Diseases	4

Term 3

Code	Title	Credits
PH.340.609	Concepts and Methods in Infectious Disease Epidemiology	4

Students must complete at least one course in each of the four disciplinary sections below:

Section one: General Electives (Choose 1)

Term 1

Code	Title	Credits
PH.340.646	Epidemiology and Public Health Impact of HIV and AIDS	4

Term 2

Code	Title	Credits
PH.223.662	Vaccine Development and Application	4
PH.340.641	Healthcare Epidemiology	4

Term 3

Code	Title	Credits
PH.182.640	Food- and Water- Borne Diseases	3
PH.223.663	Infectious Diseases and Child Survival	3
PH.223.687	Vaccine Policy Issues	3
PH.260.656	Malariology	4
PH.340.612	Epidemiologic Basis for Tuberculosis Control	2

Term 4

Code	Title	Credits
PH.223.682	Clinical and Epidemiologic Aspects of Tropical Diseases	4
PH.223.689	Biologic Basis of Vaccine Development	3
PH.223.705	Good Clinical Practice: A Vaccine Trials Perspective	4
PH.340.651	Emerging Infections	2

PH.380.761	Sexually Transmitted Infections in Public Health Practice	4
PH.380.762	HIV Infection in Women, Children, and Adolescents	4

Section two: Skills in Research (Choose 1)

Term 1

Code	Title	Credits
PH.340.660	Practical Skills in Conducting Research in Clinical Epidemiology and Investigation	3

OR

Term 2

Code	Title	Credits
PH.340.717	Health Survey Research Methods	4

Section three: Biology and Pathogenesis of Disease (Choose 1)

Term 1

Code	Title	Credits
PH.260.623	Fundamental Virology	4
PH.260.636	Evolution of Infectious Disease	3
PH.340.654	Epidemiology and Natural History of Human Viral Infections	6

Term 3

Code	Title	Credits
PH.260.627	Pathogenesis of Bacterial Infections	4
PH.260.650	Vector Biology and Vector-Borne Diseases	3

Section four: Immunology: choose one set (recommended to complete in year two)

Term 1

Code	Title	Credits
PH.260.611	Principles of Immunology I	4

AND

Term 2

Code	Title	Credits
PH.260.612	Principles of Immunology II (Principles of Immunology II)	3

**students requesting pass/fail for these two courses only must seek permission from their adviser and the track director*

OR

Term 2

Code	Title	Credits
PH.260.631	Immunology, Infection and Disease	3

Department Comprehensive Examination

A two-day written Department comprehensive examination is administered to all students enrolled in Epidemiology degree programs in late May of the first academic year. All students are required to sit for the exam on the scheduled dates—no alternate exams will be offered.

By the time of the examination, students should have completed 64 credits (one full year of residence), **the required first-year coursework in their Track with a cumulative GPA of at least 3.0**, and in these courses:

Code	Title	Credits
PH.340.761	Epidemiologic Methods for EPI Doctoral Students I (Epidemiologic Methods for Epi Doctoral Students I)	5
PH.340.762	Epidemiologic Methods for EPI Doctoral Students II	5
PH.340.763	Epidemiologic Methods for EPI Doctoral Students III (Epidemiologic Methods for Epi Doctoral Students III)	5
PH.340.764	Epidemiologic Methods for EPI Doctoral Students IV (Epidemiologic Methods for Epi Doctoral Students IV)	5
Select one of the following Biostatistics series:		16

PH.140.621 Statistical Methods in Public Health I & PH.140.622 and Statistical Methods in Public Health II & PH.140.623 and Statistical Methods in Public Health III & PH.140.624 and Statistical Methods in Public Health IV

PH.140.651 Methods in Biostatistics I & PH.140.652 and Methods in Biostatistics II & PH.140.653 and Methods in Biostatistics III & PH.140.654 and Methods in Biostatistics IV

The first day of the exam (Part A) includes testing on the following topics:

- Knowledge and application of epidemiologic concepts and methods (and related biostatistics)
- History of epidemiology
- Contemporary issues in public health
- Research ethics

The second day of the exam (Part B) is Track-specific and tests knowledge of concepts and methods presented in the required courses and activities for each Track, as well as the Department core courses as applied to the Track.

Students must pass both Part A and Part B of the comprehensive examination. Doctoral students must attain at least 75% on Part A and at least 75% on Part B to pass. A repeat examination may be allowed but is not guaranteed. If a repeat is granted, it must be completed before starting the second academic year.

Failure to pass one or both sections of the comps may result in dismissal from the doctoral program or from the Department.

Additionally, PhD students may not enroll in Doctoral Seminars courses (340.863) until they have successfully passed the written comprehensive exams at the doctoral level.

Dissertation Steps**Timing of Activities / Milestones**

1. Years one and two: Complete academic preparation for dissertation through coursework, special studies, and research with the adviser, attend seminars, journal clubs, and research-in-progress activities of interest. Students should meet at least once per term with their adviser and possibly weekly while completing special studies and research (PH.340.840).

2. Year two: Students develop their specific aims, add a co-adviser, and produce a working draft of their dissertation research proposal prior to or during the fourth term of the second year. Students, in combination with their advisers, select a third member for the Thesis Advisory Committee and present their proposed research at a public seminar to the department during the fourth term of year two or the first term of year three. Students also begin to fulfill their Teaching Requirements during year two and begin assuming leadership roles within the department or school.
 - After each meeting, send a written report of the items discussed, decisions reached, and the action items to be completed by the next meeting to the members for approval
 - Maintain a log of the meetings to aid in writing the annual progress report and financial support documentation
3. Year three: Students hold their departmental and preliminary oral exams and begin research. Many students continue their teaching requirements and begin submitting papers for publication in conjunction with their advisers or other faculty mentors. Students should schedule a minimum of two weeks between the doctoral proposal seminar and the departmental oral exam and must schedule a minimum of four weeks between the departmental oral exam and the preliminary (school-wide) exam. Students may schedule all three activities simultaneously or wait to pass one before scheduling the next. Students may elect to take up to six months to prepare for each exam. Students must successfully pass their Preliminary Oral Exam within three academic years of enrollment in the doctoral degree program.
4. Year four: Students conclude data collection and analysis, complete their dissertations, and hold the defense of their research. This timeframe varies from student to student depending on a wide variety of factors.
5. The University permits as many as seven years or 28 terms to complete the PhD degree requirements; however, the financial support granted PhD students by the Department of Epidemiology will not extend beyond that specified in the original offer of the acceptance letter.

Once the Thesis Advisory Committee is formed, submit the signed "Thesis Committee Approval Form" (on the Epi Intranet (<https://my.jhsph.edu/sites/EPI/default.aspx>)) to Fran Burman (franburman@jhu.edu) and Ebony Moore (eamoore@jhu.edu).

Dissertation Research Proposal

The 12-page single-spaced dissertation research proposal is developed during the second year, during terms 1 – 3 of PH.340.863 Doctoral Seminars in Epidemiology, and is the final project for the course PH.340.715 Problems in the Design of Epidemiologic Studies: Proposal Development and Critique. The dissertation proposal must be reviewed and approved by the Thesis Advisory Committee prior to scheduling the Doctoral Research Proposal Seminar.

Doctoral Research Proposal Seminar

After the Thesis Advisory Committee has approved the student's 12-page dissertation research proposal, the student must orally present the proposal in a Doctoral Proposal Seminar to the Department. Students should present a prepared presentation of approximately 40-45 minutes in length (usually using Powerpoint or other interactive slide technology), followed by approximately 15-20 minutes of questions and discussion. The Proposal Seminar is presented during the Department-wide Epidemiology Seminars (Current Topics in Epidemiologic Research) on Fridays during terms 1-4, from 12:15-1:20 pm, in Sheldon Hall W1214 (or via hybrid technology). Seminars are not permitted during the Summer. The dissertation (thesis) adviser must attend, and the Thesis Advisory Committee members and the Track Director are strongly encouraged to attend. Doctoral Proposal Seminars are advertised to the Department at large, and students and their adviser(s) should personally invite any other colleagues they would like to attend. The best ways to prepare for this seminar include attending Doctoral Research Proposal Seminars presented by peers and by presenting in a track research-in-progress meeting. Students should plan to conduct a 'dress rehearsal' prior to the actual proposal (in the same room reserved for the defense to familiarize themselves with the surroundings and test all technology) for use during the Doctoral Research Proposal Seminar.

After the Thesis Advisory Committee has approved the student to present their Doctoral Proposal Seminar, the student should work with the adviser and Thesis Advisory Committee to select a seminar date. Once the Advisory Committee and adviser(s) have confirmed readiness, the student can proceed with reserving a date and room. To schedule a date, students should contact Laura Camarata, lcamarata@jhu.edu, to discuss open dates and submit the "Doctoral Proposal Seminar Form" (on the Epi Intranet (<https://my.jhsph.edu/sites/EPI/default.aspx>)), which includes preferences for seminar dates (1st, 2nd, and 3rd choices). This form requires the signature of the adviser and the Track Director.

Tips to keep in mind:

- Students cannot schedule their doctoral proposal seminars without the approval of their adviser(s) and the Thesis Advisory Committee
- Doctoral students are required to propose during the academic year (Terms 1-4), in Department-wide Friday Epidemiology Seminars, and this seminar series additionally hosts annual events and outside speakers

Thesis Advisory Committee

The role of the Thesis Advisory Committee is to provide continuity in the evaluation of the progress and development of the doctoral student. The Thesis Advisory Committee is assembled by the doctoral student and their adviser(s). The Thesis Advisory Committee consists of the dissertation (thesis) adviser and at least two additional faculty members who hold either primary or joint appointments in the Johns Hopkins Bloomberg School of Public Health Department of Epidemiology. If the student selects a co-adviser, the co-Adviser serves on the Thesis Advisory Committee. Additional faculty within and outside of the School may also be recruited. Committee membership is permitted to change during the research period. The Thesis Advisory Committee is not the same as the Preliminary or Final Oral Examination Committees. The Thesis Advisory Committee decides when the student is ready to proceed through each of the milestones needed to complete the degree requirements, including the Doctoral Proposal Seminar, the Departmental and School-wide Preliminary Oral Examinations, and the Final Oral Examination ("defense"). Bi-annual formal meetings of the Thesis Advisory Committee are required, but meetings may and should occur more frequently. It is the student's responsibility to schedule meetings.

Tips for doctoral students for successful formal meetings of the Thesis Advisory Committee:

- Prior to each meeting, draft an agenda with adviser input and distribute a one-page description of progress, including any key results

- Work with adviser(s) and Committee to have a timeline, and give as much lead time as possible (but no less than 3 months) to schedule
- Seminars start at 12:15 pm, with an introduction by the student's adviser, that the student should arrange
- Students should test their presentations prior, report early on the day of, and have their presentations saved in more than one place for back-up

Departmental Oral Examination

Purpose

After the Thesis Advisory Committee has approved the Dissertation Research Proposal and the student has presented the Doctoral Proposal Seminar, the next step is to schedule and sit for the Departmental Oral Examination. The primary purpose of the Departmental Oral Examination is to prepare the student for the Preliminary Oral Examination. As such, the Departmental Oral Examination shares the purpose of the Preliminary Oral Examination:

To determine whether the student has both the ability and knowledge to undertake significant research in the general area of interest, including:

1. the student's capacity for logical thinking;
2. their breadth of knowledge in relevant areas; and
3. their ability to develop and conduct research leading to a completed dissertation (thesis).

Discussion of a specific research proposal, if available, may serve as a vehicle for determining the student's general knowledge and research capacity. However, this examination is not intended to be a defense of a specific research proposal.

Students are encouraged to practice discussing epidemiologic methods, ethics, and public health knowledge at the level of a doctoral student with their adviser and thesis advisory committee in preparation for the oral exams. Professionalism, communication skills, and solid comprehension of epidemiologic methods are key in conveying the student's knowledge and readiness to conduct independent research.

Meeting with the Senior Academic Program Manager

In preparation for scheduling the Department Oral Examination, students should meet with the Senior Academic Program Manager, Fran Burman (FranBurman@jhu.edu), to confirm that the student has met all Track, Department, and Schoolwide course requirements and has assembled a valid set of proposed committee members for the Thesis Advisory Committee, and the Department and the Preliminary Oral Examinations.

Department Oral Examination Committee Membership

The Department Oral Examination Committee should consist of: the adviser (primary), two other members, and one alternate member, all of whom have primary appointments in the Department of Epidemiology. Thesis committee members, including co-advisers, are **not** permitted to serve on the Departmental Oral Examination committee with the exception of the student's adviser, who must participate. All Professorial and Scientist Track faculty who hold primary appointments in Epidemiology may serve on the Committee. Students are not expected to meet with members of the Committee prior to the examination and should not expect that committee members will discuss what questions they will be asked.

While the above describes the necessary committee, in any case where the student or advising team wants to have an additional faculty member present, the examiners and student must decide in advance whether the

extra faculty member may ask questions and if yes, whether the student's responses will count. In any case, the extra person may not vote but may contribute feedback to the student. Students considering this should first check in with the academic office.

DEPARTMENT ORAL EXAMINATION FORM

The "Department Oral Examination Form" (on the Epi Intranet (<https://my.jhsph.edu/sites/EPI/default.aspx>)), is due to the Senior Academic Program Coordinator, Ebony Moore (eamoore@jhu.edu), at least 14 days prior to the date of the proposed exam. With the approval of the Dissertation (thesis) Adviser, the form should be submitted after presenting the Doctoral Proposal Seminar and incorporating any key input from the Seminar into the Dissertation Research Proposal.

SCHEDULING

The Senior Academic Coordinator, Ebony Moore (eamoore@jhu.edu), will schedule the room and send a memo to examiners prior to the examination date. For hybrid or Zoom-based exams, the adviser will provide the Zoom link.

CONDUCT OF THE EXAMINATION

Prior to the exam, students submit to the Department Oral Examination Committee members a single-page summary of the dissertation proposal, including the specific aims, hypotheses, and methods. Committee members may request the longer 12-page Dissertation Research Proposal. The examination should be scheduled for and completed in one and a half hours but may be concluded earlier or later as determined by the Committee. At the start of the exam, students will present a brief talk of no more than 10 minutes that concisely summarizes the aims, hypothesis, methods, limitations, and significance of their proposed dissertation research. This presentation may be a distillation of the Doctoral Proposal Seminar.

The faculty will ask questions all second-year Epidemiology PhD students should be comfortable discussing. The students may use their research proposal for examples. However, the exam is not a determination of the viability of the proposed research but rather a determination of whether the student is ready to commence guided independent research.

Department Oral Examination Outcome

The possible outcomes of the oral examination are Unconditional Pass, Conditional Pass, or Failure (retake). Conditional Pass requires the student and Department Oral Examination Committee to agree on remedial action designed to be completed *within two weeks* of the date of the examination. Students who fail the exam (require more remedial work than can be reasonably completed within two weeks) will be required to re-take the Department Oral Examination within six months. Two failures of the Departmental Oral Examination will result in dismissal from the degree program. For more information about the Departmental Oral Examination, please review the Department of Epidemiology Student Guidelines for the Departmental Oral Examination" (on the Epi Intranet (<https://my.jhsph.edu/sites/EPI/default.aspx>)).

Preliminary Oral Examination (aka School-wide Exam)

This is also colloquially known as the "Schoolwide Oral Examination." Students and their adviser(s) are responsible for initiating arrangements for the preliminary doctoral examination. The University Graduate Board oversees these exams.

Purpose

After the student has passed the Departmental Oral Examination, the next step is the Preliminary Oral Examination. The purpose of the Preliminary Oral Examination is to determine whether the student has both the ability

and knowledge to undertake significant research in their general area of interest, including:

1. the student's capacity for logical thinking;
2. their breadth of knowledge in relevant areas; and
3. their ability to develop and conduct research leading to a completed dissertation.

Discussion of a specific research proposal, if available, may serve as a vehicle for determining the student's general knowledge and research capacity. However, this examination is not intended to be a defense of a specific research proposal. The preliminary oral examination is two hours in duration.

Preliminary Oral Examination Committee Membership

- Must consist of five voting members
 - Two members must be from the epidemiology department; one of these is the adviser.
 - A third member from the epidemiology department is optional.
 - **Limit** of 3 members from sponsoring department.
- Thesis Advisory Committee members may serve on the Committee.
- The student's adviser of record must serve as a member of the Committee.
 - The adviser must be among the members present; an alternate may not serve in place of the adviser.
- The senior faculty member without a primary appointment in Epidemiology will serve as Chair of the Committee and must hold the rank of Associate or Full Professor.
 - All faculty members serving on the Committee must represent the department of their primary faculty appointment.
 - The only instance when the faculty member can serve in their joint appointment capacity is if they are the student's adviser.
- Most often, the committee is comprised of duly appointed faculty members of a University department and must hold, at the time of selection, a faculty appointment at the rank of Assistant Professor or higher.
 - Occasionally, one adjunct or one scientist faculty member, but not both, may serve on the Committee; neither may serve as the Chair.
- All members of the Committee must be present at the scheduled exam location; teleconference is permitted on a case-by-case basis.
- The committee must be comprised of three Departments of the University, **two** being from the Bloomberg School of Public Health.
- The committee must have appropriate alternate members to serve on the committee.
 - The selection of alternates is very important for ensuring the exam can take place at the originally scheduled date/time. If a student has two members on their committee from epidemiology, the student should have one alternate from epidemiology and one from a non-sponsoring department.
 - If a student has three members on their committee from epidemiology, then two alternates should be selected from two different non-sponsoring departments.
- At least two weeks prior to the exam, students submit to the Preliminary Oral Examination Committee members a single-page summary of the dissertation proposal, including the specific aims, hypotheses, and methods. Committee members may request the longer 12-page Dissertation Research Proposal.

Preliminary Oral Examination Form

- Graduate Board Preliminary Oral Examination Request Form (<https://my.jhsph.edu/Offices/StudentAffairs/RecordsRegistration/DoctoralCandidateInfo/Documents/Preliminary%20Oral%20Exam%20PhD%20ScD%20Form%204.27.22.pdf>).
- Students may not submit this form until after they have successfully passed the Departmental Oral Examination.
- The Registration Coordinator (BSPHEXAMS@jh.edu) will not accept the form unless it is submitted to the Registrar's Office a minimum of 30 days prior to the proposed examination date. There are no exceptions.
- This form requires signatures from Senior Academic Program Manager, Frances Burman, the adviser, and the Department Chair or a Deputy Chair. The student is responsible for obtaining the required e-signatures in that order. The form should therefore be submitted to Frances Burman (FranBurman@jhu.edu) at least 3-4 days prior to the date of submission to the Registrar's Office.
- The exam is not considered officially scheduled and cannot be held until the student and examiners received notification from the Dean of the approval of the exam to be held.

Scheduling

The student is responsible for scheduling the room (<https://my.jhsph.edu/Offices/InformationTechnology/forms/SETForm.aspx>) for the exam, requesting Multimedia support (<https://my.jhsph.edu/Offices/InformationTechnology/forms/Multimedia%20and%20Production%20Request%20Form.aspx>) if needed, and sending a memo to examiners confirming the date, time, and location of the exam prior to the exam date.

Examination Outcome

The outcome of the examination is Unconditional Pass, Conditional Pass, or Failure. Should the student receive a conditional pass, the Committee remains standing until the conditions, specified in writing, have been met. The consequence of a failure is decided by the Committee:

1. no re-examination;
2. re-examination by the same committee;
3. re-examination in written form and conducted by the same committee; or
4. re-examination by a new committee.

Primary Data Collection Requirement

Primary data collection is defined as:

1. instrument design;
2. data collection; or
3. data management, quality assurance, and quality control.

Primary data collection is required for all PhD students. This requirement may be met through dissertation research or is satisfied through work on projects distinct from the dissertation. It may be obtained through work with a single epidemiologic study or it can be a compilation of several experiences that together fulfill the requirement. Primary data collection may be obtained as part of paid work. Students must document their plan for obtaining experience with primary data collection and submit this plan to their Thesis Advisory Committee with their 12-page dissertation proposal.

The Thesis Advisory Committee may approve primary data collection that occurred prior to matriculation to the doctoral program, but this approval is not guaranteed. Any questions regarding primary data collection

will be directed from the Thesis Advisory Committee to a Deputy Chair. Students are expected to demonstrate an understanding of primary data collection processes in the epidemiologic study (or studies) utilized for their dissertation. This includes knowledge of the forms, instruments, and measurement processes relevant to their research; knowledge of quality control/assurance procedures of the study (or studies); and an evaluation of the potential threats to validity in the processes extending from primary measurement to the analytic dataset. If primary data collection is not a direct component of the dissertation research, doctoral students should include their primary data collection experience as an appendix to the dissertation.

Doctoral Dissertation

Doctoral students must complete an original investigation presented in the form of a dissertation. The dissertation should be based on original research involving the generation of new knowledge by the student, worthy of publication, and acceptable to the Department of Epidemiology and to the Final Oral Examination Committee (Thesis Readers). Doctoral students have two options for the format of their dissertation, the traditional format, and the manuscript format. The Department recommends the manuscript format to accelerate the time to submission of manuscripts for publication in peer-reviewed journals.

Manuscript Format

The manuscript format must meet the following criteria:

1. The dissertation includes at least three manuscripts, linked by a common theme;
2. The doctoral student must be the first author of each of the manuscripts;
3. A manuscript will not be accepted as part of the dissertation if it was submitted before the student's dissertation topic was approved by the Thesis Advisory Committee;
4. The manuscripts must be acceptable for publication based on usual substantive area peer review expectations; and
5. The dissertation should be organized as follows:
 - a. The body of the dissertation should include a series of papers that are linked by a common theme (i.e., the student's dissertation topic)
 - b. The first chapter may be a comprehensive critical literature review suitable for publication. It should introduce the scientific hypothesis for the dissertation
 - c. Chapters two and three (or more) are the manuscripts, possibly with a transitional short chapter between each relating one to the other
 - d. A final chapter should integrate and discuss the findings reported in the manuscripts. It should include a discussion of the conclusions drawn from research, a synthesis of the findings, and should make recommendations for further studies
 - e. The dissertation may include an appendix outlining the details of study methods and any accompanying data tables deemed necessary to fully understand the data

Traditional Format

The traditional format includes:

1. An introductory chapter, outlining the theme, hypotheses, and/or goals of the dissertation coupled with a review of the literature;
2. Research chapters that are coherently structured for the research aims, each providing a reader enough detail to apply similar methods in another study; and

3. A concluding chapter with an overall analysis and integration of the research and conclusions of the dissertation in light of current research in the field.

Regardless of the format, it is expected that the student will work with their adviser and any co-advisers to develop drafts of their dissertation chapters and receive constructive substantive and editorial feedback. Together, they will decide when drafts are ready for wider distribution to other members of the Thesis Advisory Committee and, if necessary, to other project collaborators. Follow the School's guidelines (<https://www.library.jhu.edu/library-services/electronic-theses-dissertations/>) for the preparation of the dissertation. The dissertation is a requirement for partial fulfillment of the PhD degree. Students may consult the School's Policy and Procedures Memoranda (PPM) for the PhD program.

Final Defense:

Appointment of thesis readers/final defense form

- Appointment of Thesis Readers/Final Defense Form (<https://my.jhsph.edu/Offices/StudentAffairs/RecordsRegistration/DoctoralCandidateInfo/Documents/Appointment%20of%20Thesis%20Readers%20and%20Final%20Oral%20Examination%20Form%204.27.22.pdf>)
- JHSPHExams@jhu.edu must receive the form at least **30 days prior** to the anticipated exam date. *There are no exceptions.*
- The form requires signatures from the Senior Academic Program Manager, the adviser, and the Department Chair. The student is responsible for obtaining the required signatures in that order. The form should therefore be submitted to Frances Burman (FranBurman@jhu.edu) at least 3 to 4 days prior to the date of submission to the Registrar's Office.
- The exam is not considered officially scheduled and cannot be held until the student and examiners received notification from the Dean of the approval of the exam to be held.

Seminar

As a culminating experience for the doctoral student, the student will present a formal, public seminar. This requirement provides experience for the student in preparing a formal seminar; provides the faculty and Department with an opportunity to share in the student's accomplishments; and gives the student a sense of finality to the doctoral experience. Students typically present a formal public seminar in conjunction with the Final Oral Examination. If possible, students are encouraged to give their Final Defense Seminars during the Department-wide Friday Epidemiology Seminars series (Current Topics; please contact Laura Camarata (lcamarata@jhu.edu) or Frances Burman (FranBurman@jhu.edu) regarding scheduling), but the seminar may be alternately scheduled during normal working hours.

The student is responsible for scheduling the room (<https://my.jhsph.edu/Offices/InformationTechnology/forms/SETForm.aspx>) for the defense, and requesting Multimedia support (<https://my.jhsph.edu/Offices/InformationTechnology/forms/Multimedia%20and%20Production%20Request%20Form.aspx>) if needed (unless they will be presenting as part of the Department-wide Friday Epidemiology Seminars series (Current Topics), coordinating with their adviser(s) to be briefly introduced, and inviting any additional outside guests.

Examination Purpose

The purpose of the Final Oral Examination is to ensure that the Candidate is able to present and defend the dissertation and its underlying

assumptions, methodology, results, and conclusions in a manner consistent with the doctoral degree being sought.

The final oral examination is three hours total (one for seminar/presentation and two for exam by committee)

Committee Membership (Dissertation (Thesis) Readers) and Appointment of Thesis readers / final defense examination request form

- Must consist of four voting members:
 - Two members **must** have a primary faculty appointment in Epidemiology.
 - The other two members must have appointments in two different departments other than Epidemiology.
- The student's adviser of record must serve as a Thesis Reader and a member of the Final Oral Examination Committee.
 - Alternates are not permitted to serve in place of the adviser.
 - If the adviser is unable to attend the Final Oral Examination, co-advisers may serve in this role.
- All faculty members must serve on the Committee representing the department of their primary faculty appointment.
 - The only instance when the faculty member can serve in their joint appointment capacity is if they are the student's adviser.
- The senior faculty member without a primary appointment in Epidemiology will serve as Chair of the Committee and **must** hold the rank of Associate or Full Professor.
 - Co-advisers may not serve as Chair.
- The committee is comprised of duly appointed faculty members of a University department and must hold, at the time of selection, a JHU faculty appointment at the rank of Assistant Professor or higher.
- Either one scientist track or one adjunct faculty member may serve on the Exam Committee, but not both.
- The Committee of Thesis Readers may be increased to five members, provided that all other committee composition requirements are satisfied.
 - The fifth member may serve on the Final Oral Examination Committee but that individual does not have voting privileges.
- All members of the Committee must be present at the scheduled exam location; teleconference/remote participation may be permitted on a case-by-case basis.
- Must be comprised of three Departments of the University, **two** being from the Bloomberg School of Public Health.
 - It is permissible to have three different BSPH departments represented on the committee.
- Must have appropriate alternate members to serve on the committee.
 - The selection of alternates is very important for ensuring the exam can take place at the originally scheduled date/time.
 - Choose alternates that will fulfill the committee composition requirements, regardless of who is able to attend.
 - One alternate should be from epidemiology; the other from a non-sponsoring department.
- The final oral examination is three hours total (one for seminar/presentation and two for exam by committee).
- The Registration Coordinator will not accept the form unless it is submitted to the Registrar's Office **a minimum of 30 days prior** to the proposed examination date. There are no exceptions.
- This form requires signatures from the Senior Academic Program Manager, Frances Burman, the adviser, and the Department Chair or a Deputy Chair. The student is responsible for obtaining the required

signatures in that order. The form should therefore be submitted to Frances Burman (FranBurman@jhu.edu) at least 3-4 days prior to the date of submission to the Registrar's Office.

- The exam is not considered officially scheduled and cannot be held until the student and examiners received notification from the Dean of the approval of the exam to be held.

The student is responsible for scheduling the rooms for the Final Oral Examination. While the Defense Seminar is held in an auditorium or large classroom, the Final Oral Examination usually is held in a smaller classroom or conference room. The Department recommends scheduling the examination in E6130 or W6015. The exam may be held virtually (subject to change by university COVID guidelines). If held virtually, the adviser provides the Zoom link for the seminar and the exam.

Distribution of Dissertation to Dissertation (Thesis) Readers

Committee members are encouraged and expected to communicate to the student specific recommendations for changes in the dissertation prior to the Final Oral Examination. The student is, therefore, expected to distribute the dissertation to the Committee at least four weeks before the date of the Final Oral Examination. The Dissertation Approval Form signed by the student's adviser should accompany the dissertation at the time it is distributed to the committee members.

Conduct of the Examination

If one of the officially appointed Committee members fails to appear on the Final Oral Examination date/time, the previously approved alternate will serve as an examiner. A Final Oral Examination may not be held with fewer than four officially approved faculty members present in the room. The adviser must be among the members present; an alternate may not serve in the place of the adviser. Only approved Committee members are permitted to participate as examiners. During the Final Oral Examination, the Committee will evaluate:

1. the originality and publication potential of the research;
2. the candidate's understanding of the details of the methodologic and analytic work; and
3. the final quality of the written dissertation document.

The examination committee chair along with the examiners will determine the details of how the Final Oral Examination is conducted.

Examination Outcome

The possible outcome of the Final Oral Examination based on the student's performance and written dissertation is determined by closed ballot as Acceptable, Conditionally Acceptable, or Unacceptable. If one or more members require substantive changes to the dissertation (Conditionally Acceptable), the specific nature of these changes and the time expected for the student to complete them will be provided to the student in writing. The appropriately revised dissertation must be submitted to each of the members for final approval. If one or more members feel that the candidate's understanding of the written dissertation is inadequate (Unacceptable), or that the dissertation in its present form is not acceptable, then the candidate has failed. Re-examination would be in order unless there is a unanimous recommendation to the contrary. Re-examination is normally conducted by the same committee, but a new committee may be selected by the School's Chair of the Committee on Academic Standards if petitioned by the student.

After the Final Defense

Please consult the Registrar's Office portal site (<https://my.jhsph.edu/Offices/StudentAffairs/RecordsRegistration/DoctoralCandidateInfo/>)

Pages/default.aspx) for dissertation format and submission, procedures to follow upon completion (<https://my.jhsph.edu/Offices/StudentAffairs/RecordsRegistration/DoctoralCandidateInfo/Documents/AFTER%20THE%20FINAL%20DEFENSE%20-%20Revised%20March%202019.pdf>) of the defense, and additional policy matters.

Graduation

The Registrar's Office (<https://www.jhsph.edu/offices-and-services/student-affairs/records-and-registration/>) handles all aspects of graduation (<https://publichealth.jhu.edu/offices-and-services/office-of-student-affairs/records-and-registration/degree-conferral/>) and degree verification (<https://www.jhsph.edu/offices-and-services/student-affairs/records-and-registration/forms.html>). We encourage all graduates to participate in our convocation ceremonies!

The Policy and Procedures Manual for the Doctor of Philosophy

The Department of Epidemiology reserves the right to augment the (https://my.jhsph.edu/Resources/PoliciesProcedures/ppm/PolicyProcedureMemoranda/Academic_Programs_03_Doctor_Of_Philosophy_Degree_042522.pdf) PPM (https://my.jhsph.edu/Resources/PoliciesProcedures/ppm/PolicyProcedureMemoranda/Academic_Programs_03_Doctor_Of_Philosophy_Degree_071717.pdf) for BSPH.

The Admissions and Credentials Committee handles most policy concerns as described above. The Curriculum Committee handles exceptions to requirements.

Current students can access the Epidemiology Student Handbook on the PhD program page (<https://publichealth.jhu.edu/academics/phd-dept-of-epidemiology/>) on the BSPH website.

For concerns and changes to advising, tracks, course requirements, etc. please see the academic policies for the department. (<https://e-catalogue.jhu.edu/public-health/departments/epidemiology/#departmentalpoliciestext>)

Policy Components for Metrics

Doctoral Teaching Assistant (TA) Curriculum Requirements

PURPOSE OF THE DOCTORAL TA CURRICULUM

Learning how to be an effective teacher and communicator about epidemiologic principles and methods is an integral part of doctoral education in epidemiology. Teaching is an opportunity for students to meet several Departmental doctoral program core competencies, enabling students to:

- Interpret and critique epidemiological studies;
- Interpret epidemiologic data and make valid inferences from study findings;
- Communicate effectively in oral and written formats with students, professionals, and the public on issues related to epidemiology and public health; and
- Provide epidemiologic critique and advice though advising students and professionals on epidemiologic concepts and methods and conducting peer review activities
 - Practicing these skills also prepares students for Department and Preliminary Oral Examinations and for their future careers, whether in academia or in other venues. (See the "Benefits of

Teaching" from Former TAs section in this Student Handbook for additional benefits of teaching).

COMPONENTS OF THE DOCTORAL TA CURRICULUM

All doctoral students are required to complete the TA Curriculum after passing the Department Comprehensive Examination and before graduation. Training and feedback are an important part of this curriculum, which includes:

- Formal didactic training;
- In-classroom training through experience as a TA in Department courses; and
- Feedback from instructors

Students will share their goals for TA training with course instructors prior to the start of each course taught. After TAing a course, students will document their TA experience for their resume or CV.

Formal Didactic Training Elements:

1. Courses
2. Workshops
3. Teaching practicums
4. Teaching as research fellowship appointments
5. Individual consultation

Teaching Academy also offers a three-day teaching institute for students to advance the development of university-level educators by enhancing classroom teaching skills. This is a free institute and offered at the BSPH campus in early June. <https://cer.jhu.edu/teaching-academy/ti> (<https://cer.jhu.edu/teaching-academy/ti/>) CTL's "Teaching Assistantship Training" covers the learning objectives required to align with the completion of Phase I of the Teaching Academy's "Preparing Future Faculty Teaching (PFFT) Certificate Program (<https://cer.jhu.edu/teaching-academy/pff/>)."

- The following didactic trainings and activities are flexibly designed to give doctoral students the skills and tools necessary to be successful TA and to meet teaching and learning goals. Please note, that while all students are welcome to attend the training and activities at any time, it may behoove them to do so after the first year, but in advance/at the start of the second, as that is when most doctoral students will begin the TA Curriculum.

Required: Department of Epidemiology Student-led In-Person Training Session

This student-led in-person 1.5-hour training covers the basics of TAing in the Department, including TA roles, benefits, and expectations. This session is held during lunchtime at the beginning of 1st term. Information regarding the date and location is distributed via the Department's student listserv.

Required: Teaching Assistantship Training (Online Course)

This online course offered through the BSPH Center for Teaching and Learning (CTL) "*orients Teaching Assistants to the roles and responsibilities of their position, relevant policies and regulations, technical tools, teaching tips, and other important information.*" Students can complete it when time allows but must have completed it in advance of starting the In-classroom portion of the TA Curriculum.

To sign up, visit: <https://sites.google.com/site/ctlteachingtoolkit/teaching-assistants/ta-training> (<https://sites.google.com/site/ctlteachingtoolkit/teaching-assistants/ta-training/>).

Recommended: Teaching Academy Activities

<https://cer.jhu.edu/teaching-academy> (<https://cer.jhu.edu/teaching-academy/>)

Offers additional resources around the pedagogy of teaching. To prepare graduate students so they may thrive in higher education as academic professionals once they graduate, this academy offers teacher training and academic career preparation opportunities.

In-classroom Training

As part of the TA Curriculum, doctoral students will serve as TAs. Students are required to take 3 TA courses: 2 epidemiologic methods courses and 1 topical epidemiology course (see list below for courses). No more than 1 of the 3 courses TAed as part of the TA Curriculum may be an online course.

To document the in-classroom training on the academic transcript and to receive academic credit, doctoral students should register for PH.340.865 Teaching Epidemiologic Methods and Concepts At the Graduate Level.01 for up to 3 credit hours during the term that they are TAing. Credit hours taken depends on the level of TAship, and students will receive instructions prior to the start from the Academic Office as to the allowed number of credits. If the course is being TAed in the Summer term, the credit hour(s) should be registered for in the following 1st term, to avoid additional tuition fees.

Department of Epidemiology epidemiologic methods courses are:

Code	Title	Credits
PH.340.653	Epidemiologic Inference in Outbreak Investigations (1st term)	3
PH.340.721	Epidemiologic Inference in Public Health I (Summer Term, First term, Third Term)	5
PH.340.722	Epidemiologic Inference in Public Health II (Second Term or Fourth Term)	4
PH.340.723	Epidemiologic Practice Methods for Population Health Research (4th term)	2
PH.340.728	Advanced Methods for Design and Analysis of Cohort Studies (1st term)	5
PH.340.751	Epidemiologic Methods 1 (1st term)	5
PH.340.752	Epidemiologic Methods 2 (2nd term)	5
PH.340.753	Epidemiologic Methods 3 (3rd term)	5
PH.340.774	Advanced Theory and Methods in Epidemiology (2nd term)	4
PH.340.769	Professional Epidemiology Methods (3rd term)	4
PH.340.770	Public Health Surveillance (2nd term)	3
AS.280.350	Fundamentals of Epidemiology (Fall Semester or Spring Semester)	4
PH.340.618	Epidemiology: the Basics (Fourth Term)	3

*Summer Institute courses do not count towards the TA in-classroom training requirement. A student may TA for the Summer Institute prior to the completion of their TA training requirements.

All other Department of Epidemiology courses (PH.340.xxx) eligible to have a TA are considered topical epidemiology courses for the purpose of the TA Curriculum.

To fulfill the 2 methods courses of the TA Curriculum, students are encouraged to TA: PH.340.751 Epidemiologic Methods 1, PH.340.752 Epidemiologic Methods 2, and/or PH.340.753 Epidemiologic Methods 3, although any of the courses listed above may be used to fulfill the requirement.

Students are eligible to TA as part of this curriculum once they have successfully passed the Department Comprehensive Examination. Students may TA PH.340.601 Principles of Epidemiology during the summer term immediately following completing the comps. Students are expected to complete the TA Curriculum during their second and third years of training. Students are responsible for coordinating with course administrators and/or course instructors for each course they wish to TA. The Department recommends students proactively, directly contact faculty once they have identified a course that they would like to TA as part of the Curriculum. Course faculty take many factors into consideration in selecting TAs for a course (sometimes including performance in the course), and some courses may have more TA requests than can be accommodated. Students may not always be able to serve as a TA for their first choice of courses, so they should keep several courses in mind and be flexible. TA responsibilities vary by course, and students are expected to work with course faculty to understand their responsibilities prior to the start of the course. Responsibilities may include but are not limited to: preparing for lab/activities and office hours, attending instructors' meetings, attending lectures and lab/activities, holding office hours, and assisting with assessment writing and piloting. TAs are expected to devote 5-19 hours per week to each course; the wide range reflects the variability in responsibilities by course.

Prior to the start of each course TAed as part of the TA Curriculum, students are required to provide to course instructor(s) 3 goals for the TA experience in writing via email. The purpose of these goals is to provide a basis for reflection by TAs on their current skills and knowledge, as well as their future professional teaching/communication goals, in order to improve student achievement. Progress toward achieving goals over the term will be evaluated by the course instructor(s) as part of the feedback process.

Feedback from Instructors

As part of the TA Curriculum, students will receive standardized, individualized feedback from course and/or lab instructors (see below Feedback form). If applicable, TAs will also receive student feedback recorded as part of the School's online course evaluation system. Students are responsible for sending the feedback form complete with the student's goals from the start of the term to course instructor(s) no later than 2 weeks following the end of the term. Faculty are not obligated to honor requests for feedback that occur more than 2 weeks after the end of the course. TAs are encouraged to document feedback from instructors and from students (if applicable) in their CV or resume.

Compensated TA Positions

Additional TA opportunities may be available for a pre-specified fixed payment after the TA Curriculum has been completed. As with the TA Curriculum, students are responsible for coordinating with course administrators and/or course instructors for each course they wish to TA for pay. Students should proactively contact faculty directly once they have identified a course that they would like to TA. Course faculty take many factors into consideration in selecting TAs for a course and students should be aware that some courses may have more TA requests than can be accommodated.

Students holding a Departmental TA position should expect that there will be approximately two weeks of light preparatory work in advance of the course start date, and light conclusory work in excess of the course start and end dates. Please note that State of Maryland law sets student hourly work limitations at 20 hours per week maximum. Exception:

40 hours over Thanksgiving, winter, and spring breaks, and during the summer.

Benefits of Teaching (from Former TAs)

- Improve oral and written communication skills
- Develop an ability to articulate complex epidemiologic concepts to audiences with varying degrees of research experience
- Preparation for oral exams/defense
- Experience with educational technology (e.g., CoursePlus, VoiceThread)
- Experience in the administration of and assessment of graduate courses (e.g., design of assessments and feedback)
- Opportunity to provide essential input that can influence the ongoing development of the department's core courses
- Ability to progress to more independent instructor roles (e.g., Gordis Fellows, TA training seminars/modules, Lab instructors)
- Management skills (managing up to faculty instructors and leading teams of TAs)
- Mentorship from, and relationships with, faculty instructors
- Builds a sense of community with TA colleagues
- Allows students to gauge interest in academic/teaching roles post-graduation
- Development of a teaching portfolio that can be used in CV development, job searches, and interviews
- Getting to know diverse groups of students/mentoring new students

DOCUMENTATION OF TEACHING EXPERIENCE FOR A RESUME OR CURRICULUM VITAE

Doctoral students are encouraged to document their TA experience, including teaching responsibilities and feedback, using the below "Guide to Documentation for a Resume or Curriculum Vitae" template.

WAIVERS

A written request for a waiver to any aspect of the TA Curriculum due to exceptional circumstances, including the in-classroom training (i.e., being a TA), should be submitted to the Academic Program Office (BSPH.EpiAcademic@jhu.edu) and will be reviewed by the Department of Epidemiology Curriculum Committee and decided upon by the Admissions and Credentials Committee.

Comprehensive Examination Grading Policy

The completed Comprehensive Examination is graded by the Department of Epidemiology faculty according to a rubric determined by the Comprehensive Examination Committee. Final results are distributed to students via CoursePlus by mid-July. Students who wish to view their exam should set up an appointment with Senior Academic Coordinator Ebony Moore (eamoore@jhu.edu).

Doctoral students whose results fall below 75% are allowed to formally request in writing a re-grade of specific questions. Re-grade requests must include a justification for a change in points allocated for each question being contested; requests without appropriate justification will not be considered. Re-grade requests must have the adviser's endorsement, and they need to have reviewed and approved the

student's request. Re-grade requests are handled by the faculty on the Comprehensive Examination Committee. Adviser-approved requests can be e-mailed to the current year's Comprehensive Examination Committee Chair and must include a copy to the adviser. For approved requests, a new score will be assigned for each question that is re-graded. This score may be equal to, greater than, or less than, the original score awarded and cannot be contested a second time.

Comprehensive Examination Retake Policy

Students who do not pass the Comprehensive Exam at the appropriate level for their degree program may be granted an opportunity for a retake in August immediately following the May Exam. Students who do not pass the Comprehensive Exam at the appropriate level are not automatically granted a retake. To request a retake, students must submit an official request within two weeks of notification of the not passing grade. This request should include a detailed timeline and study plan to make the case for passing a retake. This request and plan must be endorsed by and developed with the adviser. Retake requests are reviewed via the Department's Admissions and Credentials Committee. Adviser-approved requests can be e-mailed to the current year's Admissions and Credentials Committee Chairs and must include a cc to the adviser and Senior Academic Program Manager (Frances Burman). For approved requests, students are granted one retake only, and it must be in August following the May Exam. A student cannot continue in the degree program without passing the Comprehensive Examination at the appropriate level, prior to the start of the second year.

Recommendations for Special Studies versus Thesis Research

Special Studies and Research in Epidemiology, PH.340.840.xx, is offered during terms 1, 2, 3, and 4. Thesis Research, PH.340.820.XX is offered terms S, 1, 2, 3, and 4.

SPECIAL STUDIES AND RESEARCH: PH.340.840.XX

All first-year PhD students should take 1 credit special studies and research each term during terms 1 -3.

The following list of activities may be approved for independent study or special studies and research and is not inclusive:

- Directed readings and discussions leading up to preparing for the research proposal,
- Literature searches and meta-analyses,
- Secondary data analysis,
- Self-guided focused study on a particular methodology or a disease of interest.

THESIS RESEARCH: PH.340.820.XX

Doctoral students take 340.820 once they successfully pass their School-wide Preliminary Oral Exam and begin working on their research thesis.

CALCULATING CREDITS FOR A VARIABLE CREDIT COURSE

- Students must remember that the 1 hour – in class, 2 hours – outside of class ratio still applies: e.g., Students should think about the time the faculty member will be involved in guiding them (see faculty contact hours below) as well as how much time the student uses to conduct outside readings and work.

What constitutes Faculty Contact Hours

- Individual one-on-one meetings.
- Faculty revisions of writing projects (faculty members spend considerable time editing, proofreading, and otherwise providing written feedback to students).
- Mentoring and networking preparation and discussion.
- Time spent in group settings with faculty mentors e.g. journal clubs or weekly “lab/group” meetings. Students should make every effort to attend the group meetings for their track and adviser.

HOW TO REGISTER

- Students must communicate their intent to register with and receive approval from the faculty mentor in writing, prior to registering for credits for the special studies or thesis research and include the content/activities to be conducted and the number of credits.
- Students may take 1-3 credits while taking a full load of courses.
- Students may take up to 8 credits per term while taking a partial load of courses with the approval of the faculty mentor.

Adviser/Advisee Manual

Each student in the Department is assigned an adviser and selects co-adviser(s) as they move through the program; Adviser(s) have the responsibility of serving as a guide and mentor. This manual is intended to guide the student and the faculty member(s) in making the adviser/advisee relationship as successful as possible.

This manual has two goals:

- To provide answers to questions that students frequently ask, and
- To provide guidance on how the student and adviser can interact most effectively.

Academic Advisers should:

- Provide oversight of the student’s academic progress by:
 - Assisting in the selection of courses
 - Ensuring the student is meeting degree milestones in a timely manner
 - Being available for regular meetings with the student
 - Assessing and developing the student’s interests and abilities
 - Monitoring student progress in academic coursework through periodic examination of transcripts
 - Monitoring student progress in fieldwork
 - Writing letters of reference (given appropriate lead time)
 - Assisting with grant preparation (doctoral students, given appropriate lead time)
 - Referring students to the appropriate individuals or offices that provide academic support and/or resources
- Provide leadership in matters of academic integrity:
 - Being knowledgeable about ethical issues that pertain to academics, research, and practice
 - Helping students interpret and understand institutional policies and procedures regarding the responsible conduct of research
 - Discouraging students from circumventing institutional policies and procedures, and when confronted with such issues, directing students to appropriate institutional resources or contacts, avoiding actual or appearance of conflicts of interest
 - Respecting the confidentiality of students

- Encourage active participation in the greater community (department, school, university, local, state, national, and international)

STUDENTS MAY EXPECT THE FOLLOWING FROM THEIR ADVISER(S):

- Advisers’ approval for course registrations, course changes, and pass/fail agreements, and on all reasonable petitions to the Admissions and Credentials Committee
- At least one meeting per term with the advisers
- Oversight of the student’s overall academic program and sensitivity to any academic difficulties
- Knowledge of and interest in the student’s career objectives
- Review of required and recommended courses for the track
- Assistance in designing a plan for the fulfillment of required courses and assistance with planning the course schedule for the year

Advising students is an integral part of faculty members’ responsibilities. Faculty members expect to be available to students, although the students should be respectful of the faculty’s time by scheduling and respecting appointments. The responsibility for arranging meetings lies with the student. Students should not expect advisers to seek them out for needed appointments. The student remains obligated to schedule a meeting in order to assure that the adviser has reviewed the student’s schedule and to plan any special studies projects or thesis research as needed with the adviser before the registration period deadline.

RIGHTS AND RESPONSIBILITIES OF THE ADVISER(S):**

- To assist in determining the advisee’s educational goals and needs upon starting the program
- To serve as an educational and/or professional mentor for the student
- To maintain awareness of and sensitivity to the level of compatibility between the student advisee and the advisers in terms of academic, professional, and personal interests
- To facilitate a change of adviser or program, if deemed appropriate for the student
- To monitor the advisee’s overall academic program and be sensitive to signs of academic difficulty
- To provide guidance throughout the academic program
- To be sensitive to cultural, medical, legal, housing, visa, language, financial, or other personal problems experienced by the advisee and to be aware, sensitive, understanding, and supportive
- Advisers have the right to expect to be treated with respect and courtesy, to be notified in writing when a meeting must be canceled or rescheduled, to be consulted when students have questions or concerns about the research focus or progress, and to serve as team leader on the research team

RIGHTS AND RESPONSIBILITIES OF THE ADVISEE:**

- To arrange to meet with the adviser at least once each term and observe registration and administrative deadlines
- To identify and develop professional career goals and interests
- To understand administrative policies and procedures and be familiar with the Student Handbook
- To maintain the academic checklist and review it at meetings with the advisers
- Advisees have the right to expect to be treated with respect and courtesy, to be notified in writing when a meeting must be canceled or rescheduled, to be notified when advisers have questions or concerns

about the research focus or progress, and to be granted the role of a team member on the research team

****Students and Faculty each have the right to request changes to the adviser/advisee relationship upon consultation with the Director of Graduate Education (Laura Camarata) without penalty.**

According to the requirements of the Council on Education for Public Health (CEPH), all BSPH degree students must be grounded in foundational public health knowledge. Please view the list of specific CEPH requirements by degree type (<https://e-catalogue.jhu.edu/public-health/ceph-requirements/>).

Epidemiology (<https://publichealth.jhu.edu/departments/epidemiology/>) Doctor of Philosophy Degree Program (<https://publichealth.jhu.edu/academics/phd-dept-of-epidemiology/>) competencies are designated by track and are charted below. Mastery is achieved by completing the program requirements (p. 1). Please direct questions to the track directors, program directors, director of graduate education (<https://publichealth.jhu.edu/faculty/3494/laura-camarata/>), or the senior academic program manager (FranBurman@jhu.edu).

Cancer Epidemiology

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to address threats to validity such as confounding and bias in the design and analysis phases.
2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Develop and deliver a presentation on at least one common cancer and effective strategies for cancer prevention and control at the population level.
4. Perform genetic association tests in population-based samples, in either prospective or retrospective designs, to address cancer-specific research questions.
5. Present a proposal to a scientific audience that covers a current problem in modern cancer epidemiology, including a research plan to address that problem.
6. Formulate, refine, and critique a conceptual framework in cancer epidemiology.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to cancer epidemiology.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.

Cardiovascular and clinical epidemiology

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to address threats to validity such as confounding and bias in the design and analysis phases.

2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Evaluate and critique designs, data sources, analytic methods (including risk prediction and physical activity assessment), data presentations, and conclusions of studies commonly used in clinical and cardiovascular epidemiology.
4. Assess pathophysiologic processes involved in common cardiovascular diseases, including the biological mechanisms through which cardiovascular risk factors affect different parts of the cardiovascular system (e.g., heart, kidneys, peripheral arteries) and appropriate uses of different techniques (e.g., echocardiography, CT scan, and MRI) used to detect and quantify the presence of clinical and cardiovascular diseases.
5. Develop a specific hypothesis to answer a relevant question in clinical and cardiovascular epidemiology, integrate knowledge of the pathophysiology of cardiovascular diseases to evaluate biological plausibility, and assemble relevant literature to evaluate the hypothesis.
6. Formulate, refine, and critique a conceptual framework in cardiovascular disease epidemiology.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to cardiovascular disease epidemiology.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.

Clinical Trials and evidence synthesis

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to address threats to validity such as confounding and bias in the design and analysis phases.
2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Evaluate the historical development of research ethics and assess the role of ethical guidelines in the design and conduct of clinical trials. Appraise the process of obtaining informed consent and consideration of privacy in the clinical trial setting.
4. Conduct, present, and interpret the results of meta-analyses and critique the methodologic rigor of systematic reviews.
5. Make reasonable decisions about how to collect and manage data for studies of various sizes and budgets and integrate data management activities into the conduct of a research project.
6. Formulate, refine, and critique a conceptual framework in clinical trials and epidemiological methods.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to clinical trials and epidemiological methods.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.

Environmental Epidemiology

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to address threats to validity such as confounding and bias in the design and analysis phases.
2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Delineate, assess, and apply the concepts and methods of exposure and dose in epidemiologic research and in validation studies.
4. Analyze and interpret environmental and occupational health problems, and discuss exposure-disease relationships in human populations.
5. Interpret, critique, and summarize the design, quantitative methods, and findings of major published studies and peer-reviewed manuscripts in environmental and occupational epidemiology research.
6. Formulate, refine, and critique a conceptual framework in environmental epidemiology.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to environmental epidemiology.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.

Epidemiology of Aging

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to address threats to validity such as confounding and bias in the design and analysis phases.
2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Evaluate opportunities for the prevention of diseases and syndromes in the context of the aging phenotypes of older adults.
4. Assess policy programs, financing considerations, and workforce issues that pertain to meeting the economic, health, and social needs of aging societies.
5. Evaluate potential explanations for epidemiologic associations between sensory impairments and gerontologic outcomes.
6. Formulate, refine, and critique a conceptual framework in the epidemiology of aging.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to the epidemiology of aging.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.

General Epidemiology and Methodology

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target

population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to address threats to validity, such as confounding and bias in the design and analysis phases.

2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Develop a plan for conducting clinical research, and categorize and interpret the effects of complex mechanisms involving bias and variability.
4. Appraise methods for estimating causal effects in randomized designs and alternative designs to randomization in public health sciences.
5. Evaluate and critique the ways in which inequality is measured and how measures influence the interpretation of data.
6. Formulate, refine, and critique a conceptual framework in epidemiology methodology.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to epidemiology methodology.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.

Genetic Epidemiology

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to address threats to validity such as confounding and bias in the design and analysis phases.
2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Integrate an understanding of key components of molecular biology, such as the structure of DNA and molecular mechanisms of the central dogma into genetic epidemiology.
4. Apply various design strategies for genetic studies considering the advantages and disadvantages of each, and perform genetic association tests in population-based samples, in either prospective or retrospective designs.
5. Describe various cutting-edge analyses of large-scale genome-wide association studies to inform biology, causality, and prediction.
6. Formulate, refine, and critique a conceptual framework in genetic epidemiology.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to genetic epidemiology.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.

Infectious Disease Epidemiology

1. Formulate an epidemiological research question and design a research study that helps answer it, including identifying the target population, appropriate source and study populations, adequate exposure, outcome, and covariate assessments, and plans to

address threats to validity such as confounding and bias in the design and analysis phases.

2. Apply core statistical concepts and methods; display and communicate statistical data.
3. Incorporate the main epidemiological characteristics of the major infectious diseases of humans into development and evaluation strategies to prevent epidemics or endemic transmission.
4. Discuss and appraise methods and techniques to address challenges unique to infectious disease epidemiology, including network analysis, methods for determining contact rates, and the heterogeneity of host responses to pathogen exposure.
5. Conduct an outbreak investigation and use the epidemic curve to identify the epidemic type, incubation period, and potential mode of transmission.
6. Formulate, refine, and critique a conceptual framework in infectious disease epidemiology.
7. Critically evaluate the adequacy and scientific merit of research proposals, including those related to infectious disease epidemiology.
8. Teach core epidemiological principles at the graduate level, including the incorporation of feedback from faculty instructors.