INTERNATIONAL HEALTH, PHD

Doctor of Philosophy (PhD)

The PhD program (https://publichealth.jhu.edu/academics/phd-dept-of-international-health/) prepares students to become independent investigators in academic and non-academic research institutions and emphasizes contributions to theory and basic science.

Students interested in a doctoral research degree must apply to one of the Department's four concentrations.

Program Concentrations
Global Disease Epidemiology and Control

Associate Chair: Agbessi Amouzou, PhD

PhD Concentration Director: Melissa Marx, PhD

Requirements for Admission

Applicants to the program must have a degree in medicine, veterinary medicine, or dentistry, or a master's level degree or equivalent graduate training in epidemiology, statistics, international health, tropical medicine, microbiology, parasitology, immunology, or virology. Prior work experience is preferable.

Educational Objectives
Overall Program Goal

This program provides training for public health researchers who will use epidemiologic, immunologic and/or laboratory and statistical methods to design, implement, and/or evaluate disease control interventions for diseases of public health importance to under-served populations. Graduates will have a fundamental understanding of the pathogenesis, epidemiology, and control measures applicable to diseases of public health importance in disadvantaged populations throughout the world. Interventions to be studied will be primarily biomedical (e.g. therapeutic or prophylactic drugs, vaccines or environmental modifications), although there may be a behavioral component to effective implementation of such interventions.

Special strengths of the program are infectious disease epidemiology and vaccinology. Students can acquire a broad understanding of the methods needed to design studies and gain hands-on experience in the design, conduct an analysis of community and clinical trials and/or laboratory-based investigations, including the immunologic and biologic basis of responses to immunizations and other prophylactic or therapeutic interventions.

General Knowledge

Learning Objectives

- Describe the evolution of key approaches that have been applied in an attempt to address the major public health problems of underserved populations and to place these approaches in the context of general development, culture and health policies.
- Define the most important indicators of health status of underserved populations, identify databases and other sources of information for these indicators, and describe how changes in these indicators reflect changes in the health status of populations.
- Describe the epidemiology, biology, pathophysiology, modes of transmission, and strategies for prevention and control of the major infectious diseases of public health importance to resource-poor environments. Be able to argue for the appropriateness of specific strategies for prevention and control in selected circumstances.

Research Skills

Learning Objectives

- Review and critique the relevant literature on a topic of interest.
- Place a research question in the context of current knowledge.
- Frame a research question in terms of study goals and specific aims.
- Design a research study to address specific aims. Be able to differentiate between study designs and argue in favor of using a specified design as most appropriate to address that research question
- Develop and write a research proposal
- Develop and justify a budget for a research proposal.
- Discuss the ethical issues involved in research in resource-poor environments and argue for a particular approach to addressing these ethical issues.
- Prepare an application to an IRB for ethical approval.
- Implement and manage a research study, monitor the progress of the study and the quality of data collected.
- Produce an appropriate statistical analysis of the data collected during the research project, and provide a reasoned interpretation of these results.
- Place the research findings in the context of current knowledge, identify limitations of the research, and be able to specify further areas for research.
- Analyze the policy implications and public health significance of the research findings.

Communications

Learning Objectives

- Make oral and poster presentations of research findings for professional audiences.
- Write manuscripts of publishable quality for the peer-reviewed literature that describe and explain research findings.
- Teach other students basic introductory materials in the student's general area of expertise.

Advising Faculty

- Agbessi Amouzou
- Smisha Agarwal
- Naor Bar-Zeev
- Abdullah Baqui
- Chris Beyrer (joint)
- Robert Black
- Richard Chaisson (joint)
- Priya Duggal (joint)
- Anna Durbin
- Christine Marie George
- Robert Gilman
- Jonathan Golub (joint)
- Amita Gupta (joint)
- Laura Hammitt
- Christopher Heaney (joint)
- Ruth Karron
- Joanne Katz

- Melissa Marx
- William Moss (joint)
- Melinda Munos
- Douglas Norris (joint)
- Thomas Quinn (joint)
- Andrea Ruff
- David Sack
- Daniel Salmon
- Kawsar Talaat
- Jonathan Zenilman (joint)

Health Systems

Associate Chair: Sara Bennett, PhD

PhD Concentration Director: Abdul Bachani, PhD

Requirements for Admission

Applicants must have a prior Master's degree in biological, health sciences, or alternatively in management or social sciences. Prior international or health systems experience is a significant advantage.

Educational Objectives

The overall goal of the Doctor of Philosophy (PhD) degree in the Health Systems Program is to produce the next generation of leaders in health systems research and practice, particularly in low- and middle-income country settings. Graduates of the PhD program in Health Systems should have the competencies to play leadership roles in: (a) health policy; (b) health planning, financing, and management; (c) monitoring and evaluation; (d) institution building and community development; (e) public health teaching; and (f) research on health systems, in low and middle-income countries or with disadvantaged populations in any part of the world.

Overall Program Goal

There are four overarching academic competencies applicable to each area of study that students are expected to master during the course of their doctoral program. Students should be able to:

- Apply public health sciences to address health problems in vulnerable populations
- Provide leadership in health systems management and analysis
- Conduct independent research on health systems in low- and middle-income countries and vulnerable populations
- Communicate effectively with researchers, policymakers, and key stakeholders in health systems

Advising Faculty

- Joseph Ali
- Olakunle Alonge
- Abdullah Baqui
- Abdul Bachani
- Sara Bennett
- Stan Becker (joint)
- David Bishai (joint)
- William Brieger
- Andreea Creanga
- Shannon Doocy
- Azadeh Farzin (joint)
- Alain Labrique
- Maria Merritt
- Bryan Patenaude
- Ligia Paina
- Krishna Rao
- Courtland Robinson
- Mathuram Santosham
- Jeremy Shiffman
- Anthony So
- Paul Spiegel
- Antonio Trujillo

Human Nutrition

Associate Chair: Parul Christian, DrPH

PhD Concentration Director: Laura Caulfield, PhD

Requirements for Admission

The program seeks to attract and train future experts and leaders in public health nutrition across a range of professional interests and backgrounds. Entry into the doctorate in philosophy (PhD) program in Human Nutrition requires, at a minimum, a bachelor's degree or its equivalent, preferably in nutritional, biological, food health or social sciences, public health practice, food security, economics or health policy with a minimum of one year of post-baccalaureate experience which can take the form of a master's degree, a dietetic internship, medical training or other relevant work experience.

Educational Objectives

The doctoral program in Human Nutrition is designed to train professionals to identify, understand and solve, through scientific methods, problems of public health importance in human nutrition. Graduates are expected to assume leadership roles in academia, government, industry and other private-sector enterprises. They will be expected to advance knowledge in human nutrition through research and advocate the application of such knowledge through public health policies and programs.

Overall Program Goal

There are five overarching academic competencies, applicable to each area of study, that students are expected to master during the course of their doctoral program. Students should:

- Understand the biochemical, molecular, epidemiological, social and behavioral fundamentals of human nutrition
- Comprehend the complex interrelationships between food-and-nutrition and health-and-disease in diverse populations
- Master quantitative and qualitative analytic skills required to understand, critically evaluate and conduct nutrition research
- Be able to integrate ethical principles and standards in the conduct of human research
- Develop the professional skills necessary to communicate effectively

Students in the doctoral program in Human Nutrition are expected to gain knowledge and master skills in the following broad content areas of the curriculum, each with sub-areas of specialization:

Nutrition and Health

Sub-areas: Nutrition over the life span, social, cultural and behavioral influences, food and nutrition policy.

This content area of the curriculum has core competencies that can be addressed in a flexible manner, and in consultation with a student's academic adviser.

Learning Objectives – Know and understand:

- Nutritional processes in each stage of life
- Age-, disease- and physiologic state-specific nutrient requirements
- Social, political and cultural contexts influencing nutritional status of individuals and populations
- Pathological processes and how they influence nutritional well-being and vice versa
- Development and application of evidence-based food and nutrition policies

Biochemistry and Metabolism

Sub-areas: Nutrient metabolism

Minimum requirements in the area of metabolism would provide candidates with the biochemical and metabolic fundamentals of nutritional science.

Learning Objectives – Know and understand:

- Biochemical and metabolic pathways of macronutrients and micronutrients
- Relationship between cell structure and metabolism and nutrient functions
- Genetic basis of nutritional interactions and requirements

Research Methodology

Sub-Areas: Biostatistics, Epidemiology, Nutritional Assessment, Nutritional Epidemiology, Research Proposal Development, Qualitative Research Methods

Minimum required competencies in research methodology provide candidates with quantitative and qualitative knowledge and skills for understanding and conducting research in human nutrition.

Learning Objectives – Know and understand concepts and terms:

- Compose research questions
- Link nutrition research questions to appropriate study design, methods, analysis, interpretation, and writing
- Be familiar with underlying principles, methods of collection, analysis and interpretation of quantitative and qualitative data
- Demonstrate ability to analyze a nutrition-related (e.g., dietary or nutritional status) data set
- Understand the use of nutrition reference data
- Demonstrate competence in one primary statistical software and data management package
- Understand the principles and use of nutrition-related laboratory techniques, equipment and field assessment methods

Professional Skills

Sub-areas: Grant writing, scholarly publishing, teaching and public speaking, ethics, information technology

The goal of the professional skills core curriculum is to provide the student with exposure to or experiences in important skills necessary to work effectively as a professional at the doctoral level. Development of these competencies occurs through the academic process of the degree rather than through didactic coursework per se.

To support students in transitioning from coursework to thesis research, Dr. Caulfield leads the Doctoral Seminar in Proposal Development. Through the sequence, HN doctoral students (or those in other programs with research interests in nutrition) are engaged in career planning, identifying opportunities at Johns Hopkins, speaking and communicating their research ideas, persuasive written communication to various audiences, seeking research funding, and grant writing and budgeting. By the end of the sequence (2nd quarter of year 2), students are expected to have a solid draft of their research proposal and are planning for completion of the proposal and their oral exams. To support this process, and to reflect the academic work involved, students also sign up for varying credits of special studies with their adviser.

We encourage students to write and publish peer-reviewed scientific papers in addition to their thesis throughout their doctoral program. Dr. Gittelsohn offers a 2-quarter special studies course designed to assist students in writing their first research article for publication, or students may sign up for special studies with their adviser.

Advising Faculty

- Robert Black
- Laura Caulfield
- Vanessa Garcia Larsen
- Jessica Fanzo
- Mika Matsuzaki

- Joel Gittelsohn
- Jean Humphrey
- Kristen Hurley
- Yeeli Mui
- Amanda Palmer
- Keith P. West Jr.
- Julia Wolfson

Social and Behavioral Interventions

Associate Chair: Caitlin Kennedy, PhD

PhD Concentration Director: Pamela Surkan, PhD ScD

Requirements for Admission

Entrants into the program must have professional experience and a master's degree in the health or social sciences.

Educational Objectives

The program exposes students to applied social science and health education/communication theory and methods for health-related research, program implementation, and evaluation. Coursework emphasizes theoretical and methodological approaches within applied medical anthropology and social determinants of health, qualitative and quantitative methods, competency within a specific cultural/geographic area, and principles and methods for community-based intervention research.

Advising Faculty

- William Brieger
- Svea Closser
- Julie Denison
- Joel Gittelsohn

- Steven Harvey
- Caitlin Kennedy
- Victoria O'Keefe
- Haneefa Saleem
- Pamela Surkan
- Melissa Walls
- Peter Winch

Program-Specific Requirements and Courses

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

Global Disease Epidemiology and Control

Global Disease Epidemiology and Control Course REQUIREMENTS

All required courses must be taken for a letter grade with the exception of courses only offered for pass/fail.

The below courses are the possible list of requirements, for the most up-to-date information and an accurate list of required courses please view our departmental Academic Guide (https://www.jhsph.edu/departments/international-health/current-students/academic-guides.html) published August of each academic year.

Code	Title	Credits
Required Courses		
General Degree Requirements		
PH.550.860	Academic & Research Ethics at BSPH	
PH.220.605	Doctoral Seminar in International Health I	3
PH.220.842	Doctoral Independent Goals Analysis - International Health	1
PH.552.609	Psychological and Behavioral Factors That Affect A Population's Health	0.5
PH.220.600	International Travel Preparation, Safety, & Wellness	1
PH.220.606	Doctoral Seminar in International Health II	3
PH.550.604	Qualitative Reasoning in Public Health	2
PH.223.861	Global Disease Epidemiology and Control Program Doctoral Seminar	1
Ethics Requirement (choose one)		
PH.550.600	Living Science Ethics - Responsible Conduct of Research	1
PH.306.665	Research Ethics and integrity	3
International Health Requirement		
PH.223.663	Infectious Diseases and Child Survival	3
PH.223.680	Global Disease Control Programs and Policies	4
Biostatistics, choose one of the series for a total of 16 credits		
Series Option 1		
PH.140.621	Statistical Methods in Public Health I	4
PH.140.622	Statistical Methods in Public Health II	4
PH.140.623	Statistical Methods in Public Health III	4
PH.140.624	Statistical Methods in Public Health IV	4
Series Option 2		
PH.140.651	Methods in Biostatistics I	4
PH.140.652	Methods in Biostatistics II	4
PH.140.653	Methods in Biostatistics III	4
PH.140.654	Methods in Biostatistics IV	4
Epidemiology Requirement		
PH.340.751	Epidemiologic Methods 1	5
PH.340.752	Epidemiologic Methods 2	5
PH.340.753	Epidemiologic Methods 3	5
And choose one of the following:		
PH.223.664	Design and Conduct of Community Trials	4
PH.223.705	Good Clinical Practice: A Vaccine Trials Perspective	4
Environmental Health Requirement (choose one of the following courses)		
PH.180.611	The Global Environment, Climate Change, and Public Health	4
PH.182.626	Issues for Water and Sanitation in Tropical Environmental Health	2
PH.180.602	Environment and Health in Low and Middle income Countries	2
Social and Behavioral Sciences (choose one of the following)		
PH.410.620	Program Planning for Health Behavior Change	3
PH.410.651	Health Literacy: Challenges and Strategies for Effective Communication	3
PH.224.689	Health Behavior Change At the Individual, Household and Community Levels	4
PH.410.650	Introduction to Persuasive Communications: Theories and Practice	4
PH.410.630	Implementation and Sustainability of Community-Based Health Programs	3
Nutrition (choose one of the following courses)		
PH.222.642	Assessment of Nutritional Status	3
PH.222.647	Nutrition Epidemiology	3
PH.222.655	Nutrition and Life Stages	3
PH.222.649	International Nutrition	3
Vaccines (choose one of the following)		
PH.223.662	Vaccine Development and Application	4
PH.223.687	Vaccine Policy Issues	3
PH.223.689	Biologic Basis of Vaccine Development	3
Population/Family Planning (choose one of the following)		
PH.380.600	Principles of Population Change	4
PH.380.603	Demographic Methods for Public Health	4

Although students take several biostatistics and epidemiology courses in this program, 340.694.81 Power and Sample Size for the Design of Epidemiological Studies is a highly recommended course online in 3rd term that is helpful in preparing for the comprehensive examinations and in preparing proposals.

Students are encouraged to take advantage of offerings in other schools of the University. The Institute of the History of Medicine in the School of Medicine is a unique resource; the courses most relevant to GDEC students are History of International Health and Development and History of Health and Development in Africa. (http://www.hopkinshistoryofmedicine.org/content/course-descriptions)

Health Systems

Health Systems Course Requirements

All required courses must be taken for a letter grade with the exception of courses only offered pass/fail. Any application to waive courses must be made in writing (with approval from the adviser) to the coordinator at

least 1 term prior to the start of the course. Even if waivers are granted, students are responsible for course content on comprehensive exams.

The below courses are the possible list of requirements, for the most up-to-date information and an accurate list of required courses please view our departmental Academic Guide (https://www.jhsph.edu/departments/international-health/current-students/academic-guides.html) published August of each academic year.

Code	Title	Credits
Required Courses		
General Degree Requirements		
PH.550.860	Academic & Research Ethics at BSPH	
PH.220.605	Doctoral Seminar in International Health I	3
PH.220.842	Doctoral Independent Goals Analysis - International Health	1
PH.552.608	Biologic, Genetic and Infectious Bases of Human Disease	0.5
PH.221.602	Applications in Managing Health Organizations in Low and Middle income Countries	3
PH.220.606	Doctoral Seminar in International Health II	3
PH.220.600	International Travel Preparation, Safety, & Wellness	1
PH.221.646	Health Systems in Low and Middle income Countries	3
PH.221.620	Applying Summary Measures of Population Health to Improve Health Systems	3
PH.221.638	Health Systems Research and Evaluation in Developing Countries	4
Biostatistics Requirement (choose one of the series options)		
Series option 1		
PH.140.621	Statistical Methods in Public Health I	4
PH.140.622	Statistical Methods in Public Health II	4
PH.140.623	Statistical Methods in Public Health III	4
PH.140.624	Statistical Methods in Public Health IV	4
Series option 2		
PH.140.651	Methods in Biostatistics I	4
PH.140.652	Methods in Biostatistics II	4
PH.140.653	Methods in Biostatistics III	4
PH.140.654	Methods in Biostatistics IV	4
Epidemiology Requirement		
PH.340.751	Epidemiologic Methods 1	5
PH.340.752	Epidemiologic Methods 2	5
Health Systems Seminars		
PH.221.801	Health Systems Program Seminar I	1
PH.221.802	Health Systems Graduate Seminar 2	1
PH.221.861	Doctoral Seminar in Health Systems (Terms 3-4 of 1st year, and terms 1-2 of second year)	1
Ethics Requirement (choose one of the following)		
PH.550.600	Living Science Ethics - Responsible Conduct of Research	1
or PH.306.665	Research Ethics and integrity	
PH.306.665	Research Ethics and integrity	3
Health Systems Program Electives		

Fifteen (15) additional credits are required for the PhD program from the following list of courses, if not already selected to satisfy another requirement. The courses must cover at least 2 of the 3 blocks below. These courses must be taken for a letter grade with the exception of courses only offered pass/fail.

Health Systems Planning and Management		
PH.221.722	Quality Assurance Management Methods for Developing Countries	4
PH.312.617	Fundamentals of Financial Accounting	3
PH.312.603	Fundamentals of Budgeting and Financial Management	3
PH.312.604	Quantitative Tools for Managers	3
PH.221.608	Managing Non-Governmental Organizations in the Health Sector	3
PH.221.610	Pharmaceuticals Management for Under-Served Populations	3
PH.312.621	Strategic Planning	3
PH.312.633	Health Management Information Systems	3
International Health Topics		
PH.180.620	Introduction to Food Systems and Public Health	4
PH.221.613	Introduction to Humanitarian Emergencies	3
PH.221.639	Health Care in Humanitarian Emergencies	3
PH.221.612	Confronting the Burden of Injuries: A Global Perspective	3
PH.224.689	Health Behavior Change At the Individual, Household and Community Levels	4
PH.221.637	Health Information Systems	3
PH.221.627	Issues in the Reduction of Maternal and Neonatal Mortality in Low income Countries	4
PH.221.635	Global Advances in Community-Oriented Primary Health Care	3
PH.182.626	Issues for Water and Sanitation in Tropical Environmental Health	2
PH.221.616	Ethics and Global Public Health Practice	2
PH.221.661	Project Development for Primary Health Care in Developing Countries	4
PH.221.624	Urban Health in Developing Countries	3
PH.410.610	Housing Insecurity and Health	3
Health Policy		
PH.300.600	Introduction to Health Policy	4
PH.221.614	International Political Science for Ph Practitioners	2
PH.300.712	Formulating Policy: Strategies and Systems of Policymaking in the 21st Century	3
PH.223.687	Vaccine Policy Issues	3
PH.221.650	Health Policy Analysis in Low and Middle income Countries	3
PH.300.713	Research and Evaluation Methods for Health Policy	3
PH.300.652	Politics of Health Policy	4
PH.308.610	The Political Economy of Social inequalities and Its Consequences for Health and Quality of Life	3
Research/Analytical Methods Electives		

Fifteen (15) additional credits are required from following list of courses. The selected courses must cover at least 2 of the following 5 blocks. These courses may be taken for a letter grade or Pass/Fail.

Quantitative Methods		
PH.140.646	Essentials of Probability and Statistical Inference I: Probability	4
PH.330.657	Statistics for Psychosocial Research: Measurement	4
PH.340.728	Advanced Methods for Design and Analysis of Cohort Studies	5
PH.140.647	Essentials of Probability and Statistical Inference II: Statistical Inference	4
PH.340.606	Methods for Conducting Systematic Reviews and Meta-Analyses	4
PH.340.753	Epidemiologic Methods 3	5
PH.340.715	Problems in the Design of Epidemiologic Studies: Proposal Development and Critique	5
Health Systems Research and Evaluation		
PH.221.645	Large-scale Effectiveness Evaluations of Health Programs	4
PH.309.712	Assessing Health Status and Patient Outcomes	3
PH.340.717	Health Survey Research Methods	4
PH.380.711	Issues in Survey Research Design	3
PH.223.664	Design and Conduct of Community Trials	4
PH.380.712	Methods in Analysis of Large Population Surveys	3
Qualitative Methods		
PH.224.690	Qualitative Research Theory and Methods	3
PH.224.691	Qualitative Data Analysis	3
PH.224.692	Methods in Formative Research and Human Centered Design for Intervention Development	4
PH.410.710	Concepts in Qualitative Research for Social and Behavioral Sciences	3
Methods in Specific Topics		
PH.221.641	Measurement Methods in Humanitarian Emergencies	2
PH.222.647	Nutrition Epidemiology	3
PH.380.750	Migration and Health: Concepts, Rates, and Relationships	3
PH.221.644	Econometric Methods for Evaluation of Health Programs	4
Health Economics		
PH.313.601	Economic Evaluation I	3
PH.313.602	Economic Evaluation II	3
PH.313.643	Health Economics	3
PH.221.652	Financing Health Systems for Universal Health Coverage	3
PH.313.603	Economic Evaluation III	3
PH.221.644	Econometric Methods for Evaluation of Health Programs	4
PH.313.641	Introduction to Health Economics	3
PH.313.644	Intermediate Health Economics	3
PH.221.662	Health, Equity, and Economic Development	3
PH.221.663	Globalization and Health: Framework for Analysis	3

Although students take several biostatistics and epidemiology courses in this program, 340.694.81 Power and Sample Size for the Design of Epidemiological Studies is a highly recommended course online course in 3rd term that is helpful in preparing for the comprehensive examinations and in preparing proposals.

The Health Systems Program also offers a Health Economics "specialization" which tracks with school wide standards set out by the interdepartmental PhD Program in Health Economics. For further information on these courses, see the Health Systems Program Coordinators.

Human Nutrition

Requirements

Students are expected to take 6 quarters and at least 96 credits of coursework to satisfy the educational requirements for the Human Nutrition program, pass a written and an oral comprehensive exam, a final oral defense and successfully complete a thesis research project.

At least two thirds of course credits that are required are associated with the core content areas common to all doctoral students (about 64 credits). The exact number of required core course credits taken by a student will vary depending on specific choices made by the student in conjunction with their adviser. To complete the remainder of their coursework requirements, students will choose elective courses and special studies. Thus, about 25-35 credits will be completed through electives chosen by the student in conjunction with their adviser, depending on their unique career goals and research interests.

The goals of the doctoral program form the basis for the four core content areas of the educational program: Metabolism, Research Methods, Nutrition and Health, and Professional Skills. Students are required to take specific courses in each of these four content areas in order to develop the competencies expected of all doctoral-level nutrition professionals. Within each content area are various sub-areas that more clearly define the content area and provide the basis for identifying minimum competencies for all doctoral candidates. Agreement about these competencies, in turn, led to the development of the core curriculum requirements.

Human Nutrition Course Requirements

All required courses must be taken for a letter grade with the exception of courses only offered for pass/fail.

The below courses are the possible list of requirements, for the most up-to-date information and an accurate list of required courses please view our departmental Academic Guide (https://www.jhsph.edu/departments/international-health/current-students/academic-guides.html) published August of each academic year.

Code	Title	Credits
Required Courses		
General Degree Requirements		
PH.550.860	Academic & Research Ethics at BSPH	
PH.220.842	Doctoral Independent Goals Analysis - International Health	1
PH.222.658	Critical Thinking in Nutrition	1
PH.222.860	Graduate Nutrition Seminar	1
PH.220.600	International Travel Preparation, Safety, & Wellness	1
Nutrition and Health		
PH.222.641	Principles of Human Nutrition in Public Health	4

PH.222.657	Food and Nutrition Policy	2
PH.222.655	Nutrition and Life Stages	3
PH.222.654	Food, Culture, and Nutrition	4
Nutrition and Health: Suggested Electives		
PH.221.611	Food Security and Nutrition in Humanitarian Emergencies	
PH.222.649	International Nutrition	
PH.222.661	Designing Healthy Diets	
PH.222.652	Nutrition in Disease Treatment and Prevention	
PH.222.630	Nutrition, Infection and Immunity	
PH.700.630	Food Ethics	
Biochemistry and Metabolism Requirement		
PH.260.600	Introduction to the Biomedical Sciences (taken the summer before matriculation)	4
PH.222.644	Cellular Biochemistry of Nutrients	3
PH.222.651	Nutrients in Biological Systems	2
Biostatistics, choose one of the following series		
Series option 1		
PH.140.621	Statistical Methods in Public Health I	4
PH.140.622	Statistical Methods in Public Health II	4
PH.140.623	Statistical Methods in Public Health III	4
PH.140.624	Statistical Methods in Public Health IV	4
Series option 2		
PH.140.651	Methods in Biostatistics I	4
PH.140.652	Methods in Biostatistics II	4
PH.140.653	Methods in Biostatistics III	4
PH.140.654	Methods in Biostatistics IV	4
Epidemiology, choose one of the following series		
Series option 1		
PH.340.721	Epidemiologic Inference in Public Health I	5
PH.340.722	Epidemiologic Inference in Public Health II	4
Series option 2		
PH.340.751	Epidemiologic Methods 1	5
PH.340.752	Epidemiologic Methods 2	5
PH.340.753	Epidemiologic Methods 3	5
Research Methods		
PH.222.861	Doctoral Seminar in Proposal Development (taken in terms 3 and 4 of Year 1 and in terms 1 and 2 of Year 2))	1
PH.222.840	Special Studies and Research Human Nutrition (Special studies in HN each quarter to complement 222.861. Students should sign up for credits with their advisor to reflect time spent in development of their research ideas and thesis project)	2-6
PH.222.642	Assessment of Nutritional Status	3
PH.222.647	Nutrition Epidemiology	3
Ethics Requirement (choose one of the following)		
PH.550.600	Living Science Ethics - Responsible Conduct of Research	1
PH.306.665	Research Ethics and integrity	3
Environment and Health (choose one option)		
Option 1		
PH.220.605	Doctoral Seminar in International Health I	3
Option 2		
PH.182.640	Food- and Water- Borne Diseases	3
Option 3 (must take both courses)		
PH.552.607	Essentials of Environmental Health	0.5
PH.552.612	Essentials of One Health	0.5
Research Methods: Suggested Electives		
PH.140.641	Survival Analysis	3
PH.140.655	Analysis of Multilevel and Longitudinal Data	4
PH.223.664	Design and Conduct of Community Trials	4
PH.224.690	Qualitative Research Theory and Methods	3
PH.224.691	Qualitative Data Analysis	3
PH.224.692	Methods in Formative Research and Human Centered Design for Intervention Development	4
PH.313.601	Economic Evaluation I	3
PH.313.602	Economic Evaluation II	3
PH.313.603	Economic Evaluation III	3
PH.313.604	Economic Evaluation IV	3
PH.340.696	Spatial Analysis I: ArcGIS	3
PH.340.697	Spatial Analysis II: Spatial Data Technologies	2
PH.140.698	Spatial Analysis III: Spatial Statistics	4
PH.140.699	Spatial Analysis IV: Spatial Design and Application	3
PH.340.717	Health Survey Research Methods	4
PH.330.657	Statistics for Psychosocial Research: Measurement	4
PH.140.658	Statistics for Psychosocial Research: Structural Models	4
PH.221.660	Systems Science in Public Health: Basic Modeling and Simulation Methods	3
Other Suggested Electives		
International Health and Disease		
PH.220.606	Doctoral Seminar in International Health II	3
PH.221.627	Issues in the Reduction of Maternal and Neonatal Mortality in Low income Countries	4
PH.223.663	Infectious Diseases and Child Survival	3
PH.223.680	Global Disease Control Programs and Policies	4
Population, Behavior, and Health		
PH.224.689	Health Behavior Change At the Individual, Household and Community Levels	4
PH.380.611	Fundamentals of Program Evaluation	4
PH.380.604	Life Course Perspectives on Health	4
PH.380.623	Adolescent Health and Development	3
PH.380.642	Child Health and Development	3
PH.380.600	Principles of Population Change	4
Environmental Health, Food Production, Safety, and Food Systems		
PH.180.601	Environmental Health	5
PH.187.610	Public Health Toxicology	4
PH.180.620	Introduction to Food Systems and Public Health	4
PH.180.605	Food Systems Practicum	4
PH.180.606	Case Studies in Food Production and Public Health	4
PH.180.655	Baltimore Food Systems: A Case Study of Urban Food Environments	4
PH.185.600	One Health Tools to Promote and Evaluate Healthy and Sustainable Communities	3
Management Sciences		

PH.312.603	Fundamentals of Budgeting and Financial Management	3
Teaching		
PH.300.750	Teaching, Learning and Leading – in the Classroom, in the Workplace and in the Community	3
Thesis Registration (after completing oral exams)		
PH.222.820	Thesis Research Human Nutrition	1 - 22

Although students take several biostatistics and epidemiology courses in this program, 340.694.81 Power and Sample Size for the Design of Epidemiological Studies is a highly recommended online course in 3rd term that is helpful in preparing for the comprehensive examinations and in preparing proposals.

Social and Behavioral Interventions

Requirements and courses

During the 1st and 2nd term of each academic year, each doctoral student should develop a course plan. This can be done through discussions with the adviser and through the individualized Goals Analysis that will be part of the Special Studies requirement for Educational Program Development. This should be reviewed and discussed with the student's adviser. If changes are needed the student is requested to discuss and get approval from their adviser.

If students have particular interests that cannot be met through existing course offerings, requirements for these topic areas can be met through special studies courses after students have requested permission to substitute course requirements using the Course Waiver Form. Such courses, when carefully developed, are an excellent way for doctoral students to gain requisite knowledge and skills, and they give students the opportunity to work closely with faculty and pursue specific intellectual interests. These courses need to first be negotiated with sponsoring faculty and agreed upon by the academic advisers. Once substitutions are approved the Course Waiver Form should be completed and submitted with the student's tracking sheet via CoursePlus. Students are given access to the tracking course at the beginning of each year by the Academic Program Administrator. Students may take courses at any of the Schools within the Johns Hopkins University system. A full listing of University courses can be accessed at https://courses.jhu.edu/.

SBI CURRICULUM

Unless otherwise specified all required courses must be taken for a letter grade with the exception of courses only offered for pass/fail.

The below courses are the possible list of requirements, for the most up-to-date information and an accurate list of required courses please view our departmental Academic Guide (https://www.jhsph.edu/departments/international-health/current-students/academic-guides.html) published August of each academic year.

A. General Requirements

This area of requirements is designed to give students broad knowledge of global public health issues and grounding in epidemiology, disease prevention, and statistics.

Code	Title	Credits
General Degree Requirements		
PH.220.605	Doctoral Seminar in International Health I	3
PH.220.606	Doctoral Seminar in International Health II	3
PH.220.600	International Travel Preparation, Safety, & Wellness	1
PH.552.608	Biologic, Genetic and Infectious Bases of Human Disease	0.5
Epidemiology Requirement (choose one option)		
Series option 1		
PH.340.721	Epidemiologic Inference in Public Health I	5
PH.340.722	Epidemiologic Inference in Public Health II	4
PH.340.770	Public Health Surveillance	3
PH.340.769	Professional Epidemiology Methods	4
Series option 2		
PH.340.751	Epidemiologic Methods 1	5
PH.340.752	Epidemiologic Methods 2	5
PH.340.753	Epidemiologic Methods 3	5
Series option 3		
3 course series in Advanced Epidemiology (This option requires advanced permission from the SBI Program Coordinator)		
Biostatistics Requirement (choose one option)		
Series option 1		
PH.140.621	Statistical Methods in Public Health I	4
PH.140.622	Statistical Methods in Public Health II	4
PH.140.623	Statistical Methods in Public Health III	4
PH.140.624	Statistical Methods in Public Health IV	4
Series option 2		
PH.140.651	Methods in Biostatistics I	4
PH.140.652	Methods in Biostatistics II	4
PH.140.653	Methods in Biostatistics III	4
PH.140.654	Methods in Biostatistics IV	4

B. SBI Program Course Requirement

These nine courses provide students with the theoretical and methodological base necessary to be a competent and educated social scientists working on global health issues in the social sciences.

Code	Title	Credits
SBI Program Core Requirements		
PH.224.860	Social and Behavioral Interventions Program Seminar I:Applied Social Science & Global Health	1
PH.224.863	Doctoral Seminar in Research Methods in Applied Medical Anthropology I	4
PH.220.842	Doctoral Independent Goals Analysis - International Health	1
PH.330.657	Statistics for Psychosocial Research: Measurement	4
PH.224.864	Doctoral Seminar in Research Methods in Applied Medical Anthropology II	4
PH.224.689	Health Behavior Change At the Individual, Household and Community Levels	4
PH.140.658	Statistics for Psychosocial Research: Structural Models (Can be taken pass/fail)	4
PH.224.697	Qualitative Research Practicum I: Partnerships and Protocol Development	2
PH.224.691	Qualitative Data Analysis	3
PH.224.866	Social and Behavioral Interventions Doctoral Proposal Development Seminar	2
PH.224.698	Qualitative Research Practicum II: Collecting Qualitative Data	2

PH.224.690	Qualitative Research Theory and Methods	3
PH.224.692	Methods in Formative Research and Human Centered Design for Intervention Development	4
PH.224.699	Qualitative Research Practicum III: Analyzing and Writing Qualitative Findings	2

Doctoral students who were Master's students in SBI and have already taken PhD required courses can apply for a waiver for SBI program core requirements. If students have taken more than three years off between degrees, they will still have to earn at least 64 credits during the PhD program. For students who have taken a similar course at other schools, waivers will be evaluated on a case-by-case basis (upon submission of the relevant syllabus and, in some cases, an exam on the content area).

Although the SBI program seminar in the 2nd and 3rd terms (224.861 and 224.862) is not required for PhD students, they are encouraged to register or informally attend sessions as a way to connect to the rest of the SBI cohort or to get information relevant to specific doctoral interests.

C. School-wide Doctoral Requirements

The following three courses are required of all doctoral students in the School. They provide an overview of the appropriate role of research in the public health endeavor and how to conduct research ethically with integrity.

Code	Title	Credits
PH.550.860	Academic & Research Ethics at BSPH	
AND choose one of the below		
PH.306.665	Research Ethics and integrity	3
PH.550.600	Living Science Ethics - Responsible Conduct of Research	1

For each of the following topic areas, students may propose any university course (including special studies) that meets the learning objectives associated with each topic area. After most topic areas is a list of pre-approved courses.

D. Research Design and Methods (7 credits)

The learning objectives for this area are to: (a) understand the fundamentals of designing research studies, (b) expand the student's knowledge and facility with a core research methodology, such as social network analysis, or survey research, and (c) gain a working knowledge of how to appropriately evaluate a social or behavioral intervention.

Although students take several biostatistics and epidemiology courses in this program, 340.694.81 Power and Sample Size for the Design of Epidemiological Studies is a highly recommended online course in 3rd term that is helpful in preparing for the comprehensive examinations and in preparing proposals.

Code	Title	Credits
Research Design and Methods		
PH.140.641	Survival Analysis	3
PH.140.655	Analysis of Multilevel and Longitudinal Data	4
PH.380.611	Fundamentals of Program Evaluation	4
PH.410.615	Research Design in the Social and Behavioral Sciences	3
PH.140.656	Multilevel and Longitudinal Models - Data Analysis Workshop	4
PH.340.717	Health Survey Research Methods	4
PH.221.645	Large-scale Effectiveness Evaluations of Health Programs	4
PH.330.650	Methods in Implementation Science	3
PH.340.705	Advanced Seminar in Social Epidemiology	4
PH.380.711	Issues in Survey Research Design	3
PH.380.603	Demographic Methods for Public Health	4
PH.223.664	Design and Conduct of Community Trials	4
PH.309.616	Introduction to Methods for Health Services Research and Evaluation I	2
PH.140.640	Statistical Methods for Sample Surveys	3
PH.380.605	Advanced Demographic Methods in Public Health	4
PH.380.612	Applications in Program Monitoring and Evaluation	4
PH.380.712	Methods in Analysis of Large Population Surveys	3
PH.410.686	Advanced Quantitative Methods in The Social and Behavioral Sciences: A Practical Introduction	4
PH.410.711	Doctoral Seminar in Mixed Methods for Public Health Research	3
PH.309.617	Introduction to Methods for Health Services Research and Evaluation II	2
PH.340.666	Foundations of Social Epidemiology	3

E. Social and Behavioral Sciences (9-12 credits)

This area covers a broad range of issues and topics and is meant to provide a core foundation in the social and behavioral sciences. The learning objectives for this area are to: (a) understand the major social determinants of health, (b) gain an understanding of multi-level influences on health behaviors, including social, policy, familial, dyadic, and environmental forces that affect health behavior, (c) gain broad knowledge of the major theories of behavior change, (d) understand the theoretical basis and components of major types of behavioral health interventions, such as health education and communication, social marketing, and structural and policy-based interventions, (e) gain a comprehensive understanding of the association between health behavior and health outcomes, and (f) understand how community-based behavioral health initiatives are designed and implemented. This list is not comprehensive. Other courses in social and behavioral sciences offered in the School of Public Health, the School of Arts and Sciences, or elsewhere in the university can be substituted with permission of the PhD Program Coordinator.

Code	Title	Credits
Social and Behavioral Sciences		
PH.410.600	Fundamentals of Health, Behavior and Society	4
PH.410.612	Sociological Perspectives on Health	3
PH.410.863	Doctoral Seminar in Social and Behavioral Research and Practice	1
PH.313.643	Health Economics	3
PH.410.651	Health Literacy: Challenges and Strategies for Effective Communication	3
PH.410.650	Introduction to Persuasive Communications: Theories and Practice	4
PH.313.641	Introduction to Health Economics	3
PH.410.654	Health Communication Programs I: Planning and Strategic Design	4
PH.330.661	Social, Psychological, and Developmental Processes in the Etiology of Mental Disorders	3
PH.340.705	Advanced Seminar in Social Epidemiology	4

PH.410.613	Psychosocial Factors in Health and Illness	3
PH.224.605	Indigenous Health	2
PH.330.607	PREVENTION of MENTAL DISORDERS: PUBLIC HEALTH InterVENTIONS	3
PH.221.605	History of International Health and Development	2
PH.221.624	Urban Health in Developing Countries	3
PH.308.610	The Political Economy of Social inequalities and Its Consequences for Health and Quality of Life	3
PH.410.679	Decoloniality and Global Health Communication	3
PH.410.655	Health Communication Programs II: Implementation and Evaluation	4
PH.222.654	Food, Culture, and Nutrition	4

F. History, Geography, Culture, and Linguistics (6 credits)
The main learning objective associated with this topic area is to prepare students for dissertation fieldwork with regard to knowledge of the history, geography, culture, and language specific to the population they plan to study. Given that there is no required set of courses for this topic area, students and their advisers should include in their course plan which of the two options below the student will pursue:

> **Option 1** includes a combination of direct study courses across the University that is relevant to the student's fieldwork area, including language study. Students who are unable to obtain a field practicum prior to their dissertation fieldwork may benefit from this option. A minimum sum of 6 units is required.
>
> **Option 2** requires enrollment in a special studies course plan (minimum of 6 credits; student enrolls in credit requirement all at one time) with the student's adviser. The special studies should integrate a pre-approved reading list and attendance or participation in at least three cultural, ethnographic, historical, or political activities related to the country or field site for the student's dissertation. Examples of such activities include but are not limited to: review of a related film or documentary, informational meeting with community or health systems representative, seminar attendance, cultural fest attendance/participation, etc. As part of this requirement, students prepare a short paper or essay summarizing their experience and/or findings in the context of their proposed fieldwork or study proposal.

The overall goal in providing these two options is to enable students to fulfill this requirement within the contexts of their dissertation fieldwork, intellectual needs, and/or course availability. For example, enhancing language skills may be appropriate for some students, but not others. Students should also use this area to become familiar with ethnographic, sociological, historical and economic literature in the area – as well as become familiar with regional medical systems and literature on ethnomedical beliefs and practices.

Code	Title	Credits
Option 1: Combination of selected direct study courses for history, geography, culture, or language related to area of student's dissertation country, region, or neighborhood of choice at JHSPH, Homewood Campus, SAIS, etc.		6
PH.224.840	Special Studies and Research Social and Behavioral Interventions (Option 2)	6

G. Public Health Problem Area (6 credits)
The learning objective for this topic area is to acquire detailed knowledge of the public health problem area that the student plans to examine in their dissertation research (e.g., HIV/AIDS, violence, family planning, malaria, mental health, adolescent health, maternal/child health, water and sanitation, nutrition). The student should consider the following aspects of the health issue of interest: (a) epidemiology (b) regional and global variations (c) biologic aspects and medical treatment, (d) social and behavioral interventions addressing the health issue, (e) policy issues relevant to the health issues, and (f) social aspects such as stigma and discrimination associated with the health issue or its interventions.

Code	Title	Credits
Public Health Program Area		
PH.340.646	Epidemiology and Public Health Impact of HIV and AIDS	4
PH.221.627	Issues in the Reduction of Maternal and Neonatal Mortality in Low income Countries	4
PH.380.662	Critiquing the Research Literature in Maternal, Neonatal, and Reproductive Health	4
PH.224.694	Mental Health Intervention Programming in Low and Middle-Income Countries	3
PH.182.626	Issues for Water and Sanitation in Tropical Environmental Health	2
PH.380.661	Clinical Aspects of Maternal and Newborn Health	3
PH.380.665	Family Planning Policies and Programs	4
PH.380.760	Clinical Aspects of Reproductive Health	3
PH.380.761	Sexually Transmitted Infections in Public Health Practice	4
PH.380.762	HIV Infection in Women, Children, and Adolescents	4
PH.222.649	International Nutrition	3

General PhD Requirements

Residency & Outside Department Course Requirements

The total number of course credits to be earned depends upon individual program requirements. But, to meet the Residency requirement, students must complete a minimum of 64 credits of didactic courses in four consecutive terms. When general and program-specific requirements total less than 64, the difference may be made up in electives. Thesis Research (820 series) may not be included in the count, but special studies earning credit that are part of a program's requirements only (840 series) are admissible.

The School also requires that 18 credits must be satisfactorily completed in formal courses outside of the IH Department. Among those 18 credits, no fewer than three courses must be satisfactorily completed in one or more departments of the School of Public Health. The remaining outside credits may be earned in any department or division of the University.

Teaching Experience Requirement

For the most up-to-date policy on teaching assistants please view our Academic Guide (https://www.jhsph.edu/departments/international-health/current-students/academic-guides.html).

Departmental Written Comprehensive Examination

The written comprehensive exam is offered annually soon after the end of the second or fourth term, depending on the program, and is two days in length. Although most of the material is covered in specific courses, it must be understood that graduate education involves much more than the accumulation of specific course credits. Thus, students are responsible for the material, regardless of the particular curriculum followed. Students in the GDEC and Health Systems programs will take

the comprehensive exam at the end of their first year. Students in the SBI and Human Nutrition programs will take the exams in January of their second year. The dates of the exam are announced in the fall.

A minimum overall grade of 75% is required. Those scoring below this level must retake the entire examination at a specially arranged offering 6 months later. Only one reexamination is permitted. Students failing twice are terminated from the doctoral program. MSPH students who pass the PhD examination must enter the PhD program within 3 years of graduation or retake the exam and pass it again.

Students should plan to take the exam when coursework is essentially completed since questions will cover both required courses and those representing the elected field of specialization and research. Because of the infrequent offering, however, students may have to take the exam before the final completion of coursework. While the exam may be taken whenever the student and adviser feel prepared, the timing does not affect the breadth and depth of coverage of course material. Not taking the exam with the rest of the cohort will delay a student's timeline to completion and will likely lengthen their time to completion for the program.

Students must **NOT** pass along exam questions to future generations of students, **NOT** post questions and/or answers online, **NOT** seek, solicit, accept, or consult content from prior comprehensive exams, and **NOT** share or publicize any content from the comprehensive exam in any form with anyone at any time.

Students who require exam accommodations must get the accommodations approved by Disability Support Services at the Bloomberg School of Public Health (https://publichealth.jhu.edu/about/key-commitments/inclusion-diversity-anti-racism-and-equity-idare/student-disability-services/).

Thesis Advisory Committee (TAC)

In order to undertake research leading to a thesis, the student must prepare a research protocol acceptable to a Thesis Advisory Committee (TAC). The objective of the TAC is to provide continuity in the evaluation of the progress and development of the student's thesis work. The TAC is expected to: counsel the student in protocol preparation; determine the protocol's acceptability as a basis for actually carrying out the research; and provide guidance during the conduct of the research and the writing of the thesis.

The TAC should be formed as soon as the student has selected a tentative research topic. This will normally be by the time that coursework has been completed and the Departmental Written Comprehensive Examination has been taken and no later than when the student takes their Preliminary Oral Exam. The student and their adviser decide on the composition of this committee. The Committee will have at least 3 members: the adviser, a second faculty member with advising privileges in the student's department, and at least one faculty member(s) from another program or department. We encourage students to consider adding a fourth and even a fifth member if they provide needed expertise to advise the student appropriately on their thesis topic. Students should have no more than five members total. TAC members from outside of JHU can be approved (for example, a project PI) after consultation with the student's adviser about the composition of the student's TAC. For such requests to be approved a student must have three members of their TAC within JHU, of whom one is their adviser, and their 4th member can be from outside of JHU. At least two of the TAC members must be tenure-track faculty eligible to serve on School examining committees. The proposed members must be approved by the adviser and the relevant PhD Program Coordinator. Students will complete the Thesis Research Documentation Form (PDF) and upload it to their Portfolio once they have selected a TAC and no later than at the time of their Preliminary Oral Exam.

The TAC (3-5 members), the departmental oral examination committee (4 members), the Preliminary Oral Examination Committee (POE) (5 members), and the Committee of Final Readers (CFR) (4 members) are four separate entities. Although it is desirable to provide for overlapping membership, the adviser is the only individual who must be a member of all four committees.

The first meeting of the TAC should occur when the student is developing their thesis proposal. A written progress report should be submitted to the TAC by the student at the time of the meeting and then should be uploaded to the student's Portfolio. This progress report, and all subsequent progress reports, should follow the format described in the following section. Following the meeting, the adviser will discuss this evaluation with the student and will then approve the report in the student's Portfolio as part of the student's academic file.

It is a requirement that the student meet at least every 6 months (either in-person or via phone/skype) with the entire TAC during the thesis phase of the program. Students will submit written progress reports, which will be read and evaluated by the TAC. It is the responsibility of the Department to provide administrative oversight of the TAC to ensure that the student meets and submits reports. Although a once yearly meeting and report is required by the school, the DIH department requires students meet with the TAC more frequently, ideally every 6 months during the conduct of their thesis research, and to prepare a progress report with any questions for the TAC for each meeting. Students who are working outside of the country or at distant sites within the country are not required to return in person for annual TAC meetings, although in-person participation is desirable.

Progress Report Template for TAC Meetings

FIRST TAC REPORT TEMPLATE (During Proposal Development)

A. Describe your likely thesis topic (150 words).

B. What options have you identified for funding your thesis research?

C. What funding challenges remain? Please describe

D. What is the anticipated process for obtaining IRB approval for your thesis project?

E. What is your anticipated timeline for completing oral exams and conducting your thesis research?

F. What are your goals for the next 6 months?

G. Do you have any course requirements or other degree requirements outstanding? If so, please describe

ALL SUBSEQUENT REPORTS (After Oral Exams)

A. Please describe your thesis topic (150 words).

B. Type of analysis list all that apply: e.g. Primary, Secondary, or Both

C. Have you filed the Thesis Proposal Approval form? If not, when do you anticipate doing so?

D. What options have you identified for funding your thesis research?

E. What funding challenges remain? Please describe

F. Have you obtained IRB approval for your thesis project?

G. What is your anticipated timeline for conducting your thesis research and defending your thesis?

H. Have you decided whether to take the papers approach or the traditional thesis approach?

I. Have you discussed with your adviser, thesis project PI and appropriate others regarding authorship of papers for publication?

J. Please review goals you stated in your most recent report. Have you accomplished your goals or made tangible progress toward accomplishing them?

K. What are your goals for the next twelve months?

L. Discuss scientific progress and challenges, and document decision made with the approval of the TAC to address these.

M. If you had any outstanding course or degree requirements as of your most recent report, have you completed them?

Non-Thesis Related Research Experience

All PhD students must complete a research experience in addition to their doctoral thesis work. This is typically conducted with the student's adviser or other faculty member prior to beginning doctoral thesis work. This can take a variety of forms including participating in the development and planning of a new research project, development of data collection instruments for a research project, conducting analysis of existing data, or completing an entire, small research project on a topic other than the thesis topic. It is also possible to fulfill this requirement through an internship or practicum with a foundation, nongovernmental organization, or government or private industry entity, provided it includes a significant research training component. The PhD is a research degree and obtaining a variety of practical training in research is an integral part of the learning process. Once this experience is completed, please fill out the Non-Thesis Related Research PDF Form found in the Portfolio library and upload it to the indicated Portfolio touchpoint.

Thesis Proposal Approval

Regardless of the mode and timing of the general presentation of the proposal, the TAC members will provide continuing guidance in its development. After the student has passed the University Preliminary Oral Exam and before the student begins fieldwork on the dissertation, the TAC should be satisfied that the proposal is of acceptable quality to be implemented, at which point the student must obtain the TAC members' signatures on the Thesis Proposal Approval Form found in the Portfolio library and should be uploaded to the student's Portfolio touchpoint. After approving the thesis proposal, the TAC is expected to continue offering suggestions for further improvement, especially in light of unexpected difficulties encountered in the field.

Realistically, it is not always possible for the student to carry out in the field the specific study designed and presented at the preliminary oral exam. In such cases when the topic of the study changes entirely or if the proposed research undergoes substantial changes, the student must submit a new thesis proposal to the TAC. The TAC approves the proposal and the student will then submit a new Thesis Proposal Approval Form to their Portfolio. If the student's TAC changes, the student will need to submit a new Thesis Research Documentation Form and a new Thesis Proposal Approval Form.

ORAL EXAMS AND DEFENSE

Departmental Oral Exam

The purpose of the departmental oral examination is to determine whether the student is adequately prepared to conduct research. Because the department requires the student to have a proposal for their research in hand and to provide this proposal to the examining committee in advance of the examination, the student may receive constructive criticism of the proposal as part of feedback associated with the examination.

Specific procedures for the examination are as follows:

- The student, in consultation with the Thesis adviser, identifies at least four IH faculty (two faculty must be at least at the level of Associate Professor or Professor to serve as the chair and sub-chair for the exam of which the adviser cannot serve either role) of the committee. At least two faculty must have primary appointments in the International Health Department, of whom one can be the student's adviser. The other two faculty must at least have a joint appointment with IH. One member with a primary appointment in IH must be from the student's program area. One faculty member should be identified as an alternate and cannot count as one of the two required faculty with a primary appointment in IH. Two scientist track faculty are able to sit in the departmental exam committee at the same time. If the student's adviser does not have a primary appointment with IH then at least two other faculty on the committee, excluding the alternate, must have a primary appointment with IH.
- Copies of a research proposal are to be circulated to all participating faculty at least 2 weeks in advance of the exam.
- Departmental Orals must be taken **at least 30 days** before the University Preliminary Oral Exam. When planning this, students should first meet with Elisabeth Simmons, the Academic Program Administrator, to discuss requirements for both exams and timing.
- The most senior faculty member other than the adviser will act as Chair of the examining committee. The Chair is responsible for maintaining an atmosphere of constructive criticism, ensuring that each faculty member has adequate opportunity to question the student, and limiting the total duration of the exam to a maximum of two hours.
- The oral exam will produce one of three results: (1) Unconditional Pass; proceed with the University Preliminary Oral as scheduled; (2) Conditional Pass; before proceeding as scheduled, the student should strengthen their competence in certain identified areas of weakness; or (3) Failure.

Only one reexamination is permitted. Anyone failing the departmental oral examination twice will be terminated from the doctoral program.

Students must formally schedule their Departmental Oral Exam with Elisabeth Simmons at least 2 weeks in advance.

Schoolwide Preliminary Oral Exam

The University Preliminary Oral Examination must be taken no later than the end of the student's second year in the PhD program. Students must have completed their ethics requirement before taking the Preliminary Oral Exam. Students should keep in prior to taking this exam they should have passed the Departmental Oral Examination.

All members of the examining committee represent the department of their primary appointment except the student's adviser who would represent IH if they have a joint appointment. The committee of five members includes the student's Thesis adviser, one other IH faculty member, and three members from at least two other departments in the University, of whom one must be from JHSPH. The most senior faculty member from outside the student's department will serve as the chair and must hold the rank of full or Associate Professor. One adjunct faculty, one scientist track faculty, or one visiting professor may serve on the committee but may not serve as the chair or adviser. Exceptions to this only apply if a student had an adviser assigned to them prior to having their rank changed in which case they can continue to advise the student and can serve on the committee. Two alternates should be identified. One alternate is a DIH faculty while the other is from outside the student's department. Students should be aware that an alternate who may need to serve in place of the committee chair must be of the rank of Associate or full Professor and be from outside the Department of International Health.

The examination's purpose is to determine whether the student is sufficiently knowledgeable of the general field of public health and is capable of undertaking independent research in a specialized area of interest. The question period of about two hours considers the student's coursework as well as the feasibility and logical consistency of any research proposal. The examination is not meant to be a proposal defense; rather, a research proposal permits the student to be questioned on areas of expertise and public health problems with which the student is familiar.

Three results of the examination are possible: (1) unconditional pass; (2) conditional pass; and (3) failure with the possibility for one reexamination. When the second or third outcomes occur, the examining committee is expected to set time limits for the satisfaction of conditions or the reexamination. In case the examining committee fails to set time limits, they will be established by the IH Curriculum and Credentials Committee. In no case may the time allowed exceed one year. Only one reexamination is permitted. Students failing the University Preliminary Oral Examination twice will be terminated from the doctoral program.

For both the Departmental and University Preliminary oral examinations, the student may need to begin polling faculty for dates/times that will be available a couple of months in advance, as many faculty members have fixed teaching and travel commitments. **Paperwork for the University Preliminary Oral Examination must be submitted (37 days) prior to the date of the exam**. Students must meet with Elisabeth Simmons to learn about the necessary forms and other considerations when forming an examination committee.

Thesis REaders and Final Oral Defense

The thesis topic acceptable to the TAC must be a piece of original, independent research focusing on selected aspects of international health in developing or underserved societies.

The Final Oral Defense consists of two parts, a public seminar and a defense of the thesis before a Committee of Readers. The public seminar and closed thesis defense are held on the same day with the seminar being conducted first, followed immediately by the closed defense. Thesis readers should have at least 30 days to read the final thesis prior to the Final Oral defense. The Dissertation Approval Form will be sent to the committee by the student along with a copy of their final thesis at minimum 30 days before the Final Oral Defense indicating the adviser's approval of their thesis as suitable for dissemination to their final thesis defense committee members. After the exam the Committee of Readers must accept the thesis as satisfactory and, in addition, the Committee Chair and the Thesis adviser must write a letter of acceptance to the Associate Dean for Academic Affairs.

If a student defends any time after the last day of 4th term and before the first day of Summer Term, the student must register for three credits of Thesis Research during the Summer Term. The only time PhD students are allowed to register during summer term is when they are defending in the summer. Tuition scholarship is not applied in the summer term.

International students must notify OIS at least two months before defending to determine if there are any issues with their visa. OIS must also be notified that the student is planning on defending, outside of the typical academic year. Any student on a visa must communicate with OIS, and have approval to proceed in the summer, before a student can register and work with Elisabeth Simmons to schedule their exam and submit the required forms.

If a student defends after the last day of Summer Term, the student must register for 1st term as a full-time student.

The Final Thesis must be submitted to the JHU Library, and to the Department of International Health. The Department of International Health accepts final theses as a PDF document. Final thesis and the letters from the Chair of the examination committee and the adviser must be submitted to the School of Public Health Registrar's office, respectively, by the end of the term in which they are registered (if international student) or by add/drop of the following term. Failure to meet this deadline means having to register for the following term.

Any student returning from a leave of absence must be registered for a minimum of two terms before their thesis defense can be scheduled.

Students must contact Elisabeth Simmons at least two months in advance of their desired defense date to learn about defense and convocation deadlines.

Selecting the Committee of Readers

Students must follow instructions on selecting committee members and readers stated in the Appointment of Thesis Readers and Final Oral Exam form found in the Portfolio library. The Associate Dean for Academic Affairs shall, upon recommendation of the student's Department Chair or Associate Chair for Academic Programs, approve a committee of four readers, including the student's thesis adviser, who serves as a departmental reader. The readers should be at the rank stated on Page 15, "Advising and Exam Committee Composition by Faculty Rank." A minimum of three departments of the University, two being from the School of Public Health, must be represented. Two readers must be from the student's Department. All faculty serve on the Committee representing the department of their primary faculty appointment except when the faculty member serves in their capacity as the student's adviser. The most senior faculty member without a primary appointment in the student's Department will serve as Chair of the Committee and MUST hold the rank of Associate or full Professor. A second reader not in the student's department will sever as the Sub-Chair of the Committee and must also hold the rank of Associate or full Professor. With the approval of the Dean for Academic Affairs, the Department may nominate an individual from outside the University to serve as a 5th non-voting member.

PhD Program Policies

For a full list of program policies, please visit the PhD in International Health (https://publichealth.jhu.edu/academics/phd-dept-of-

international-health/) webpage where students can find a link to our most recent Academic Guide (https://publichealth.jhu.edu/departments/international-health/programs/academic-guides-and-competencies/).

Program Concentration Learning Outcomes

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/).

Global Disease Epidemiology & Control

1. Analyze information on global causes and trends of morbidity and mortality to assess gaps in knowledge and propose research to address them in disadvantaged populations;
2. Apply knowledge of biological and socioeconomic factors in global epidemiology to inform prevention and/or mitigation of a disease or condition in a disadvantaged population;
3. Design a community trial, clinical trial or evaluation study that answers a relevant quantitative research question of concern to disadvantaged populations;
4. Critically evaluate the strengths, weaknesses and sustainability of disease control programs and policies;
5. Explore deep didactic and experiential knowledge to expand students' individual interest that will inform their doctoral thesis proposals.

Health Systems

1. Analyze use of summary measures of population health for policy development, resource allocation for programs and interventions, and planning efficient and equitable health care systems;
2. Generate health systems research questions with an understanding of the role of quantitative, qualitative, and mixed method approaches within different study designs, depending on the type of inference required to improve health systems processes;
3. Appraise and apply scientifically sound and appropriate methods and tools to design a research study including a conceptual/theoretical framework, study instrument, sampling design, and plan for data analysis;
4. Compose and communicate scientific findings through written and oral methods to scientific audiences and peers;
5. Apply and appraise health systems frameworks, strategies, and tools (e.g., systems thinking, budgeting, financial management, performance management, etc.) to identify and address gaps to strengthen health systems in LMICs.

Human Nutrition

1. Explore and examine public health nutrition problems in their biological, social, cultural, behavioral and epidemiological context;
2. Examine how nutrient metabolism and specific nutrient functions in body systems apply to disease in human populations;
3. Critically analyze and evaluate the reliability and validity of indicators of nutritional status (anthropometry, biochemical markers), and measures of dietary intake and food-related behaviors, for assessment of individuals, groups, or populations for various purposes;
4. Evaluate existing evidence in a review of peer-reviewed literature to frame a research question to address a nutrition problem in terms of study goals and specific aims, study design and methods to address the aims;
5. Evaluate policy options to address food and nutrition-related health problems considering the policy process, stakeholder engagement, advocacy, and economic considerations.

Social & Behavioral Interventions

1. Evaluate and critique the relevant literature on a topic and frame a research question in terms of study goals and specific aims;
2. Design a theoretically-grounded research study on social, cultural, and behavioral aspects of health, differentiating between qualitative and quantitative designs;
3. Assess and critique the strengths, weaknesses, and variations in practice for the range of qualitative methods used in public health, including participant observation, interviews, focus groups, formative research, and content analysis; and design research that uses these methods appropriately and to their best advantage;
4. Design, conduct, and analyze a methodologically rigorous qualitative research study;
5. Analyze data through principles of psychometrics and using psychosocial statistics, including latent variable models, factor analyses, latent class analyses, structural equation modeling, and latent trait analyses (IRT).