PHD-PHS GLOBAL HEALTH AND POPULATION

COURSE REQUIREMENTS FOR
HEALTH SYSTEMS AREA OF SPECIALIZATION

<table>
<thead>
<tr>
<th>CORE REQUIREMENTS</th>
<th>CREDITS (17.5)</th>
<th>YEAR WHEN COURSE SHOULD BE TAKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHS 2000 A/B (Fall &amp; Spring) Quantitative Research Methods in PHS</td>
<td>10.0</td>
<td>1</td>
</tr>
<tr>
<td>SBS 506 (Fall 1) Introduction to History, Politics, &amp; Public Health: Theories of Disease Distribution &amp; Health Inequities</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>EPI 201 (Fall 1) Introduction to Epidemiology: Methods I</td>
<td>2.5</td>
<td>1</td>
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<tr>
<td>EPI 202 (Fall 2) Epidemiologic Methods 2: Elements of Epidemiologic Research</td>
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<td>1</td>
</tr>
<tr>
<td>HPM 548 (option of Fall 1 or Spring 1) Responsible Conduct of Research</td>
<td>1.25*</td>
<td>1</td>
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</tbody>
</table>

*Auditing grade option available for HPM 548.

<table>
<thead>
<tr>
<th>DEPARTMENT REQUIREMENTS</th>
<th>CREDITS</th>
<th>YEAR WHEN COURSE SHOULD BE TAKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHP 210 (Fall) Concepts and Methods in Global Health and Population</td>
<td>5.0</td>
<td>1</td>
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<thead>
<tr>
<th>HEALTH SYSTEMS REQUIREMENTS</th>
<th>CREDITS (40.0)</th>
<th>YEAR WHEN COURSE SHOULD BE TAKEN</th>
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<tbody>
<tr>
<td><strong>Domain I: Health System Performance (5.0)</strong></td>
<td></td>
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<tr>
<td>GHP 501 (Spring 1) Modeling for HS Analysis &amp; Priority Setting</td>
<td>2.5</td>
<td>1</td>
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<tr>
<td>GHP 506 (Spring 2) Measuring Population Health</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td><strong>Domain II: Explanation of Health Systems Performance with Social Science Theories (25.0)</strong></td>
<td>20.0</td>
<td>1 and/or 2</td>
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<tr>
<td>GHP 202 (Spring 1) Comparative Health Systems I</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>GHP 203 (Spring 2) Comparative Health Systems II</td>
<td>2.5</td>
<td>1</td>
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**20.0 credits from any combination of the below fields**

1. **ECONOMICS**
   - GHP 237 Behavioral Economics and Global Health (2.5)
   - ECON 2020a Microeconomic Theory I (5.0) *this course serves as a prerequisite for most courses in economics across Harvard and MIT
   - ECON 2020b Microeconomic Theory II (5.0) *this course serves as a prerequisite for most courses in economics across Harvard and MIT
   - ECON 2035 Psychology and Economic Theory (5.0)
   - ECON 2326 Economic Development: Theory, & Evidence (5.0)
   - ECON 2390 Development Economics (5.0)
   - ECON 2390D Research in Development Econ (5.0)
   - ECON 2465 Health Economics (5.0)
   - ECON 3460c Research in Health Economics (5.0)
   - MIT 14.271 Industrial Organization (5.0)
   - MIT 14.272 Industrial Organization (5.0)

20.0 credits

1 and/or 2
### Domain III: Evaluation of Interventions to Improve Health Systems Performance (10.0)

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<tr>
<th>Course</th>
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<tr>
<td>GHP 228 (Spring) Econometric Methods in Impact Evaluation</td>
<td>5.0</td>
<td>2</td>
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#### 5.0 CREDITS FROM THE FOLLOWING:

- API 222 A/B Machine Learning and Big Data Analytics (5.0)
- BST 223 Applied Survival Analysis (5.0)
- GOV 2001 Advanced Quantitative Research Methods (5.0)
- GOV 2798 Field Experiments for Policy & Program Eval (5.0)
- GHP 525 Econometrics for Health Policy (5.0)
- GHP 270 Knowledge and Research Design in Global Health (2.5)
- GHP 292 Research Methods for Health System Analysis (2.5)
- ECON 2110 Econometric Methods for Applied Research (5.0)
- ECON 2115 Econometric Methods II (5.0)
- ECON 2120 Intro to Applied Econometrics (5.0)
- MIT 14.380 Statistical Methods in Econometrics (5.0)
- MIT 14.381 Applied Econometrics (5.0)
- MIT 14.382 Econometrics (5.0)
- MIT 14.385 Nonlinear Econometric Analysis (5.0)
- MIT 14.386 New Econometric Methods (5.0)
- SBS 263 Multilevel Stat Methods (5.0)
- EPI 501 Dynamics of Infectious Diseases (2.5)
- EPI 530 Introduction to Infectious Disease Modeling (2.5)

### Total Credits Required: 62.5

**NOTE:** All courses taken to fulfill a requirement must be taken for a letter grade (ordinal). No Audits or Pass/Fail grades are permitted with the exception of HPM 548. Optional courses may not be available every year. Students are advised to check early in the year and plan accordingly with advisor.
# Course Requirements for Population and Family Health Area of Specialization

## Core Requirements

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<th>Course</th>
<th>Credits</th>
<th>Year Course Should Be Taken</th>
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*Auditing grade option available for HPM 548.

## Department Requirements

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<tbody>
<tr>
<td>GHP 210 Concepts and Methods in Global Health and Population (Fall)</td>
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## Population and Family Health Requirements

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<tr>
<td>GHP 220 Introduction to Demographic Methods (Fall 2)</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>GHP 506 Measuring Population Health (Spring 2)</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>GHP 265 Ethics of Global Health Research (Spring 2)</td>
<td>2.5</td>
<td>1 or 2</td>
</tr>
<tr>
<td>Methods (students must select 10.0 credits from the options in the list below)</td>
<td>10.0</td>
<td>Varies</td>
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### Rationale

These courses provide in-depth analytical skills that were briefly introduced in PHS 2000. Choices should be based on the research the student plans to undertake for his/her dissertation.

- BST 222 (Fall) Basics of Statistical Inference (5.0) BST 210 or BST 213 or PHS 2000A&B
- BST 223 (Spring) Applied Survival Analysis (5.0) choice of BST 210; 213; 232; 260; PHS 2000A
- BST 226 (Spring) Applied Longitudinal Analysis (5.0) choice of BST 210; 213; 232; 260; PHS 2000A
- BST 228 (Fall) Applied Bayesian Analysis (5.0) BST 210 or PHS 2000A&B and BST 222
- GHP 534 (Spring 2) Introduction to Spatial Methods for Public Health (2.5)
- EPI 207 (Fall 1) Advanced Epidemiologic Methods (2.5) EPI 204 or (BST210 and EPI289) or BST 233
- EPI 289 (Spring 1) Epidemiology Methods III: Models for Causal Inference (2.5) EPI 201 and 202
- SBS 263 (Spring) Multilevel Statistical Methods: Concept and Application (5.0)
- STAT 160/260 (Fall) Design and Analysis of Sample Surveys (5.0)
- GHP 228 (Spring) Econometric Methods in Impact Eval (5.0) Econometrics and intermediate micro-economics required
- EDU S043 (Fall) Multilevel and Longitudinal Models (5.0) S052, STAT 139, or equivalent
1. NONCOMMUNICABLE DISEASES (NCDs)

**Rationale:** This collection of multidisciplinary courses will deepen students’ understanding of the epidemiology of NCDs and prepare them to conduct research on these emerging global health threats. GHP 216 is an introductory course to the global epidemiology of NCDs, strategies for primary prevention and implementation of health services with a focus on low- and middle-income countries. GHP 207 covers the concepts and methods required to estimate the effect of risk factors or interventions on disease outcomes at the population level. While most of the course readings and examples are drawn from the field of cardiovascular epidemiology, the methods apply broadly to most NCDs. ID 537, GHP 208, EPI 213, and ID 240, will provide students with an in-depth understanding of NCDs including obesity, mental health, cancer, and injuries, respectively.

- GHP 207 (Spring 1) Risk Factors and Population Health (2.5)
- GHP 208 (Spring 2) Global Mental Health Delivery: From Research to Practice (2.5)
- GHP 213 (Summer 1) Global Cardiovascular Disease Prevention - Methods, Study Designs and CS (2.5)
- ID 510 (Fall 2) Nutritional Epidemiology of Cancer (2.5)
- ID 537 (Fall) Obesity Epidemiology (2.5)
- EPI 213 (Spring 1) Epidemiology of Cancer (2.5)
- ID 240 (Spring 1) Principles of Injury Control (2.5)

2. MATERNAL & CHILD HEALTH (includes reproductive health)

**Rationale:** ID 217 and GHP 208 focus on cross-cutting global health issues affecting maternal and child health (MCH), introducing students to the emerging global health challenges these present. GHP 231 introduces students to the concepts and current issues, while EPI 269 enables students to build on this foundation. GHP 504 introduces students to qualitative research methods with emphasis on MCH topics. SBS 246 examines MCH program and policy implementation.

- GHP 204 (Fall 1) Foundations of Global Mental Health (2.5)
- GHP 208 (Spring 2) Global Mental Health Delivery: From Research to Practice (2.5)
- GHP 209 (Spring) Early Childhood Development in Global Contexts (5.0)
- GHP 231 (Fall 1) Sexual and Reproductive Health: A Global Perspective (2.5)
- GHP 504 (Spring 1) Qualitative Research Methods for Global Health (2.5)
- GHP 533 (Fall 2) Human Rights Dilemmas in Child Protection (2.5)
- ID 217 (Spring) Nutrition and Global Health (2.5) *Not offered 2022-2023
- EPI 269 (Fall 2) Epidemiologic Research in Obstetrics and Gynecology (2.5)
- SBS 220 (Spring 1) Society and Its Effects on Child Health (2.5)
- SBS 246 (Fall 2) Issues in Maternal & Child Health Programs and Policies (2.5)

3. INFECTIOUS DISEASE

**Rationale:** GHP 539 and IID 201 give a multidisciplinary perspective on Infectious Diseases (IDs). EPI260 provides modelling tools and GHP 534 provides spatial epidemiology tools, both applicable to several IDs covered in GHP 539 and IID 201. GHP 255 covers the rationale and mechanisms for major biological, behavioral, and structural HIV prevention and treatment interventions. Lastly, GHP 532 uses a case-based teaching approach to address the design of efficient and effective global health interventions.

- GHP 255 (Spring 1) HIV Interventions: Rationale, Design, and Evaluation (2.5)
- GHP 539 (Fall 1) Control of Infectious Diseases in LMICs: Social, Political & Economic Dimensions (2.5)
- IID 201 (Fall 1) Ecology, EPI, and control of important parasitic diseases of developing areas (2.5)
- EPI 260 (Spring 2) Mathematical Modeling of Infectious Disease (2.5)
- GHP 532 (Spring 1) Introduction to Global Health Care Delivery (2.5) *Not offered 2022-2023
- GHP 534 (Spring 2) Introduction to Spatial Methods for Public Health (2.5)

4. ECONOMICS

**Rationale:** The courses Econ2010a and 2020b are microeconomic theory courses that are required for more advanced courses in the economics department. When possible, students should take this microeconomic sequence in their first year and proceed to higher level courses in year two. The development economics sequence is useful particularly for
students planning field work. Psychology and Economics Theory covers issues in behavioral economics that have health applications.

- ECON 2020a (Fall) Microeconomic Theory I (5.0)
- ECON 2020b (Spring) Microeconomic Theory II (5.0)
- ECON 2338 (Spring) Behavioral Development Economics (5.0)
- ECON 2326 (Fall) Economic Development: Theory and Evidence (5.0)
- ECON 3017 (Fall) Research in Health Economics (5.0)
- ECON 2035 (Fall) Psychology and Economic Theory (5.0)

5. RISK AND DECISION SCIENCE*

**Rationale:** This sequence of courses introduces quantitative methods and simulation modelling for decision analysis, cost effectiveness analysis, and economic evaluation. RDS 280 is an introductory course in decision analysis. RDS 285 and GHP 501 introduce different mechanistic modelling methods for decision analysis. GHP 201 builds on GHP 501 and offers advanced methods for modeling for health system analysis and priority setting in global health. RDS 282 is an intermediate-level course in economic evaluation, and RDS 290 is focused on the application of decision science methods to a research problem chosen by the student. The sequence RDS 280, 285, 282 and 290 have been deliberately developed to provide an introductory/intermediate sequence of decision science methods. RDS 284 focuses on the theoretical underpinnings of decision science and is targeted to doctoral students with interests in this area.

- RDS 202 (Spring) Decision Science for Public Health (2.5)
- RDS 280 (Fall 2) Decision Analysis for Health and Medical Practices (2.5)
- RDS 282 (Spring 2) Economic Evaluation of Health Policy & Program Management (2.5)
- RDS 284 (Fall) Decision Theory (5.0)
- RDS 285 (Spring 1) Decision Analysis Methods in Public Health and Medicine (2.5)
- RDS 290 (Spring) Experiential Learning & Applied Research in Decision Analysis (2.5)
- RDS 500 (Fall 1) Risk Assessment (2.5)
- GHP 501 (Spring1) Modeling for Health System Analysis & Priority Setting (2.5)
- GHP 201 (Spring 2) Advanced Modeling for Health System Analysis & Priority Setting (2.5); GHP 501

*Foundational courses in microeconomic theory (ECON 2020a & 2020b) are very useful for students intending to concentrate in this area.

6. PROPOSING AN ALTERNATIVE TRACK

It is anticipated that most students will identify two tracks suitable to their interests. Should this not be the case, students in the Population and Family Health AoS will be allowed to propose one track specifically designed for their own research. The process for this is outlined below.

An email containing the following materials should be sent to Goodarz Danaei, Head of AoS, copying your faculty advisor and Barbara Heil:

- The name of the proposed track and the list of courses (complete course title, credits, and instructor) that are being proposed to support this track making sure that the sum total is 10.0 credits.
- Provide a brief justification as to how these courses will support your proposed dissertation work.
- Provide an email/statement from your faculty advisor supporting this request.

These materials will be reviewed, and, in most cases, a decision will be communicated within one week.

**Total Credits Required: 60**

**NOTE:** All courses taken to fulfill a requirement must be taken for a letter grade (ordinal). No Audits or Pass/Fail grades are permitted with the exception of HPM 548. Credits from courses appearing in multiple tracks may only be counted towards a single track.