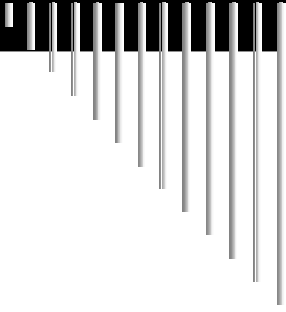

DEPARTMENT OF EPIDEMIOLOGY



STUDENT HANDBOOK 2003-2004

Epidemiology, the study of the frequency, distribution, and determinants of disease in humans, is a fundamental science of public health. Epidemiologists use many approaches, but the ultimate aim of epidemiologic research is the prevention or effective control of human disease.



Harvard School of Public Health

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SECTION ONE: GENERAL ACADEMIC INFORMATION

INTRODUCTION

This handbook describes the academic requirements, policies and programs in the Department of Epidemiology. The contents of this handbook are a supplement to the official *Harvard School of Public Health Student Handbook*. Epidemiology students are responsible for general knowledge of, and adherence to, the policies and requirements described in the Official Register and the departmental handbook. In the instance of any apparent conflict, policies and official requirements of the School as set forth in the *Harvard School of Public Health Catalog* (<http://www.hsph.harvard.edu/catalog/pdf/catalog.pdf>) and the *Harvard School of Public Health Student Handbook* (<http://www.hsph.harvard.edu/registrar/handbook/index.shtml>) will take precedence.

GENERAL INFORMATION

Advisors

The Epidemiology Department appoints a faculty advisor for each student, seeking to match the student with an advisor who is working in an area related to their field of interest. The advisor provides the student with academic guidance, information, and general assistance. The advisor and the advisee must meet at least twice during the academic year (before the start of the fall and spring semesters) to discuss the student's proposed course of study and any procedural or personal issues relevant to the student's academic experience. For more information on advising refer to the HSPH student handbook.

Course Waivers

- **School-Wide Core Courses (EPI200 or EPI201):** Students wishing to waive either EPI200 or EPI201 must submit a *Waiver of Core Course Form*, signed by the relevant instructor. Students must present a transcript and a copy of the course description to the instructor to verify appropriate coursework. If the request to waive a core course is approved, the student will not be required to enroll in the core course.
- **EPI Department Required Courses:** Students wishing to request a waiver for other departmental required courses must have the approval of their academic advisor and the Chair of the Department. Any student requesting a waiver of a required Epidemiology course must first submit documentation to their advisor for approval. The request can then be submitted in writing, along with the approval from the advisor, to the chair for a final decision. The student and their academic advisor will be notified of the decision on the waiver and a copy will be placed in the student's academic file.

Winter Session

In general all full-time students are expected to participate in WinterSession activities, whether for credit or not for credit, on-campus or off-campus, in accordance with their individual needs and interests. WinterSession is optional for part-time students.

The Epidemiology Department requires that each full-time student formulate a plan (or request an exemption) for the WinterSession, and e-mail that plan or request to their advisor by December 1. The advisor will either approve, or require a change. Questions or concerns can be brought to the department chair for adjudication. All full-time students must report their approved WinterSession activities via e-mail to the academic services coordinator.

Acceptable activities might include winter session courses, tutorials/independent study projects (with faculty members who are willing to take these on), travel tutorials, field placements, practica, community service projects, courses organized and taught by students, and skill-building workshops sponsored by administrative departments of the school. Approved activities need not be located on campus, or even in the United States.

CALENDAR 2003-2004*

FALL: SEPTEMBER 8 – DECEMBER 19	
<i>Fall 1: September 8-October 24</i>	<i>Fall 2: October 27-December 19</i>
WINTERSESSION: JANUARY 5 – JANUARY 28	
SPRING: FEBRUARY 2 – MAY 21	
<i>Spring 1: February 2 – March 19</i>	<i>Spring 2: March 29 – May 21</i>
COMMENCEMENT: JUNE 10	
SUMMER: JULY 1 – AUGUST 13	
<i>Summer 1: July 1 – July 23</i>	<i>Summer 2: July 26 – August 13</i>

For a complete academic calendar, including school holidays and course deadlines refer to the HSPH Student Handbook or visit the Registrar's Office website at <http://www.hsph.harvard.edu/registrar/>.

SECTION TWO: MASTER'S STUDENT INFORMATION

MASTER'S OF SCIENCE IN EPIDEMIOLOGY (40-credit summer only program)

The summer only (40-credit) SM is designed primarily for clinicians and other health care professionals who wish to develop the quantitative and analytic skills needed for clinical research. This program is limited to students who begin their training with the Program in Clinical Effectiveness

Required courses:

Summer 1

EPI208	Introduction to Clinical Epidemiology
BIO206	Introductory Statistics for Medical Research
BIO207	Statistics for Medical Research
Or BIO208	Statistics for Medical Research, Advanced
_____	5 Credits of Electives

Summer 2

EPI236	Analytical Aspects in Clinical Epidemiology
EPI202	Elements of Epidemiologic Research
Or BIO214	Principles of Clinical Trials
BIO224	Survival Methods in Clinical Research
_____	5 Credits of Electives

The final 10 credits of the program is the completion of a supervised research project (EPI310).

Sample Master's of Science Schedule (40-Credit Summer Only Program)

Summer (Year One)	
Summer 1	Summer 2
EPI208 Introduction to Clinical Epidemiology	
BIO206 Introductory Statistics for Medical Research	BIO207 Statistics for Medical Research II OR BIO208 Statistics for Medical Research, Advanced
<i>5 Credits of Electives from other Summer Session Course Offerings</i>	
Summer (Year 2)*	
Summer 1	Summer 2
EPI236 Analytical Aspects in Clinical Epidemiology	EPI202 Elements of Epidemiologic Research OR BIO214 Principles of Clinical Trials
	BIO224 Survival Methods in Clinical Research
<i>5 Credits of Electives from other Summer or Winter Session Course Offerings</i>	
EPI310 Research in Clinical Epidemiology (10 Credits) (Summer or Winter Session Only)	

**The second year of course work can be done part-time over 2 consecutive summers.*

For more information on the summer-only program visit our website at <http://www.hsph.harvard.edu/epidemiology/>.

MASTER'S OF SCIENCE IN EPIDEMIOLOGY (40-credit)

The two-semester (40-credit) SM provides students with basic skills in epidemiologic and quantitative methods in computing, in preparation for research or academic careers. The two-semester program is open to applicants with a medical degree or master's-level background in biology.

Required courses:

EPI201	Introduction to Epidemiology
EPI202	Elements of Epidemiologic Research
EPI203	Design of Case-Control and Cohort Studies
EPI204	Analysis of Case-Control and Cohort Studies
BIO201	Introduction to Statistical Methods
BIO210	Analysis of Rates & Proportions

The remainder of the schedule reflects areas of special interest and may include supervised research.

Credit Requirements

40 Total credits earned
30/40 credits are ordinal
10/30 credits in Epidemiology
10/30 credits in Biostatistics

Sample Master's of Science Schedule (40-credit)

Fall 1	Fall 2	Spring 1	Spring 2
EPI201 Intro to Epidemiology	EPI202 Elements of Epidemiologic Research	EPI203 Design of Cohort and Case-Control Studies	EPI204 Analysis of Case-Control and Cohort Studies
BIO201 Introduction to Statistical Methods		BIO210 Analysis of Rates and Proportions	
10 Credits of Electives (<i>Courses related to area of interest</i>)		10 Credits of Electives (<i>Courses related to area of interest</i>)	

MASTER'S OF SCIENCE IN EPIDEMIOLOGY (80-credit)

The master's programs provide students with basic skills in epidemiologic and quantitative methods and in computing, in preparation for research and academic careers. The program is primarily intended for students who expect to continue toward a doctoral degree. The four-semester (80-credit) SM program is designed for individuals who hold a bachelor's degree and have a strong background in biology and mathematics. In addition to epidemiology and statistics courses, students study the basic medical sciences and the biological aspects of public health problems.

Required courses

EPI201	Introduction to Epidemiology
EPI202	Elements of Epidemiologic Research
EPI203	Design of Case-Control and Cohort Studies
EPI204	Analysis of Case-Control and Cohort Studies
BIO201	Introduction to Statistical Methods
BIO210	Analysis of Rates & Proportions

Recommended courses

<i>EH205</i>	<i>Human Physiology</i>
<i>BIO211</i>	<i>Regression and Analysis of Variance in Experimental Research</i>
<i>BIO213</i>	<i>Applied Regression for Clinical Research</i>
<i>BIO223</i>	<i>Applied Survival Analysis & Discrete Data</i>
<i>BIO232</i>	<i>Methods I</i>
<i>BIO233</i>	<i>Methods II</i>
<i>CCB210</i>	<i>Introduction to Cancer Biology</i>
<i>ID204</i>	<i>Principles of Toxicology</i>
<i>ID208</i>	<i>Pathophysiology of Human Disease</i>
<i>ID265</i>	<i>Practice of Quantitative Methods</i>

Credit Requirements

80 Total credits earned
60/80 credits are ordinal
30 credits in Epidemiology (25 must be ordinal)
15 ordinal credits in Biostatistics

In addition to the course requirements, candidates in the four-semester SM program must complete a master's thesis. Master's candidates who apply and matriculate in the EPI doctoral program can utilize the master's thesis as one of their papers.

MASTER'S THESIS GUIDELINES:

Candidates for the two-year master's program in epidemiology must demonstrate a proficiency in key aspects of acquisition, analysis or presentation of epidemiological data. You can fulfill this requirement in one of two ways:

1. Presentation of a published or publishable manuscript on any topic in epidemiology.
2. Presentation of a feasible study protocol in the general form of an R01 grant application.

The text of the manuscript or protocol should be about 2500 - 3500 words in length and must not exceed 6000 words. The thesis must be the result of work done after matriculation in the department, but may also draw on earlier efforts. The paper may have several authors, but the student must legitimately be the first author.

Students must present an acceptable plan for preparing the thesis to the academic advisor no later than the end of your fifth academic quarter of study. The Chair of the Department must also accept the plan. The thesis must be submitted by the beginning of the quarter preceding graduation, and it must be accepted by the advisor, or by another Harvard faculty member whom the student and the advisor agree to designate as reader.

A good starting point for the thesis may be a term paper. Careful revision according to the original instructor's suggestions, and expansion in consultation with that instructor or the advisor can lead to the finished product.

Students may wish to dedicate a tutorial (EPI300) to this effort, but are not required to do so.

Sample Master's of Science Schedule (80 Credit Program)

<i>First Year</i>			
Fall 1	Fall 2	Spring 1	Spring 2
EPI201 Intro to Epidemiology	EPI202 Elements of Epidemiologic Research	EPI203 Design of Cohort and Case-Control Studies	EPI204 Analysis of Case- Control and Cohort Studies
BIO201 Introduction to Statistical Methods		BIO210 Analysis of Rates and Proportions	
10 Credits of Electives (<i>Courses related to area of interest</i>)		10 Credits of Electives (<i>Courses related to area of interest</i>)	
Begin Work on Topic/Research for Master's Thesis			
<i>Second Year</i>			
Fall 1	Fall 2	Spring 1	Spring 2
20 Credits of Electives (<i>Courses related to Biostatistics and area of interest</i>)		20 Credits of Electives (<i>Courses related to area of interest</i>)	
Work on Master's Thesis (<i>Master's Thesis Topic Submitted to Advisor and Chair of Department for approval</i>)	Work on Master's Thesis	Work on Master's Thesis	Completed Master's Thesis Submitted to Reader at Beginning of the Spring 2 Semester

Master's Students Application to the Doctoral Program

Epidemiology master's candidates are welcome to apply to the doctoral program during the normal admissions cycle. Any master's candidate wishing to apply to the doctoral program must submit the following to the admissions office:

General Petition to the HSPH Registrar's Office
General application to the Admissions office including:

Two new letters of recommendation (*Letter from an HSPH faculty member advised*)
A new statement of Purpose

SECTION THREE: DOCTORAL STUDENT INFORMATION

DOCTOR OF SCIENCE/DOCTOR OF PUBLIC HEALTH IN EPIDEMIOLOGY

The doctoral programs are designed for students who plan careers in epidemiologic research or teaching and for those who aspire to leadership roles in the health professions. Applicants to the SD program should hold at least a bachelor's degree and have a strong background in biology and mathematics. For these individuals, the degree generally takes four to five years to complete; candidates with relevant doctoral degrees may complete the program in three years. The DPH degree is available to students holding a prior doctorate and an MPH degree. The program for the DPH degree is identical to that of the DS degree.

Required courses:

EPI201	Introduction to Epidemiology
EPI202	Elements of Epidemiologic Research
EPI203	Design of Case-Control and Cohort Studies
EPI204	Analysis of Case-Control and Cohort Studies
EPI205	Practice of Epidemiology
EPI207	Advanced Epidemiologic Methods
EPI247	Epidemiologic Methods Development
BIO201	Introduction to Statistical Methods
BIO210	Analysis of Rates & Proportions
EH205	Human Physiology – or equivalent*
ID208	Pathophysiology of Human Disease – or equivalent*
ID228	Principles of Screening

Recommended courses

<i>BIO211</i>	<i>Regression and Analysis of Variance in Experimental Research</i>
<i>BIO213</i>	<i>Applied Regression for Clinical Research</i>
<i>BIO223</i>	<i>Applied Survival Analysis & Discrete Data</i>
<i>BIO232</i>	<i>Methods I</i>
<i>BIO233</i>	<i>Methods II</i>
<i>CCB210</i>	<i>Introduction to Cancer Biology</i>
<i>EPI289</i>	<i>Causal Inference and Study Design in Epidemiologic Research</i>
<i>ID204</i>	<i>Principles of Toxicology</i>
<i>ID265</i>	<i>Practice of Quantitative Methods</i>

Ordinal Credits

- Each doctoral candidate is required to have a minimum of 40 ordinal credits. For candidates with one major, you must have 20 credits in your major, and 10 credits in each of 2 minor fields, one of which must be biostatistics.

- For candidates with double majors, you must have 20 credits in each of your major fields and 10 credits in a minor field. For more information refer to your *HSPH Student Handbook*.
- In addition to the ordinal credit requirements, each candidate is also required to meet all of the departmental course requirements. Also required are 10 credits in substantive (*see list on page 18*) courses offered by the department.

Prospective/Final Program

All doctoral candidates are required to submit both a prospective and final program to the registrar's office. When filling out the prospective program please remember that the introductory Epidemiology course (EPI200, EPI201 or EPI208) cannot be used towards fulfilling the 20 credits required in your major. Likewise, the introductory biostat course (BIO200, BIO201 or BIO205) cannot be used towards the 10 credits required for your biostat minor. The prospective program must be submitted by the end of the 2nd Semester. For additional information and the timeline for the prospective/final programs please refer to the *HSPH Student Handbook*.

Credit Requirements

EPI Required Courses (*see list on page 11*)
 10 credits in Substantive Courses (*see list on page 18*)
 Minimum of 40 ordinal credits
 20/40 credits above intro level courses in EPI (major)
 10/40 credits above intro level in Biostats (minor 1)
 10/40 credits in 2nd minor of your choice

Unless courses equivalent to those described for the master's program have been taken previously, most of the first two years are devoted to coursework. Subsequently, doctoral candidates must pass the departmental written examination and the school-wide oral qualifying examination; adhere to the doctoral timetable for maintaining satisfactory progress; complete, defend, and submit a thesis; and gain experience in teaching and research.

** Physicians are not required to take these courses, and other students with relevant prior coursework in physiology or pathophysiology may petition to waive this requirement (see page 4).*

Written Examination

The written examination is divided into two sessions. The first session covers methods, including problem identification and formulation, study design, validity and efficiency considerations, study execution, basic statistical concepts, data analysis, and inference. As a guideline, a student should not attempt this exam until she or he has completed all of the following courses:

- BIO 200 or BIO201
- BIO 210
- EPI 200 or EPI201
- EPI 202
- EPI 203
- EPI 204
- EPI 207
- ID228
- EPI 247

The second session covers substantive knowledge of epidemiology. Candidates are expected to be familiar with at least three disease-defined or exposure-defined areas, at levels of coverage given in the department's related courses. Candidates are encouraged to keep current with important recent developments in the topics they plan to select by regularly reading the major journals. Areas included in recent examinations are:

- Cardiovascular disease
- Respiratory disease
- Cancer
- Mental illness
- Infectious disease
- Environmental and occupational health
- Nutritional epidemiology
- Reproductive epidemiology
- Pharmacoepidemiology
- Epidemiologic methods

Procedure of the Examination

The examination is offered once a year, in June. Candidates are asked to notify the chair's office of their intention to sit for the exam at least one month in advance. Additionally, participants are asked to submit a list of three substantive areas in which they wish to be examined. Regardless of the choices made on this list, however, students can choose to answer any five questions in the substantive section of the examination. (Any students supported on training or research grants, however, are expected to answer the substantive questions in that area. Some training grants impose this as a requirement; students for whom this requirement pertains will be informed well in advance.)

The examination is closed book. Calculators are permitted. Prior to the exam, copies of previous years' exams will be available for review.

The written examination is graded blindly. Once the exams are graded, the decision of pass or fail of the written exam represents the consensus of the faculty examiners, and takes into account the student's overall academic performance. The department endeavors to notify students in writing of the results within two weeks of the exam. Any student not passing the written exam is allowed a second and final attempt during the next examination period. The methods and substantive portions are graded separately; students who pass one section but not the other on the first attempt are not required to retake the section they passed.

Oral Exam and Committee

- When submitting the final program, students will also provide the nominees for the oral examination committee. Each member of the examination committee must hold an HSPH faculty appointment in disciplines representing the major field/s as well as the minor field/s.
- The Committee on Admissions and Degrees (CAD) appoints the chair of the oral exam committee at the time of the approval of the final program. The research advisor may not serve as chair of your oral examination committee
- Epidemiology students cannot schedule their oral exam until they have passed the departmental comprehensive written exam.

Research Committee

Upon successful completion of your oral examination you must submit the nomination for your research committee. The research advisor must be from the student's department. However, members of the research committee may include faculty members outside HSPH.

Doctoral Thesis

The doctoral thesis represents a contribution of knowledge through original scholarly research. Specific thesis requirements and procedures are outlined in detail in the *HSPH Student Handbook*. Below you will find supplemental guidelines for doctoral candidates.

The department requires that students notify the chair's office when they have scheduled their thesis defense. Also, a copy of the final thesis must be submitted to the department for faculty review at least one week prior to the scheduled defense.

Training Grants

The Department of Epidemiology has a long tradition of excellence in research and training. Through support from the National Institutes of Health, pre- and post- doctoral fellowships are available in areas such as Aging, Cardiovascular Epidemiology, Cancer Epidemiology, Molecular and Genetic Epidemiology, Psychiatric Epidemiology, Environmental and Occupational Epidemiology, Oral Epidemiology and Nutritional Epidemiology of Cancer. These fellowships are available only to citizens and permanent residents of the United States. For more information on fellowships available through the Department of Epidemiology contact the Coordinator of Academic Services.

Application for Dual Degree Status

Doctoral candidates wishing to apply for dual degree status must submit the following to the Admissions Office:

General Petition to the HSPH Registrar's Office
General application to the Admissions office including:

Two new letters of recommendation (*Letter from an HSPH faculty member advised*)
A new statement of Purpose

Candidates should also contact the appropriate department for any additional application requirements. For additional admissions information visit the HSPH Admissions website at <http://www.hsph.harvard.edu/admissions/>

SUPPLEMENTARY GUIDELINES FOR DOCTORAL DEGREE

The doctoral thesis in the Department of Epidemiology at Harvard School of Public Health should reflect the ability of the student to perform independent high quality epidemiologic research. The requirements for the doctoral degree, and the necessary steps towards meeting those requirements, are written in detail in the *HSPH Student Handbook*. These supplementary guidelines are specific to the Department of Epidemiology, and add to, but do not replace, the rules in the Student Handbook and other listed epidemiology department requirements. The purpose of these guidelines is to standardize expectations across the doctoral students' experience while simultaneously maintaining a vital flexibility in the program. If either student or faculty member believes these guidelines are not met, the department chair should be consulted.

Requirements

Doctoral Thesis Content and Completion: Normally the thesis consists of at least three high quality original papers for publication (deviations subject to approval of the department chair). These should revolve around some common theme, but need not be closely linked. The goal is to establish expertise in the area under study. One of the thesis papers may be a qualitative or quantitative review paper if this review results in a novel and compelling hypothesis (subject to approval of the thesis committee).

All papers included in the thesis must be in a form ready to submit for publication. "Ready to submit" means that the content and analysis have been approved by the thesis committee and that the student and the advisor believe the manuscript is ready to be submitted to a journal in its present form, even though it may be awaiting comments from co-authors or other sign-offs. At least one of the thesis papers must be submitted by the time of the defense. All thesis committee members must approve all thesis papers before scheduling the defense. To make most efficient use of faculty and student time, no paper should be circulated to the entire committee until a committee member (usually the advisor) has reviewed the draft, and comments have been incorporated. It is expected that committee members review thesis papers in a timely fashion (usually within 2 weeks).

Authorship on Thesis Papers: Authorship of the papers to be included in the thesis should be discussed by the faculty advisor and student prior to the start of the thesis. If the student conducts the data analysis and writes the major parts of the paper, the student should be the first author of the paper. Generally, the student will be first author on all three papers included in the doctoral thesis.

Prior Work as Part of the Thesis: Work done prior to the written examination or even before formal entry to the program can be used as part of the thesis (subject to the approval of the thesis committee), as long as that work was performed under the supervision of HSPH epidemiology faculty. Thus, for example, papers written at HSPH as part of the master's's degree program could be included in the doctoral thesis if appropriate.

Data Collection: All doctoral students must have adequate experience in data collection. This experience can be collecting the data for their own thesis or for another project, as

agreed with the advisor. The goal is to provide a meaningful, practical learning experience (outside of class) but not to impose an undue burden.

Examples of data collection projects that fulfill the requirement are:

- Collecting data for a new substudy or a validation study
- Supervising data collection in an ongoing study
- Developing/documenting a new disease outcome in a cohort study or new exposure in a case-control study
- Conducting the laboratory component of a project
- Designing and distributing a questionnaire

The data collection requirement is part of the research or tutorial credits. The newly established wintersession might be utilized to engage in data collection. Students with previous primary data collection experience might be able to apply this experience towards fulfillment of the requirement (subject to approval of advisor or department chair).

Recommendations

Writing Papers: Students are encouraged to write additional papers even if they are not part of their doctoral thesis. This will strengthen their experience and record of productivity.

All of the usual authorship guidelines hold for students. Thus, if students are paid for work on a project or for data analysis, the resulting paper can still be part of the thesis. One potential difficulty is that students supported on an NIH training grant may work part-time on another NIH-funded project only if that other project is not formally part of their training. This would restrict use of some of that work for the doctoral thesis. Individual consultation with the advisor and training grant PI is clearly important in that situation.

Paying students for analyses does not justify their exclusion as an author if they are otherwise qualified, but authorship is not guaranteed. Payment for work and qualifying for authorship are independent.

Grant Writing: Students are strongly encouraged to gain experience in helping to write one or more grant proposals.

Teaching Experience: Students are strongly encouraged to gain teaching experience by serving as a teaching assistant. This will help consolidate the understanding of the material and provide valuable experience in teaching. Often, those who write reference letters are asked to comment on teaching experience and skills. Teaching assistant positions are available throughout the terms in the academic year and during summer session. Teaching assistants for core epidemiology courses are typically limited to students who have passed the departmental written exam. Responsibilities may include: attending lectures and organizational meetings, grading homeworks and exams, designing assignments and answer keys, holding office hours, and leading seminars.

Presentation Skills: Students are encouraged to present their findings at seminars, and national and international meetings to develop their presentation skills.

SUBSTANTIVE COURSES FOR EPIDEMIOLOGY

EPI213 Epidemiology of Cancer
EPI216 Epidemiology in Public Health Practice
EPI217 The Epidemiology of Adult Psychiatric Disorders
EPI220 Psychiatric Diagnosis in Clinic and Community Populations
EPI221 Pharmacoepidemiology
EPI222 Genetic Epidemiology of Diabetes and its Complications
EPI223 Cardiovascular Epidemiology
EPI224 Cancer Prevention
EPI228 Oral Epidemiology
EPI229 Ophthalmic Epidemiology
EPI235 Health Services Epidemiology
EPI249 Molecular Biology for Epidemiologists
EPI250 Molecular Epidemiology of Chronic Diseases
EPI251 Studies in Molecular Epidemiology
EPI252 Infections and Cancer
EPI254 Epidemiology of Aging
EPI255 EPI of HIV Part I: Etiology, Natural History and Transmission
EPI256 EPI of HIV, Part II: Therapeutic & Prevention Intervention
EPI260 Mathematical Modeling of Infectious Disease
EPI269 Epidemiological Research in Obstetrics and Gynecology
EPI270 Advanced Reproductive Epidemiology
EPI284 Epidemiology of Neurologic Diseases
EPI285 Infectious Disease Epidemiology
EPI287 Epidemiology of Reproductive Morbidity due to Trauma, Stress and Psychiatric Health
EPI289 Causal Inference and Study Design in Epidemiologic Research
ID213 Nutrition and Heart Disease
ID214 Nutritional Epidemiology
ID215 Environmental and Occupational Epidemiology
ID218 Environmental and Social Risk Factors for Psychiatric Disorders
ID221 Nutritional Epidemiology II
ID224 Child and Adolescent Mental Disorders: Public Health Perspectives
ID236 Social Epidemiology
ID253 Information Management in Epidemiology
ID269 Respiratory Epidemiology
ID277 Modern Genetic Epidemiology & Gene Mapping
ID286 Implementing Prevention

***Sample DS/DPH Schedule**

<i>First Year</i>			
Fall 1	Fall 2	Spring 1	Spring 2
EPI201 Intro to Epidemiology	EPI202 Elements of Epidemiologic Research	EPI203 Design of Cohort and Case-Control Studies	EPI204 Analysis of Case-Control and Cohort Studies
BIO201 Introduction to Statistical Methods		BIO210 Analysis of Rates and Proportions	
EH205 Human Physiology		ID208 Pathophysiology of Human Disease	
5 Credits of Electives		5 Credits of Electives	
Begin Work on Topic/Research for Thesis			
<i>Second Year</i>			
Fall 1	Fall 2	Spring 1	Spring 2
EPI207 Advanced Epidemiologic Methods	EPI247 Epidemiologic Methods Development	20 Credits of Electives (<i>Courses related to area of interest</i>)	
15 Credits of Electives (<i>Courses related to Biostatistics and area of interest</i>)		Prepare for Written Qualifying Exam (<i>Given once a year in the Spring</i>)	
Continue Work on Topic/Research for Thesis			
<i>Third Year</i>			
Fall 1	Fall 2	Spring 1	Spring 2
EPI205 Practice of Epidemiology		20 Credits of Electives (<i>Courses and Independent study credits</i>)	
17.5Credits of Electives (<i>Courses and Independent study credits</i>) Work on Thesis		Work on Thesis	
<i>Fourth Year</i>			
Fall 1	Fall 2	Spring 1	Spring 2
EPI350 Research (20 Credits) Work on Thesis		EPI350 Research (20 Credits) Work on Thesis	
<i>Fifth Year</i>			
Fall 1	Fall 2	Spring 1	Spring 2
EPI350 Research (20 Credits) Work on Thesis		EPI350 Research (20 Credits)	
		Complete and Defend Thesis	

**See HSPH Student handbook for school-wide doctoral student timetable and additional information on prospective/final programs, oral exam and research committees.*

SECTION FOUR: EPIDEMIOLOGY AREAS OF INTEREST AND CORE COURSE RECOMMENDATIONS

Areas of Interest

As described previously, the department offers both 80-credit and 40-credit Master's of science (SM) programs, as well as a doctor of science (SD) and doctor of public health (DPH) program. For additional information about the EPI concentrations visit our website at <http://www.hsph.harvard.edu/epidemiology/>.

Students in all degree programs choose from among fourteen areas of interest:

Cancer Epidemiology

In addition to research methodology, the curriculum in this area includes courses on the biology and genetics of cancer; the basic concepts and issues of cancer epidemiology; the roles of diet, oncogenic viruses, and occupational exposures in the etiology of cancer; the integration of biomarkers into research; the prevention of cancer; and research methods. Research opportunities for students include a large number of ongoing cohort and case-control studies within the department and in conjunction with the Dana-Farber/ Harvard Comprehensive Cancer Center.

Cancer Prevention

This area provides students with knowledge of the science of cancer prevention, expertise in a specialized research area, skill in policy analysis, and an introduction to professional networks. Social and behavioral scientists prepare to advance alternative strategies for inducing behavioral change at the individual, institutional, community, or policy levels. Physicians prepare for careers as clinical investigators or public health practitioners specializing in cancer prevention. The program combines the interdisciplinary resources of the Harvard Center for Cancer Prevention, and the Division of Cancer Epidemiology and Control in the Dana-Farber Cancer Institute.

Cardiovascular Epidemiology

This area provides training in research methodology and the epidemiology of cardiovascular diseases. Doctoral students conduct research in a substantive or methodological area related to cardiovascular epidemiology.

Clinical Epidemiology

This area is designed primarily for clinicians and other health care professionals who wish to develop the quantitative and analytic skills needed for clinical research. Students take core courses in epidemiology and biostatistics to develop basic skills in study design and analysis that will allow them to examine clinical questions related to the diagnosis and treatment of

disease. Additional courses in epidemiology and courses offered by other departments address related topics such as health status and quality-of-life measurement, decision analysis, cost-effectiveness analysis, health services research, and quality improvement of health care.

While the appropriate content for this area may be covered by taking courses offered during the regular academic year (fall and spring semesters), requirements for the 40-credit SM degree in epidemiology may also be partially fulfilled by taking the summer courses offered through the Summer Program in Clinical Effectiveness. Students begin their program by taking a core set of clinical effectiveness courses during an initial summer period. They complete the SM program by taking advanced courses during the regular academic year and, if desired, during a second summer period.

Alternatively, clinical effectiveness students who only take courses during two summer periods can satisfy the requirements for the SM degree by completing a supervised research project. The content of this project typically entails the design and implementation of a clinical study, the analysis of the resulting data, and the creation of a manuscript of quality suitable for publication. An outline for this project must be submitted at time of application.

Environmental/Occupational Epidemiology

This area is closely associated with the concentrations in environmental epidemiology and occupational health in the Department of Environmental Health. Students take courses in epidemiology, environmental health, occupational health, biostatistics, and toxicology. Doctoral students conduct research in a substantive or methodologic area related to environmental or occupational health.

Epidemiologic Methods

This area provides training in the development and application of new methods in epidemiologic research. Students learn to use and justify classical epidemiologic methods in study design, data analysis, and interpretation of results. Students also receive training in biostatistical areas most relevant to epidemiologic research. Recent innovations in epidemiologic methodology are introduced through advanced courses and tutorials. Doctoral students conduct research with faculty members in the development of new methodologies and in novel applications of existing methodologies. Those enrolling in this area of interest ordinarily have completed four semesters of college calculus and one semester of linear algebra.

Epidemiology of Aging

This area is geared toward those interested in the diseases and conditions, as well as research methods, specific to older populations. Social and cultural aspects of health in older persons are also covered. A range of relevant courses are offered, and students can take advantage of research opportunities in association with the Department of Nutrition, Channing Laboratory, Division of Preventive Medicine at Brigham and Women's Hospital, and Hebrew Rehabilitation Center for the Aged.

Infectious Disease Epidemiology

This area is designed to familiarize students with the epidemiology and biology necessary to understand the interactions of infectious agents, their hosts, and their vectors. Social and cultural aspects of infectious diseases and of related health services are covered, as are new and resurgent infectious diseases. Students in this area take courses in the Departments of Epidemiology, Immunology and Infectious Diseases, and Population and International Health. More advanced topics of infectious disease epidemiology are covered in tutorials with faculty members focusing on this area.

Molecular/Genetic Epidemiology

This area introduces students to the application of molecular and genetic methods in epidemiology. These methods may be useful as measures of exposure, disease susceptibility, or disease outcome. Training encompasses family-based association methods, gene-mapping to identify the chromosomal localization of genes associated with disease, and fine mapping and identification of these genes. Population-based studies correlate variation in genes with disease risk and prognosis and assess gene-environment interactions. Relevant courses explore the genetic epidemiology of complex diseases, including cancer, cardiovascular disease, diabetes, psychiatric illnesses, Alzheimer's disease, and asthma, as well as individual variation in drug response (pharmacogenomics). Students can collaborate with the Department of Environmental Health (including the Program for Population Genetics), the Channing Laboratory, Dana-Farber Cancer Center, and other research groups.

Nutritional Epidemiology

Through courses in the Departments of Epidemiology and Nutrition, students in this area learn methods of nutritional assessment and their related strengths and weaknesses. Students also receive advanced training in the nutritional determinants of disease and in methods for analysis specific to research in nutritional epidemiology. Students can conduct research within several large prospective ongoing studies at HSPH and Harvard Medical School, including an examination of dietary factors in relation to cardiovascular disease, cancer, and other chronic diseases; a study of the interactions between nutritional and genetic determinants of disease; and the assessment of nutritional supplementation in relation to infectious agents and malnutrition.

Oral and Dental Health Epidemiology

This area prepares dentists and others interested in oral diseases for research and teaching careers in epidemiology with an emphasis on oral epidemiology and dental health. A new focus area is the links between oral conditions, nutrition, and systemic diseases such as coronary heart disease, stroke, and cancer. Students also participate in field research activities; case-control studies of oral health risk factors; or clinical trials designed to test preventive, diagnostic, or therapeutic interventions. The Department of Oral Health Policy and Epidemiology in the Harvard School of Dental Medicine and the HSPH Department of Epidemiology jointly administer this area of interest.

Pharmacoepidemiology

This area focuses on the determinants of both unintended and expected effects of drugs and

medical devices. Patterns of utilization of drugs and devices, cost-benefit and risk-benefit analyses, and investigation of the distribution of diseases possibly amenable to medical intervention represent important secondary themes. The Department of Epidemiology offers courses in pharmacoepidemiology and a variety of ongoing research projects. Relevant courses elsewhere in the school cover such areas as clinical trials, meta-analysis, drug regulatory affairs, decision analysis, and vaccine development. Students in pharmacoepidemiology have the opportunity to attend courses and congresses outside the school and are encouraged to undertake internships of up to three months in pharmaceutical firms or regulatory agencies. Students ordinarily have a prior degree in medicine or pharmacy. Others are expected to acquire substantially equivalent expertise in areas related to their research.

Psychiatric Epidemiology

This area introduces students to concepts and methods for studying the genetic and psychosocial factors that relate to the prevalence, incidence, and outcome of different types of psychiatric illnesses. Emphasis is given to issues of reliability and validity in studying such disorders among children, adolescents, and adults. The curriculum consists of six specialized courses, as well as related courses offered in the Departments of Epidemiology, Biostatistics, Maternal and Child Health, and Health and Social Behavior.

Reproductive Epidemiology

In addition to unique methodological issues, this area encompasses clinical, environmental, cancer, and infectious disease epidemiology. Reproductive epidemiologists choose as their interest the broad topic of the determinants and consequences of reproduction, including women's health and male infertility. Students can explore menarche, the menstrual cycle, infertility, conception, and pregnancy as endpoints or as factors influencing disease outcomes.

The Obstetrics and Gynecology Epidemiology Center, based at Brigham and Women's Hospital, offers the opportunity to gain experience in data collection and analysis of large-scale population- and clinical-based epidemiological studies. Students interested in occupational/ environmental and genetic reproductive epidemiology may pursue projects within the Reproductive Epidemiologic Working Group, consisting of faculty members from HSPH and other major public health institutions around the world. Students may also collaborate with other faculty members at HSPH, Harvard Medical School, and the Harvard-affiliated hospitals. Students are encouraged and given guidance on how to submit their own research proposals for private or federal funding.

RECOMMENDED CORE COURSES

Aging

EPI254 Epidemiology of Aging

EPI284 Epidemiology of Neurologic Diseases*

GR705.40 (HMS Seminar) Developing an Interdisciplinary Approach to the Health Management of Older Adults

HLE220 (KSG Course) Population Aging, Economics, and Policy

SSH227 Psychosocial Aspects of Aging

Cancer Epidemiology

CCB210 Introduction to Cancer Biology

EPI213 Epidemiology of Cancer

EPI224 Cancer Prevention

EPI240 Use of Biomarkers in Epidemiologic Research*

EPI250 Molecular Epidemiology of Chronic Disease

EPI252 Infections and Cancer

ID228 Principles of Screening

Cancer Prevention

EPI213 Epidemiology of Cancer

EPI224 Cancer Prevention

SHH211 Health Promotion through Mass Media

SHH249 Approaches to International Tobacco Control

ID228 Principles of Screening

Cardiovascular Epidemiology

EPI223 Cardiovascular Epidemiology

EPI240 Use of Biomarkers in Epidemiologic Research*

EPI250 Molecular Epidemiology of Chronic Disease

SHH201 Society and Health

Clinical Epidemiology

EPI241 Measuring Health Status

EPI242 Seminar in Clinical Epidemiology

Environmental/Occupational Epidemiology

EH205 Human Physiology

EH269 Exposure Assessment for Environmental and Occupational Epidemiology

ID204 Principles of Toxicology

ID215 Environmental and Occupational Epidemiology

Epidemiologic Methods

BIO223 Applied Survival Analysis and Discrete Data Analysis

BIO226 Applied Longitudinal Analysis

BIO248 Advanced Statistical Computing

EPI207 Advanced Epidemiological Methods**

EPI247 Epidemiologic Methods Development—Past and Present**

EPI289 Causal Inference & Study Design in Epidemiologic Research

***Required courses for students in Doctoral Program in Epidemiology*

Infectious Disease Epidemiology

EPI214 Epidemiologic Analysis of Outbreaks and Infectious Diseases

EPI255 Epidemiology of HIV, Part I: Etiology, Natural History & Transmission

EPI256 Epidemiology of HIV, Part II: Therapeutic & Prevention Interventions*

EPI260 Mathematical Modeling of Infectious Diseases*

EPI285 Infectious Disease Dynamics*

ID229 Epidemiology of Infectious Diseases of Public Health Importance in Developing Countries

IMI201 Ecology, Epidemiology, and Control of Important Parasitic Diseases in Developing Areas

Molecular Epidemiology

BIO227 Fundamental Concepts in Gene Mapping

BIO228 Statistical Genetics in Complex Human Disease

EPI222 Genetic Epidemiology of Diabetes & its Complications*

EPI249 Molecular Biology for Epidemiologists

EPI250 Molecular Epidemiology of Chronic Diseases

Nutritional Epidemiology

NUT201 Principles of Nutrition

NUT202 The Science of Human Nutrition

NUT204 Advanced Topics in Nutrition

ID214 Nutritional Epidemiology

Oral and Dental Health Epidemiology

EPI228 Oral Epidemiology*

HPM275 Health Policy Issues: Access to Dental Services

ID274 Oral Health Policy Research Seminar

Pharmacoepidemiology

BIO214 Principles of Clinical Trials

BIO262 Statistical Problems in Drug Development

EPI221 Pharmacoepidemiology

EPI235 Epi Methods in Health Services Research

EPI286 Advanced Pharmacoepidemiology*

HPM244 Pharmaceutical and Biotechnology Industry: Public Policy and Regulatory Issues

ID253 Information Management in Epidemiology

RDS201 Pharmacoeconomics & Economic Evaluation of Medical Technology

Psychiatric Epidemiology

EPI217 The Epidemiology of Adult Psychiatric Disorders

EPI219 Assessment Concepts and Methods in Psychiatric Epidemiology

EPI220 Psychiatric Diagnosis in Clinic and Community Populations*

EPI244 Epidemiologic Methods for Psychiatric Epidemiology*

ID278 Mental Health of Children and Adolescent

ID283 Epi Investigation of Social and Environmental Risk Factors for Psychiatric Disorders

Reproductive Epidemiology

EH205 Human Physiology

EH269 Exposure Assessment for Environmental and Occupational Epidemiology

EPI213 Epidemiology of Cancer

EPI269 Epidemiological Research in Obstetrics and Gynecology

EPI242 Seminar in Applied Research in Clinical Epidemiology

EPI270 Advanced Reproductive Epidemiology

EPI287 Epidemiology of Reproductive Morbidity due to Trauma, Stress and Psychiatric Health

ID215 Environmental and Occupational Epidemiology

ID231 Biological and Clinical foundations of Reproductive Health

ID277 Modern Genetic Epidemiology and Gene Mapping *

PIH272 Foundation of Global Population and Health I

SHH210 Women, Health, and Development

SHH216 Childbirth: Health Policy and Epidemiology

WGH211 Women Gender and Health: Introductory Perspectives

***Epidemiology courses offered on an alternate year schedule**

Course listings are subject to change. Please check listings on the Registrar's website at <http://www.hsph.harvard.edu/registrar/courses>.

SECTION FIVE: COMMITTEES AND RESOURCES

COMMITTEES

Epidemiology Department Student Advisory Committee

This student committee was formed to serve as a liaison with the Chair of the Department and the Coordinator of Academic Services. The goals of the committee are to provide feedback and to discuss relevant issues on behalf of the EPI student body. The committee consists of representatives from each degree program. Members of the committee, with the exception of MS1 students, will serve for a 2-year period. The representatives currently on the committee are as follows:

Heather Baer, hbaer@hsph.harvard.edu
Julia Fridman, jfridman@hsph.harvard.edu
Michelle Hacker, mhacker@hsph.harvard.edu
Caroline Korves, ckorves@hsph.harvard.edu
Sonia Mathews, smathews@hsph.harvard.edu
Jessica Su, jsu@hsph.harvard.edu

Please feel free to bring any concerns that you would like addressed by the Student Advisory Committee to the Chair of the Department, the Coordinator of Academic Services or any of the student representatives. Students interested in participating on the committee should submit their names to the academic services coordinator.

HSPH Student Coordinating Committee

The Student Coordinating Committee (SCC) is the Harvard School of Public Health's student government. Currently, the SCC has 21 officers. SCC works closely with faculty and administration on important school-wide issues. It also organizes and sponsors social, educational, and community service events. Additional information on the SCC can be found on-line at <http://www.hsph.harvard.edu/scs/index.html>.

RESOURCES

Epidemiology students are welcome to use the library (Kresge, Room 908) for group meetings or study sessions. The library must be reserved in advance by calling 617/432-1050. A smaller conference room in the EPI Department (Kresge, Room 915) can be utilized by students any time there is not a meeting scheduled in the room.

Epidemiology doctoral and master's students here for two years are allocated mailboxes in the department, 9th floor in Kresge, in addition to the mailboxes allocated by HSPH. Master's students here for one year are allocated mailboxes by HSPH only, due to their limited time in the program. Students are responsible for checking all allocated mailboxes for information.

DEPARTMENT OF EPIDEMIOLOGY CONTACT INFORMATION

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*For contact information on EPI Faculty visit our website at
<http://www.hsph.harvard.edu/Academics/epidem/index.html>*