HEALTH RESEARCH AND POLICY

Courses offered by the Department of Health Research and Policy are listed under the subject code HRP on the Stanford Bulletin's ExploreCourses web site.

The Department of Health Research and Policy has three principal areas of scholarly interest:

1. Biostatistics deals with scientific methodology in the medical sciences, emphasizing the use of statistical techniques.
2. Epidemiology is the study of the distribution and determinants of illness and impairment in human populations. Epidemiology training provides analytic tools for clinical and translational research, including studies of disease etiology, prevention, and therapy.
3. Health Services Research is concerned with many aspects of health policy analysis in the public and private sectors

Graduate Programs in Health Research Policy

The Program in Epidemiology and the Program in Health Services Research are housed in the Department of Health Research and Policy. These programs offer M.S. degrees in Epidemiology and in Health Services Research. Students with an interest in pursuing advanced degrees with an emphasis on biostatistics can do so through programs offered by the Department of Statistics. Division of Biostatistics faculty participate in these programs.

For additional information, address inquiries to the Educational Coordinator, Department of Health Research and Policy, Stanford University School of Medicine, HRP Redwood Building, Room T-152F, Stanford, California 94305-5405.

Master of Science in Health Policy

The master's degree program in Health Policy seeks to train students in the quantitative analysis of issues in health and medical care. The program emphasizes an individually designed program of course work and completion of a master's project under the mentorship of a faculty member. The typical student in the program is either a physician who has completed residency training and is preparing for a research career, or a student with a strong background in policy analysis who wishes to focus on problems in health or medical care. Faculty interests include outcomes research, health economics, health care organization, health care access, quality of care, decision analysis, clinical guidelines, and assessment of patient preferences and quality of life.

University requirements for the M.S. degree are described in the "Graduate Degrees (http://exploredegrees.stanford.edu/graduatedegrees)" section of this bulletin.

To receive the degree, students are expected to demonstrate knowledge of issues in health policy and the quantitative skills necessary for research in this area. Students must take at least 45 units of course work and write a University thesis. The course work requirements are:

1. At least 8 units from the following group of Health Research and Policy (HRP) core courses:

		Units
HRP 256	Economics of Health and Medical Care	5
HRP 391	Health Law: Finance and Insurance	3
HRP 392	Analysis of Costs, Risks, and Benefits of Health Care	4
Total Units		12

2. At least 6 units of graduate-level statistics courses.

		Units
HRP 261 & HRP 262	Intermediate Biostatistics: Analysis of Discrete Data and Intermediate Biostatistics: Regression, Prediction, Survival Analysis (strongly recommended)	6
Total Units		6

3. At least 3 units of:

		Units
HRP 283	Health Services Research Core Seminar	1
Total Units		1

4. At least 15 units:

		Units
HRP 299 or HRP 399	Directed Reading in Health Research and Policy Graduate Research	1-18
Total Units		1-18

5. An additional set of approved elective courses to complete the program total of at least 45 units.

For additional information, address inquiries to the Educational Coordinator, Department of Health Research and Policy, Stanford University School of Medicine, HRP Redwood Building, Room T138C, Stanford, California 94305-5405.

Master of Science in Epidemiology

The Graduate Program in Epidemiology offers instruction and interdisciplinary research opportunities leading to the M.S. degree in Epidemiology. Epidemiology is the study of the distribution and determinants of illness and impairment in human populations. It is important in its own right, and epidemiologic methods are used by clinical investigators and by other scientists who conduct observational and experimental research on the identification, prevention, and treatment of human disorders.

Core and affiliated faculty come from the Department of Health Research and Policy; other Stanford University departments, and notable Bay Area research facilities. The Program has particular strengths in cancer epidemiology, cardiovascular disease epidemiology, infectious disease epidemiology, musculoskeletal disease epidemiology, neuroepidemiology, and aspects of epidemiologic methods, genetic epidemiology, and reproductive epidemiology and women's health.

The mission of the Stanford University School of Medicine is to be a premier research-intensive medical school that improves health through leadership and collaborative discoveries and innovation in patient care, education and research. With support from a NIH Clinical and Translational Science Award, the graduate program in Epidemiology fosters this mission through the training of physician investigators in techniques of clinical research. The department also considers students from other disciplines who would benefit from formal training in epidemiologic methods.

A typical student has the M.D. degree and is in the fellowship stage of his or her postgraduate training, or in an early stage of faculty development. Other students may not have prior clinical training. These may include behavioral, social, and life scientists; law students; and students with the baccalaureate degree. They may wish to bring an epidemiologic orientation to their research or practice, or they may be considering careers in epidemiology or a related discipline.

Units

University requirements for the M.S. degree are described in the "Graduate Degrees (http://exploredegrees.stanford.edu/

graduatedegrees)" section of this bulletin. Other programmatic requirements are in Graduate Program in Epidemiology, Information and Guidelines, available from the educational coordinator in the Department of Health Research and Policy.

To receive the M.S. degree, students are expected to obtain a grounding in epidemiologic methods and applied biostatistics and to demonstrate research skills through the completion of a thesis. Students must complete at least 45 units of course work:

1. Epidemiologic methods:

HRP 225	Design and Conduct of Clinical and Epidemiologic Studies	3-4
HRP 226	Advanced Epidemiologic and Clinical Research Methods	3-4
HRP 251	Design and Conduct of Clinical Trials	3

2. Biostatistics:

HRP 259	Introduction to Probability and Statistics for Epidemiology	3-4
HRP 261	Intermediate Biostatistics: Analysis of Discrete Data	3
HRP 262	Intermediate Biostatistics: Regression, Prediction, Survival Analysis	3

3. Research seminars:

HRP 236	Epidemiology Research Seminar (at least 3 units)	1

4. Research:

HRP 399	Graduate Research (at least 12 units)	1-18

5. Research conduct:

MED 255	The Responsible Conduct of Research	1
Attend a Human Subjects Institutional Review Board meeting.		

6. Additional approved selective and elective courses to complete the program total of at least 45 units.

Students are assigned a methodology mentor from the Department of Health Research and Policy, and they also select a research mentor, who may be from another department. For physicians, the research mentor is often an affiliated faculty member from the department of the student's clinical specialty.

Ph.D. in Health Policy

A Ph.D. program in Health Policy has been approved to be effective in 2014-15. Degree requirements will appear here shortly.

Ph.D. in Epidemiology and Clinical Research

Overview

The field of epidemiology is poised to undergo major changes, and this Ph.D. program offers a cutting-edge curriculum that reflects this shift. Driven by technological advancements, the availability of very large datasets, and the omics revolution, epidemiology is moving toward what some have called Big Epidemiology, where epidemiologists partner with other scientists to study vast amounts of data. Thus, this program will train epidemiologists and clinical researchers to be savvy in technology, computing, data mining, bioinformatics, and genomics. The curriculum capitalizes on Stanford's unique strengths in these disciplines.

After matriculating, students will meet with their academic advisers to plan out an individually tailored curriculum. Students who matriculate with prior training in epidemiology and statistics may replace introductory core courses with more advanced courses, subject to approval. Beyond core course requirements, students select electives that delve deeper into a particular area of specialization of their choosing. Innovative online learning approaches will help meet the needs of physician-students, who will also be busy with clinical duties.

Units

Students will take core courses in epidemiology and biostatistics. In addition to these core courses, Ph.D. students must additionally take 3 "big epidemiology" elective courses in three key areas:

1. an advanced quantitative course (encompassing statistics, computer science, or economics)
2. a big data course
3. a genetics/genomics/bioinformatics course.

Units

Degree Requirements

University requirements for the Ph.D. are described in the "Graduate Degrees (http://stanford.edu/dept/registrar/bulletin/4901.htm)" section of this bulletin.

Ph.D. students must complete a minimum of 135 units (as per University requirements), including 45 course units exclusive of HRP 236 Epidemiology Research Seminar, HRP 299 Directed Reading in Health Research and Policy, and HRP 399 Graduate Research .

Units

Epidemiologic methods sequence		
HRP 225	Design and Conduct of Clinical and Epidemiologic Studies	3-4
HRP 226	Advanced Epidemiologic and Clinical Research Methods	3-4
HRP 251	Design and Conduct of Clinical Trials	3
Biostatistics sequence		
HRP 259	Introduction to Probability and Statistics for Epidemiology	3-4
HRP/STATS 261	Intermediate Biostatistics: Analysis of Discrete Data	3
"Big Epidemiology" elective course		
Take one of the following advanced quantitative courses		3-4
Any 200-level STATS course (other than STATS 260)		
STATS 116	Theory of Probability	
HRP 216	Analytical and Practical Issues in the Conduct of Clinical and Epidemiologic Research	
HRP/STATS 262	Intermediate Biostatistics: Regression, Prediction, Survival Analysis	
HRP 252	Outcomes Analysis	
HRP 392	Analysis of Costs, Risks, and Benefits of Health Care	
HRP/ MED 206/ STATS 211	Meta-research: Appraising Research Findings, Bias, and Meta-analysis	
Big data course		
Take one of the following big data courses		3-4
BIOMEDIN 215	Data Driven Medicine	
CS 246	Mining Massive Data Sets	
STATS 202	Data Mining and Analysis	
CS 229A		

Genetics/genomics/bioinformatics course		
Take one of the following genetics/genomics/bioinformatics courses		3-4
HRP 228	Genetic Epidemiology	
BIOMEDIN 217/CS 275	Translational Bioinformatics	
GENE 244	Introduction to Statistical Genetics	
BIOMEDIN 258		
GENE 224	Principles of Pharmacogenomics	
CS 262	Computational Genomics	
BIOMEDIN/ DBIO/CS 273A	A Computational Tour of the Human Genome	
GENE 210/ DBIO 220	Genomics and Personalized Medicine	
STATS 345	Statistical and Machine Learning Methods for Genomics	
GENE 245	Statistical and Machine Learning Methods for Genomics	
STATS 166		
Other core courses/requirements		
HRP 236	Epidemiology Research Seminar ((take at least 6 quarters))	6
MED 255	The Responsible Conduct of Research	1
Electives		
Take electives chosen in consultation with the academic adviser to total 135 units.		64-71
Total Units Required		135

Additional Requirements

1. Attendance at one meeting of the Human Subjects Panel (Institutional Review Board).
2. Attendance at one meeting of the GCRC Protocol Review Committee.
3. R Proficiency: students must show proficiency in the computing language R or must take an approved course in R.
4. Each doctoral student must also serve as a teaching assistant for at least one quarter in either an epidemiology core course, a biostatistics course, or an approved elective course.
5. Doctoral students fulfill the remaining University unit requirements through doctoral dissertation work.

Health Research and Policy

Emeriti: (Professors) Dan Bloch, John Farquhar, Victor R. Fuchs

Chair: Phil Lavori

Co-Chair: Robert Tibshirani

Professors: Laurence Baker, Bradley Efron, Trevor Hastie, Victor W. Henderson, Mark Hlatky, John Ioannidis, Iain M. Johnstone, Abby C. King, Philip W. Lavori, Ying Lu, Yvonne Maldonado, Richard A. Olshen, Julie Parsonnet, Robert Tibshirani, Alice S. Whittemore, Dee W. West, Wing Wong

Associate Professor: M. Kate Bundorf, Lorene M. Nelson, Chiara Sabatti

Assistant Professors: Marc Coram, Allison Kurian, Mei-Chiung Shih, Weiva Sieh, Lu Tian

Assistant Professors (Clinical): Rita Popat, Kristin Sainani

Courtesy Professors: Mary Goldstein, Paul Heidenreich, Daniel Kessler, Alex Macario, Douglas Owens, Paul Wise

Courtesy Associate Professors: Jay Bhattacharya, David R. Rogosa

Courtesy Assistant Professors: Grant Miller

Senior Lecturer: Irene Corso

Lecturers: Raymond Balise, Scarlett Gomez, Laurel Habel, De Kun Li, David Lilienfeld, Cynthia O'Malley, Caroline Tanner, Stephen Van Den Eeden

Consulting Professors: Gary Friedman, Elizabeth Holly, Marion Lee, George Lundberg, Peggy Reynolds

Consulting Associate Professors: Paul Barnett, Sally Glaser, Pamela Horn-Ross, Esther John, Ciaran Phibbs

Consulting Assistant Professors: Ellen Chang, Christina Clarke-Dur, Theresa Keegan, Bang Nguyen, Ingrid Oakley-Girvan, Rudy Rull, Todd Wagner

Health Services Research

Director: Mark Hlatky (Professor, Health Research and Policy, and Medicine)

Executive Committee: Laurence Baker (Professor, Health Research and Policy), M. Kate Bundorf (Associate Professor, Health Research and Policy), Mary Goldstein (Professor, Medicine), Mark Hlatky (Professor, Health Research and Policy, and Medicine), Douglas Owens (Professor, Medicine)

Participating Faculty and Staff by Department:

Anesthesia: Alex Macario (Professor)

Business: Alain Enthoven (Professor, emeritus)

Health Research and Policy: Laurence Baker (Professor), Paul Barnett (Consulting Associate Professor), M. Kate Bundorf (Associate Professor), Victor Fuchs (Professor, emeritus), Trevor Hastie (Professor), Mark Hlatky (Professor), Philip Lavori (Professor), Richard Olshen (Professor), Ciaran Phibbs (Consulting Associate Professor), Joseph Selby (Consulting Professor), Robert Tibshirani (Professor)

Law: Henry Greely (Professor), Daniel Kessler (Professor)

Management Science and Engineering: Margaret Brandeau (Professor)

Medicine: Jay Bhattacharya (Associate Professor), Jeremy Goldhaber-Fiebert (Assistant Professor), Mary Goldstein (Professor), Michael Gould (Associate Professor), Paul Heidenreich (Associate Professor), Mark Hlatky (Professor), Grant Miller (Assistant Professor), Douglas Owens (Professor), Wolfgang Winkelmayer (Associate Professor)

Pediatrics: Paul Wise (Professor)

Psychiatry: Rudolph Moos (Professor, emeritus)

Sociology: Richard Scott (Professor, emeritus)

Epidemiology

Director: Victor W. Henderson (Professor, Health Research and Policy, and Neurology and Neurological Sciences)

Core Faculty and Academic Teaching Staff: Raymond R. Balise (Lecturer, Health Research and Policy), Gary D. Friedman (Consulting Professor, Health Research and Policy), Victor W. Henderson (Professor, Health Research and Policy, and Neurology and Neurological Sciences), Abby C. King (Professor, Health Research and Policy, and Medicine), Allison Kurian (Assistant Professor, Medicine, and Health Research and