

UC Berkeley

HEALTH POLICY

PhD Program Handbook

(May 2020)

HEALTH POLICY

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I. Health Policy PhD Program Overview

Health policy is an interdisciplinary field that examines the organization and financing of health systems and services; the impact of health policies on population health; and the economic, social, and behavioral determinants of health. It involves investigation of all systems that affect population health, not just the medical care system. The purview of health policy is global.

The mission of the UC Berkeley School of Public Health's PhD Program in Health Policy (formerly "Health Services and Policy Analysis") is to prepare students for research careers in health policy and health services research; teaching; and public service in university, governmental, and public policy settings. The PhD program is distinguished by its interdisciplinary application of the social and behavioral science disciplines to real world health issues. Graduates of the PhD program will be prepared to play lead scientific roles in addressing the many challenges facing health care and public health systems in the United States and countries around the world.

The PhD program is a small interdepartmental academic program, with approximately 25 students. This is a 4- to 5-year full-time, residential program. Students who complete all requirements receive a Doctor of Philosophy degree from the Graduate Division of the University of California, Berkeley.

The PhD Program in Health Policy at Berkeley is well established as one of the leading doctoral training programs for health policy and health services research. From its inception in 1988, one of its distinguishing features has been its interdisciplinary nature. Students gain breadth in the social and behavioral sciences as they relate to health, and in research methods; furthermore, they gain depth in one of the specialty fields: health economics, organizations & management, or population & data science.

Graduates of the PhD program will be able to achieve and demonstrate expertise in the following major academic outcomes:

- Develop domain expertise in core works in health policy and the selected specialty field
- Understand central social and behavioral science theoretical frameworks and debates shaping health policy
- Demonstrate substantive knowledge of a specialty field sufficient to design and teach graduate level courses in that field
- Demonstrate ability to conduct rigorous quantitative research
- Plan and conduct independent research using advanced research methods
- Mastery of academic and grant writing, conference presentation, IRB procedures, and ethics in research
- Foster cohesion and intellectual exchange among students and faculty across the university to enhance interdisciplinary research and training

Graduates of the Berkeley PhD program in Health Policy are well prepared to assume academic careers in research and teaching. Many of our graduates move directly to positions in academia, government, or research organizations, while others receive post-doctoral fellowships to continue specific training in their area of interest and research.

II. Health Policy PhD Curriculum

CURRICULUM REQUIREMENTS (ALL SPECIALTY FIELDS)

Prerequisite Courses

Entering students should have foundational knowledge in microeconomics, epidemiology, statistics, and public health. Students without prior Master's-level course work in these areas will need to remedy deficiencies in their first year. In particular, students without a prior Master's degree from a school accredited by the Council on Education for Public Health (CEPH) are required to take a 1-unit online fall course PHW200, Foundations of Public Health Practice.

Grading Standards

Students must receive a grade of B- or higher to satisfy all course requirements, including core, specialty field, and research methods courses.

Unit Requirements

Health Policy PhD students are required to complete a total of 60 units composed of courses, doctoral seminars, and independent studies. All students, with the exception of students in the Health Economics specialty field, should aim to complete coursework by the end of the second year.

Course descriptions for most of the courses can be found in the campus online catalog at guide.berkeley.edu. Please check the online schedule at schedule.berkeley.edu each semester for course availability.

Core Classes

Students must take PH 237A and PH237B Theories and Methods in Health Policy and Health Services Research, 5 specialty field courses, 3 quantitative research methods courses, and 3 additional graduate elective courses.

Specialty Field

The Berkeley PhD Program in Health Policy has three specialty fields: Health Economics, Organizations & Management, and Population & Data Science. Students are required to complete five specialty field courses as detailed below, and pass a specialty field exam.

Quantitative Methods Paper Requirement

Students must submit a paper demonstrating their competency in quantitative research methods prior to the scheduling of their oral qualifying examinations. The student's academic advisor or the methods paper advisor Professor Timothy Brown must review and approve the methods paper. Please allow at least 4-6 weeks for review, revision, and approval of this paper. The approval of this paper is required in order to submit the application for the Qualifying Exam to Graduate Division (see exceptions discussed in the Methods Paper section below). The Degrees Office then requests at least 4 weeks for processing of this application before the Qualifying Exam date.

PhD Dissertation Seminar

After passing the specialty field exam, students are required to attend the Dissertation Seminar PH237D and present their research analyses in the seminar or an equivalent seminar, during each semester until graduation.

Health Services Research (HSR) Colloquium

The HSR colloquium (PH237C) is designed for PhD students in Health Policy. The seminar meets alternate Tuesdays from 12:40-2 p.m. in Berkeley Way West. Students are required to enroll in the colloquium for one unit (S/U) in each of their first four semesters of the program, and upper year students are also expected to attend. In addition, students are strongly encouraged to regularly attend research colloquiums in their specialty field disciplinary departments. Students can enroll for additional semesters or units, as needed, to fulfill minimum required units for GSR/ GSI appointments.

Through the HSR colloquium, students will become familiar with the professional practice of presenting current research among peers and of critiquing peer research in a workshop setting. The HSR colloquium will meet roughly every other week during the semester. Speakers will generally be faculty and other local researchers presenting their current health policy-related research. Colloquiums will be open to the public, and vigorous intellectual exchange is encouraged throughout the presentation.

Colloquium papers will sometimes be distributed in advance. Students are expected to read the paper in advance, or if no paper is distributed, to read other relevant background research by the author or other researchers working on the same topic.

Attendance at six HSR colloquiums is required to satisfactorily earn each unit of credit. If students are unable to attend six HSR colloquiums, then they may choose to instead attend alternative research colloquiums; however, those alternative colloquiums should similarly be structured to encourage active discussion of HSR-relevant research presentations.

Students enrolling for more than 1 unit should attend commensurately more colloquiums elsewhere. At the end of each semester, students will be required to email the instructor a list of the colloquiums attended for credit.

HEALTH ECONOMICS

Faculty Lead: Will Dow

The Health Economics specialty field draws on economics, mathematics, epidemiology, and statistics to understand the causal relationship between different aspects of health and the health care sector. With an emphasis on quantifying relationships, health economics covers a broad range of study areas, including health production, demand & supply of health services, healthcare financing, behavioral responses to institutional or policy incentives, policy evaluations, and other efficiency and equity issues surrounding health.

Core Requirements

PBHLTH 237A, B Theories and Methods in Health Policy and Health Services Research
 PBHLTH237C Health Services Research Colloquium (Years 1-2)
 PBHLTH 237D Health Policy Dissertation Seminar (Year 3+)

Specialty Field Requirements

Health Economics students must take ECON 201A and a minimum of four other specialty field courses.

Specialty Field Core (1 course): ECON 201A** Economic Theory

**Pre-requisite: Math for Economics ECON 204 (Summer) is required prior to taking ECON 201A if student has not completed a course in real analysis equivalent to MATH 104 with a grade of B- or better. (Health economics students also must be proficient in linear algebra, multivariate calculus, and differential equations at the level of MATH 54.)

Specialty Field Electives (4 courses, including a 2-course sequence in one of the following areas)

ECON 201B	Economic Theory
ECON 219A	Foundations of Psychology and Economics
ECON 219B	Applications of Psychology and Economics
ECON 220A,B	Industrial Organization
ECON 230A,B	Public Economics
ECON 250A,B,C	Labor Economics
ECON 270A,B,C	Development Economics
DEMOG C275A	Economic Demography
PBHLTH 226E	Advanced Health Economics
PP 251	Microeconomic Organization & Policy Analysis
PP 259	Cost-Benefit Analysis

Quantitative Research Methods (3 courses)

ARE 212	Econometrics: Multiple Equation Estimation
ARE 213	Applied Econometrics
ECON 244	Applied Econometrics
INFO 251	Applied Machine Learning
PBHLTH C240B	Biostatistical Methods: Survival Analysis and Causality
PBHLTH C240C	Biostat Methods: Computational Stats with Applic Biology & Medicine
PBHLTH 241	Statistical Analysis of Categorical Data
PBHLTH C242C	Longitudinal Data Analysis
PBHLTH 244	Big Data: A Public Health Perspective
PBHLTH 245	Intro to Multivariate Public Health Statistics
PBHLTH 250B	Epidemiologic Methods II
PBHLTH 252D	Intro to Causal Inference
PBHLTH 252E	Advanced Topics in Causal Inference
PS C236A	Statistics of Causal Inference in the Social Sciences

Electives (3 courses)

Three additional elective courses taken for a grade from among Berkeley's wide offering of graduate courses. Students should work with their advisor to select an appropriate mix of courses to ensure multidisciplinary but deep methodological and substantive expertise.

Specialty Field Exam

Health Economics students are generally accountable for the content of the *Handbook of Health Economics* for the specialty field exam, with specific sections of emphasis determined each year by the examining committee depending on the students' sub-fields. In order to prepare, students are required to take 2 PhD-level courses in the economics department in one of these fields: Behavioral economics (Econ 219A/B), Industrial organization (Econ 220A/B), Public economics (Econ 230A/B), Labor economics (Econ 250A/B/C), or Development/demography (Econ270A/B/C, Econ 275). The exam will include material covered in these classes, but will be in the context of health issues.

ORGANIZATIONS & MANAGEMENT

Faculty Lead: Hector Rodriguez

The Organizations & Management specialty field trains scholars of organizational behavior and political behavior in health. Theories and methods in organizational sociology, political science, and social psychology are central to the study of health organizations. Specialty field courses in macro-organizational theory, micro-organizational theory, and organizational analysis of the health sector are required. The specialty field emphasizes the management of health care and public health organizations and systems, the implementation and dissemination of policies and practices within and across organizations, and the role of policy-making institutions as platforms for the creation and modification of health policies.

Core Requirements:

PBHLTH 237A,B Theories and Methods in Health Policy and Health Services Research
 PBHLTH 237C Health Services Research Colloquium (Years 1 and 2)
 PBHLTH 237D Health Policy Dissertation Seminar (Year 3+)

Specialty Field Requirements

Students in the Organizations & Management specialty field are expected to take 5 courses: 1 core course and 4 specialty field elective courses, with at least one specialty field elective course in each of the macro-organizational and micro-organizational categories.

Specialty Field Core (1course)

PBHLTH 224D Organizational Analysis of the Health Sector

Specialty Field Electives (Select 4 courses, with 1 micro and 1 macro course)

Micro-Organizational

PhDBA 259A Research in Micro-Organizational Behavior
 PhDBA 259S Seminar in Organizational Behavior and Industrial Relations
 PP 290 Behavioral Science for Public Policy

Macro-Organizational

PhDBA 259B Research in Macro-Organizational Behavior
 PhDBA 279C Corporate Strategy and Technology
 PhDBA C270 Workshop in Institutional Analysis
 SOC 280D Organizations

Other Electives

DEMOG 260 Social Networks
 PP 273 Public Management and Policy Implementation
 PhDBA 297T Doctoral Topics in Business Administration
 PS 200A Major Themes Comparative Analysis
 PS 209A Comparative Political Economy
 PS 252 Legal Theory and Institutions
 PS 261 Political Behavior
 PS 279 Federalist Territoriality in American Politics
 PS 292 Advanced Study – Public Organization
 PSY 290J Social Psychology (various seminars)
 SOC 380D Sociology of Medicine

Quantitative Research Methods (select three):

EDU 274A	Measurement in Education and Social Sciences I
EDU 274B	Measurement in Education and Social Sciences II
EDU 274C	Research Seminar in Measurement
EDU 274D	Multidimensional Measurement
EDU 275B	Data Analysis in Educational Research II
EDU 275G	Hierarchical and Longitudinal Modeling
INFO 251	Applied Machine Learning
PBHLTH C242C	Longitudinal Data Analysis
PBHLTH 219D	Introduction to Survey Methods
PBHLTH 244	Big Data: A Public Health Perspective
PBHLTH 245	Intro to Multivariate Public Health Statistics
PBHLTH 250B	Epidemiologic Methods II
PBHLTH 250C	Advanced Epidemiologic Methods
PBHLTH 252A	Applied Sampling
PBHLTH 252D	Introduction to Causal Inference
PBHLTH 252E	Advanced Topics in Causal Inference
PBHLTH C240B	Biostatistical Methods: Survival Analysis and Causality
PBHLTH C240C	Biostatistical Methods: Computational Stats with Applic Biology & Medicine
PhDBA 297B	Research and Theory in Business: Behavior Science
PS 239T	Computational Tools and Techniques
PS C236A	Statistics of Causal Inference in Social Sciences
PSY 206	Structural Equation Modeling

Electives (3 courses)

Three additional elective courses taken for a grade from among Berkeley's wide offering of graduate courses. Students should work with their advisor to select an appropriate mix of courses to ensure multidisciplinary but deep methodological and substantive expertise.

POPULATION & DATA SCIENCE

Faculty Lead: Lia Fernald

The Population & Data Science specialty field trains students for research careers applying cutting-edge quantitative methods to pressing policy questions in health services research and population health. Students will learn and integrate methods from key disciplinary strengths at Berkeley: biostatistics, social science approaches such as econometrics and demography, and the rapidly evolving set of “big data” data science innovations advanced in UC Berkeley’s Division of Computing, Data Science, and Society. The explosion of health sector data availability, along with Berkeley’s innovation hub positioning, make this an excellent track for students looking to become quantitative experts who can lead research across a wide variety of population health policy questions.

Core Requirements

PBHLTH 237A,B	Theories and Methods in Health Policy and Health Services Research
PBHLTH 237C	Health Services Research Colloquium (Years 1 and 2)
PBHLTH 237D	Health Policy Dissertation Seminar (Year 3+)

Specialty Field Requirements

Students in the Population & Data Science specialty field are required to take five specialty field elective courses, chosen in consultation with their advisor. Students should review the most recent Population & Data Science specialty field exam reading list early in their course planning process.

Specialty Field Electives (select 5)

ARE 212*	Econometrics: Multiple Equation Estimation
ARE 213	Applied Econometrics
CE 264	Behavioral Modeling for Engin, Planning, & Policy Analysis
DEMOG 210	Demographic Methods
ECON 244	Applied Econometrics
EDU 274A	Measurement in Education and Social Sciences I
EDU 274B	Measurement in Education and Social Sciences II
EDU 274C	Research Seminar in Measurement
EDU 274D	Multidimensional Measurement
EDU 275B	Data Analysis in Educational Research II
EDU 275G	Hierarchical and Longitudinal Modeling
INFO 251	Applied Machine Learning
PBHLTH 196	Artificial intelligence for medicine and health policy
PBHLTH 219D	Introduction to Survey Methods
PBHLTH 226C	Economics of Population Health
PBHLTH C240B	Biostatistical Methods: Survival Analysis and Causality
PBHLTH C240C	Biostatistical Methods: Computational Stats with Applic Biology & Medicine
PBHLTH 241	Statistical Analysis of Categorical Data
PBHLTH C242C	Longitudinal Data Analysis
PBHLTH 243C	Information Systems in Public Health
PBHLTH 244	Big Data: A Public Health Perspective
PBHLTH 245	Intro to Multivariate Public Health Statistics
PBHLTH 250B**	Epidemiologic Methods II

PBHLTH 250C	Advanced Epidemiologic Methods
PBHLTH 252A	Applied Sampling
PBHLTH 252D	Introduction to Causal Inference
PBHLTH 252E	Advanced Topics in Causal Inference
PBHLTH 255D	Methods in Social Epidemiology
PBHLTH 290.005	Biomedical Big Data Seminar
PBHLTH 290.008	Applied Impact Evaluation
PP 259	Cost-Benefit Analysis
PS 239T	Computational Tools and Techniques
PS C236A	Statistics of Causal Inference in Social Sciences
PSY 206	Structural Equation Modeling

* Math 54: Linear algebra is recommended if students have no prior linear algebra coursework.

** Required of students who have not completed an advanced level epidemiologic methods course.

Electives (6 courses)

Six additional elective courses taken for a grade from among Berkeley's wide offering of graduate courses. Students should work with their advisor to select an appropriate mix of courses to ensure multidisciplinary but deep methodological and substantive expertise.

Examples of suggested elective courses (in addition to those listed for each track):

DEMOG 126	Social Consequences of Population Dynamics
DEMOG 230	Human Mortality
DEMOG 260	Social Networks or Other Topics
DEMOG C275A	Economic Demography
INFO 232	Applied Behavioral Economics for Information Systems
PBHLTH 216A	Biological Embedding of Social Experiences
PSY 290K	Multidisciplinary Perspectives on the Study of Behavior Change
PBHLTH 201F	Community-based Research & Intervention
PBHLTH 206B	Food and Nutrition Policies and Programs
PBHLTH 206C	Nutrition Epidemiology
PBHLTH 206D	Food and Nutrition Policies and Programs in Developing Countries
PBHLTH 210B	Adolescent Health
PBHLTH 217C	Aging & Public Health
PBHLTH C233	Healthy Cities
PBHLTH 253D	Behavior & Policy Science in HIV Treatment and Prevention
PBHLTH 255A	Social Epidemiology
PBHLTH 255C	Mental Health & Psychopathology
PP 290	Behavioral Science for Public Policy

III. Course Sequencing Examples

HEALTH ECONOMICS

Summer	Econ 204 Math for Economics or Math 104	
Year 1	Fall	Spring
	ECON 201A Economic Theory	Econ Elective
	PH237A Theories and Methods in HP and HSR	PH237B Theories and Methods in HP and HSR
	Elective	ARE 212 Multiple Equation Estimation
	PH237C HSR Colloquium	PH237C HSR Colloquium
Year 2	ARE 213 Applied Econometrics	Research Methods
	Econ elective	Econ Elective
	Econ Elective	PH250B Epi Methods II or Research Methods
	Elective	Elective
	PH237C HSR Colloquium	PH237C HSR Colloquium

ORGANIZATIONS & MANAGEMENT

Year 1	Fall	Spring
	Demog 260: Social Networks	PH224D Org/Mgmt Core or Elective
	PH 245: Multivariate Statistics	PS 239T: Computational Tools and Techniques
	PH237A: Theories and Methods in HP and HSR	PH237B Theories and Methods in HP and HSR
	PhD BA 259A: Research in Micro-Organizational Behavior	PP 273: Public Management and Policy Implementation
	PH237C HSR Colloquium	PH237C HSR Colloquium
Year 2	PhD BA 297T: Doctoral Topics in Business Administration	PH224D Org/Mgmt Core or Elective
	EDUC 275G: Hierarchical and Longitudinal Modeling	PhDBA 259S: Research Seminar in Organizational Behavior and Industrial Relations
	PP 290: Behavioral Science for Public Policy	PH 250B: Epi Methods II
	PH237C HSR Colloquium	PH237C HSR Colloquium

POPULATION & DATA SCIENCE

	Fall	Spring
Year 1	PH237A Theories and Methods in HP and HSR	PH237B Theories and Methods in HP and HSR
	PH250B Epi Methods	P252D: Intro to Causal Inference
	ARE 213 Applied Econometrics	PH290 Applied Impact Evaluation
	Demog 210 Demographic Methods	PH226C Economics of Population Health
	PH237C HSR Colloquium	PH237C HSR Colloquium
Year 2	PBHLTH 196 Artificial intelligence for medicine and health policy	INFO 251 Applied Machine Learning
	PBHLTH 252E Advanced Topics in Causal Inference	PH 244 Big Data: A Public Health Perspective
	Elective	PH 255D Methods in Social Epidemiology
	PH237C HSR Colloquium	PH237C HSR Colloquium

IV. Health Policy PhD Examinations

SPECIALTY FIELD EXAMINATION

Students must pass a comprehensive 4-hour written examination in their specialty field before they proceed to their oral examination and advance to candidacy. At the end of the second year and with all specialty field course requirements fulfilled, students will take their specialty field exam. The examination will be designed to test the core knowledge in the student's chosen field of health economics, organizations & management, or population & data science. A three-member faculty committee will write each examination and evaluate the students' performance. The specialty field faculty leaders can allow a non-group faculty member to serve on this committee.

Students should meet with their specialty field head at least six months before their scheduled date in order to discuss the focus of their study and preparation. A reading list and question bank will be developed by each exam committee. The exam date is scheduled by the program manager in consultation with the examinees.

Criteria for Examination:

The specialty field examination tests the students' understanding of the major concepts, theories, and findings in their specialty field, and students must be able to apply this knowledge to the health care field.

The criteria used to evaluate the students' performance include:

- A sound understanding of the core knowledge of the field;
- Demonstrated ability to apply the specialty field to the health field;
- Demonstrated expertise at the level required to teach graduate classes in their specialty field.

Requests for ergonomic equipment or special consideration during the exam must be made at least two weeks before the scheduled exam in order to be reasonably accommodated.

Exam Grading

Each question should have a minimum of two graders. Exam grades should be returned to the program manager within 2-4 weeks. Grader's comments are kept anonymous, and a summary sheet with grades and comments for the student will be compiled.

Grading is high pass, pass, low pass, or fail for each question. A grade for the entire examination is determined by consensus of the examining committee.

Students can take the specialty field examination only twice. Students who fail the exam will be given the opportunity to take the exam again within three months. The examining committee decides whether a student needs to re-take a part (i.e. question) of the exam or the entire exam. The committee can also decide whether the same question(s) is to be re-taken or can select new questions from the question bank for that specialty exam. Two failures will require that the student be asked to leave the program.

QUANTITATIVE RESEARCH METHODS PAPER REQUIREMENT

Each Health Policy PhD student must demonstrate their ability to use quantitative research methods by completing an empirical research paper. The approval of this paper is required in order to submit the application for the Qualifying Exam to Graduate Division. The student's faculty advisor or the PhD program's research methods faculty lead, Professor Timothy Brown, must approve the paper.

There is considerable flexibility in the paper requirement, depending on each student's area of interest and past coursework. The paper can be an analysis to inform a potential dissertation paper, can build on a class paper, can be part of a research project conducted with a faculty member, or as part of a job. There are no bounds set on types of quantitative methods or data used, however it is recommended that the student consult their advisor early in the process. Students can use the methods paper as one of three papers in a three-paper dissertation or as the foundation for a single-paper dissertation. To facilitate publication of the paper, students can opt to conform to the word limit and manuscript format requirements of a targeted peer-reviewed journal.

If a student is considering submitting a co-authored paper for the quantitative research methods requirement, then the student should first discuss the paper and the authorship arrangement with their advisor. Co-authored papers are acceptable as long as the student is first author, but given disciplinary differences in authorship order and relative contributions, the advisor should approve in advance if a co-authored paper will be submitted. The spirit of this requirements is that the student should have responsibility for conducting and writing the methods portion of the paper.

The quantitative research methods paper must be approved by the end of their third year, or prior to student scheduling of their qualifying examination, whichever is first. The methods paper should be submitted to their faculty advisor or the quantitative research methods paper faculty lead Professor Timothy Brown at least two months in advance, preferably by the start of the third year. This will allow ample time for the paper to be reviewed in the event that revisions are recommended. The faculty adviser will sign a form (QE checklist) after the paper has been successfully reviewed and approved; the form then must be submitted to the program manager. This approval is required for all students who are preparing to take their Qualifying Exam. (In exceptional circumstances with permission of the program director a student may take their Qualifying Exam prior to methods paper approval; they must then complete the methods paper and submit candidacy advancement paperwork to Graduate Division by the end of the following semester or else they will have to re-do their Qualifying Exam.) The final version of the quantitative research methods paper must be given to the PhD Program Manager for filing. It will be included with the documents reviewed by the student's Qualifying Exam committee.

The key expectations are:

- Use actual empirical data to explore an interesting question in the field of health policy and health services research.
- Use quantitative research methods appropriate for a researcher trained at the PhD level.
- Write a paper of potentially publishable quality.

Typical Structure if Not Conforming to a Peer Reviewed Publication Requirements

The following is an outline of the structure of a typical methods paper, although individual papers may vary considerably from this structure. Text is 10-25 double-spaced pages, 1" margins, 10- 12 point font.

1. Title page

Title, name, date.

Short abstract (structured or paragraph).

In a footnote acknowledge anyone who has made important contributions to the paper

2. Introduction (1-2 pages)

Explain the broad question and motivate why it is important to clarify

Outline the hypotheses that you will be testing, and discuss how they will inform the broad question. Relate your paper to any important previous studies that you have built on (complete literature review not required).

3. Conceptual framework

Provide a conceptual framework for considering your question, and state the exact hypotheses to be tests.

4. Data

State the exact source of data. Describe the data's population and sampling design, particularly complex survey features such as clustering and weights.

If using a sub-sample of the data, describe the exact selection rules so that another researcher could replicate your sample in the future.

Define each dependent and independent variable, and discuss how it is measured and transformed for analysis. Provide a table of summary statistics, and highlight important features of it in the text. Discuss missing data issues. If relevant, discuss how they will be addressed and provide a table comparing included and excluded observations (comparing samples with appropriate statistical tests).

5. Methods

Describe the statistical methods that you will be using.

If using advanced estimation techniques (beyond ordinary regression), motivate in words your alternative estimation approach, and state the strengths and limitations of each estimator. Clearly present equations illustrating the models that you will estimate (independent variables, error structure with appropriate subscripts if appropriate).

Discuss each test that you will use to choose between models (there is no required number of tests; use the tests that are appropriate to your application).

6. Results

Provide tables of results for each key model that you estimate (not just the preferred model), and in the text highlight the main results. Interpret the results of the specification tests, and argue which model is preferred and why.

7. Limitations

Discuss each of the important limitations of your analysis, and how they might affect your results. You are not expected to have solved all potential problems, but you must thoughtfully discuss them.

8. Discussion

Briefly summarize your main findings, and relate them to the hypotheses and broad questions in the introduction.

9. References**10. Tables and Figures**

All tables (followed by figures) should be attached to the end of the paper, not included in the middle of the text. Consult journals for sample formats (appropriate labels, avoid vertical lines in tables, etc.).

11. Appendix

Include a concise program file (i.e. do file if using Stata) used to generate your results. Document it with comments so that a year from now you would be able to follow it. If relevant, include IRB approval letter in the appendix.

12. Response to Comments

If this is a revised submission of the paper, include a point-by-point response to specific comments raised by the adviser or methods coordinator.

QUALIFYING EXAMINATION

Students must pass a 2-3 hour oral qualifying examination (QE) in order to advance to candidacy. All program requirements (the specialty field exam, all required coursework, and the methods paper) should be completed before the exam can be scheduled. In some cases students and their advisors will decide that it is appropriate to take the QE prior to completing all required coursework; this is allowed, but per Graduate Division policy <https://grad.berkeley.edu/policy/fullguide/#f28-advancement-to-candidacy-for-a-doctoral-degree> the coursework must be completed prior to applying for candidacy, and the candidacy application must be filed no later than the end of the semester after the semester in which the student passes the QE. Students should consult with the Health Policy Program Manager to ensure that the required forms are filled out and submitted for approval and signature.

Students are responsible for ensuring that they have completed all program requirements by reviewing core and specialty field courses completed with their advisor, including grades received. There is a checklist and pre-qualifying assessment that must be signed by the student's advisor and the Program Director. The complete approved research methods paper must be on file in Program Office prior to scheduling the exam. Students should consult the Program Manager for relevant procedures to submit forms and apply to take the Qualifying Exam; they should plan to apply at least 4 weeks in advance. In addition, students must complete the CITI Course in the Protection of Human Research Subjects and include a copy of the certificate of completion.

A four-member qualifying examination committee will examine the student's knowledge in health policy, their specialty field, and the proposed area of dissertation research. Students should consult the Program Director, their advisor, and current Graduate

Division rules regarding committee composition. Current Graduate Division rules require that the QE committee include a Chair (who must be a member of the Health Policy graduate group faculty), an Academic Senate Representative (any other Berkeley Senate faculty member), and at least two Additional Members. Note that:

- A single faculty member cannot serve simultaneously as the chair and Academic Senate representative.
- One additional member beyond the number required by the degree granting program may be added.
- The Qualifying Examination Chair cannot serve as the Dissertation Chair for the same student.
- There cannot be Co-Chairs for the QE.
- It is the collective responsibility of the QE Committee to ensure that the student's mastery of the subject matter is broad and comprehensive.
- If a student is reexamined, the committee for the second examination must be the same as for the first examination.

A non-member of the UC Berkeley Academic Senate may serve on the committee as one of the additional members if the individuals' expertise plays an important role in the development of the dissertation research. This committee member must hold a PhD or equivalent. A memo explaining this request must be prepared for the Associate Dean of Graduate Division by the Program Director, accompanied by a curriculum vita.

Changes to the committee membership must also be approved by the Dean and will require a memo of explanation.

Scheduling the Exam

Students must contact their committee members in order to schedule their exam. Once they have a day and time, the Program Manager will reserve a conference room and the equipment needed (LCD projector, laptop). The QE date is indicated on the application, but there is some flexibility in rescheduling the exam after the application has been approved. Changes to the exam date (within the same semester) are generally not an issue other than scheduling a time and place for the exam.

DISSERTATION PROSPECTUS:

The student must distribute a written prospectus of the proposed dissertation research, generally of no more than twenty-five pages (but varies by field and topic) at least three weeks prior to the QE date (generally the students should share early drafts of the prospectus with the QE committee members at least two months in advance). The main purpose of the prospectus is to clearly and convincingly demonstrate the significance of the contribution your research will make to health policy and the student's specialty field. Significance is measured by the "publishability" of your work in reputable journals in the field. The prospectus focuses on the methodology you have selected and how you apply it in your research.

The typical prospectus contains the following elements (the order of presentation is flexible):

1. Literature review

An in-depth, concise and critical review of the relevant literature. Weakness and important gaps in the literature should be noted.

2. Theoretical or conceptual model

A fully developed theoretical or conceptual model (e.g., the Theory of Resource Dependence, a Theory of Nonprofit Hospitals, Asset/Pricing models). The logical connection between the conceptual model and the research questions or hypothesis should be detailed.

3. Statement of research questions or hypotheses

A statement of research question(s) and/or the hypothesis(es) to be tested.

4. Data, Methods and Analyses

Identify the needed databases and assess their appropriateness and availability of data or your data collection strategy. Sample questionnaires or questions or documentation of existing data files should be included in appendix materials. Also include a brief description and justification of the statistical and/or econometric models and/or qualitative methods to be used.

5. Expected results

Prepare a detailed and carefully worded statement of the expected results of your research, including the significant contributions it will make, noting the journals where the research might be published.

6. Health policy implications

The health policy significance of your research and its implications for improving the organization, financing and/or delivery of health care should be clearly noted.

Graduate Division permit only a pass or fail grade. A passing grade means that the student can advance to candidacy. A grade of pass with distinction may be given in rare cases but it is only for internal purposes and will be registered with the Graduate Division as a passing grade.

A student who does not pass can be re-examined after one month's time. A second failure will lead to dismissal from the program. A petition for a third examination can be filed in special circumstances with the Graduate Division.

Criterion for Evaluation

The committee should consider three criteria in making its grading recommendation.

- Is the student prepared to conduct independent research that will make significant contributions to the field?
- Has the student prepared a set of research questions that are of real significance to the field and have the potential for publication in high quality journals in the field of health services and policy analysis or related disciplines?
- Has the dissertation prospectus and student's responses to the issues raised by the committee provided clear evidence that, without major revisions, the student should proceed and advance to candidacy?

If the committee's judgement is affirmation to these questions, then the committee should recommend a passing grade. In cases where the committee is non-unanimous in its recommendation, the Graduate Division required each member of the committee to write a report.

In cases where the student does not pass, the committee may recommend additional course work, independent readings and/or a revises dissertation prospectus. If possible their recommendation should be in writing by the committee chair and discussed with the student at the examination or shortly afterward. Again, if there is not a unanimous vote, a written report from each member and a chair report must be filed with the Graduate Division.

Copies of all recommendations should be sent to the Health Policy PhD Program Director. Official forms required by the Graduate Division also need to be filed by the student with the Graduate Division.

Examination Procedure

The QE Chair is responsible for conducting the examination. A brief meeting is usually held before the examination begins so that the ground rules can be discussed and agreed to by all members. The examination is usually three hours in length. Many exams begin with the student giving a brief overall view of their research proposal with emphasis on the research questions, their significance, and most importantly the contribution that the work will make to the field of health services and policy analysis. The examination usually involves a discussion of the research methodology to be used, its appropriateness and limitations. The student's ability to discuss these issues is a focus of the examination. Students may be asked to respond to any question in the field of health services and policy analysis as deemed appropriate by the examination committee.

Responsibilities in the QE Process

Students are advised to make sure that their committee members are reminded of the date, time and location of the exam at least one week before the exam, and at least one or two days before the exam. An extra copy of the prospectus should be brought to the exam in the event a member needs it.

Students are not expected to arrange for refreshments during the exam, and it is inappropriate for students themselves to bring any refreshments for the committee.

The Program Manager is responsible for: assembling the student's file for the Committee Chair, reserving the room and equipment, securing the Director's signature on forms, and forwarding those forms to the Graduate Division.

Human Subjects Approval

If you are conducting research involving human subjects, you are obligated to request review and approval for your study protocol from the Committee for Protection of Human Subjects (CPHS) which serves as the Institutional Review Board (IRB) for UC Berkeley. Federal law and University policy require that all research you conduct that involves human subjects in any way must be reviewed and approved for determined to be exempt by the CPHS before the research is initiated. If your research is ongoing, you must request the project be reviewed and approved again prior to the expiration date on the current approval, and at least once a year.

Before approval is granted for a research protocol, any graduate student listed as Lead Investigator or Key Personnel on an application for CPHS must complete training in human subjects research by taking and passing the online CITI Program, a

basic course (<https://about.citiprogram.org/en/homepage/>) in the Protection of Human Research Subjects. Students should take either the Social-Behavioral or Biomedical sequence of modules as is most appropriate for the type of research they are conducting.

Graduate students who plan to use human subjects in their research must complete the CITI course and print out the certificate of completion prior to applying for advancement to candidacy. This certificate must be submitted with the advancement form (see Advancement to Candidacy section).

V. Health Policy PhD Dissertation

OVERVIEW

Writing and filing your doctoral dissertation is one of the final steps leading to the award of your graduate degree. Your manuscript is a scholarly presentation of the results of the research you conducted at the School of Public Health. UC Berkeley upholds the tradition that you have an obligation to make your research available to other scholars. This is done when you submit your dissertation for publishing through the [ProQuest online administration system](#) and the Graduate Division forwards your manuscript to the University Library. Your dissertation is subsequently [published online](#) in the UC-system's scholarship repository ([eScholarship](#)) and made available within ProQuest/UMI after your doctoral degree is officially conferred by the Academic Senate.

Your Dissertation Committee supervises the intellectual content of your manuscript and your Committee Chair will guide you on the arrangement within the text and reference sections of your manuscript. For this reason, students should be selective in constituting the Dissertation Committee and Dissertation Chair.

CONSTITUTING THE DISSERTATION COMMITTEE

A three or four-person dissertation committee is selected by the student and appointed after the student has been successfully advanced to candidacy by the Graduate Division. The Program Manager must be notified of the membership of the committee. Review the Graduate Division policy on configuration requirements for higher degree committees for detailed information (<https://grad.berkeley.edu/policy/degrees-policy/#f47-configuration-requirements-for-higher-degree-committees>).

Head Graduate Advisors of degree granting programs are responsible for reviewing committee membership before submission to the Graduate Division. For the purposes of this policy for the Health Policy graduate group, faculty must be core members in that group (and on file as such in the Graduate Division). A single faculty member cannot serve simultaneously as the chair and Academic Senate representative. If the Head Graduate Advisor is to serve either role on any committee, the Chair or Dean of the department, graduate group, or school should approve the committee.

The Dissertation Committee consists of: a Chair, an Academic Senate Representative, and at least one additional member. Please note that:

- A Dissertation Committee requires a minimum of three members
- Two Co-Chairs may replace one chair
- The Dissertation Chair cannot be the same person who served as the student's Qualifying Examination Chair, the QE Chair may serve as a student's Dissertation Co-Chair
- The Dissertation Chair or Co-Chair must be a member of the Health Policy Graduate Group

Dissertation research must be relevant to health policy and the student's specialty field (see *Dissertation Prospectus Guidelines*). For completion of the PhD requirements, students must provide copies of their dissertations that follow Graduate School guidelines. An additional bound copy must be filed with the PhD program office.

Advancement to Candidacy

The guidelines for candidacy are located on the Graduate Division website (<https://grad.berkeley.edu/academic-progress/advanced/>) and include critical information to be aware of, such as the length of the candidacy period. International students who advance to candidacy do not have to pay the non-resident tuition for a period of three calendar years.

When doctoral students have advanced to candidacy, the Graduate Division emails students a letter that includes information on writing a dissertation, finding financial support for research and writing, and using campus resources during this new phase of doctoral study (Graduate Degrees Office, 642-7330). Additional information regarding [academic skill building workshops](#) are available on the [Graduate Division website](#).

Each semester after advancement to candidacy, students should register for 12 units of independent research with their dissertation chair. The course number for independent research is Public Health 299.

Dissertation Guidelines

Acceptable dissertation projects will be broadly defined to reflect the historic and current interests of UC Berkeley Health Policy PhD students. The dissertation will be an original academic work that is *problem or opportunity focused*. The goal is to identify an important public health problem or opportunity and develop an appropriate solution or strategy.

As such, the results might be targeted at public and/or private policy makers, and/or program managers and corporate decision-makers with specific information to inform, improve, and revise existing policy or initiate new, needed, or especially effective policy.

Examples of dissertation research approaches include but are not limited to: examination of the health status of a group, evaluation or other critical assessment of an intervention or policy being promoted or implemented, analysis of management issues, analysis of health policy, assessment of community assets, transdisciplinary research, problem or opportunity focused theoretical contributions, histories, and methodological contributions.

Should the student and/or the student's Dissertation Committee have any question as to whether the student's research approach is appropriate for the dissertation, the question should be forwarded to the Health Policy PhD Program Chair for his or her opinion. If the approach is found to be an exception, a formal request for exception must be approved by the student's Dissertation Committee and the Health Policy PhD Program Chair.

The guidelines for candidacy are located on the Graduate Division website (<http://grad.berkeley.edu/academic-progress/advanced>) and include critical information to be aware of, such as the length of the candidacy period. International students who advance to candidacy do not have to pay the non-resident tuition for a period of three calendar years.

FORMAT OF THE DISSERTATION

The format of the dissertation will be one of three options: a standard dissertation, the three paper option, or an alternate single dissertation format acceptable to the student's Dissertation Committee.

Option 1. The *three paper option* format will include three articles of publishable quality along with (1) a separate introduction and (2) an integrative conclusions section. The three papers will be written in the format required by peer-reviewed journals identified by the student and approved by their Dissertation Committee. Dissertation Committees may require additional documentation to assess the student's work (e.g., extended methods section). This additional work should be part of the integrating documents and not the individual articles which should be of publishable length and content. Exception maybe sought to substitute an alternate product for one of the papers (e.g., DVD, website, or educational pamphlet). The exception process will include approvals by the student's Dissertation Committee and the Health Policy PhD Program Chair.

Option 2. A *single paper dissertation* will usually incorporate the following specified content:

- Statement of the public health problem or opportunity and the resulting research question
- Critical review of the scientific literature relevant to that problem or opportunity
- Conceptual framework that includes the relevant social, scientific, economic, political, environmental, human rights, administrative, and/or cultural context
- Description of the study design or data sources and analytic methods used to answer the research question.
- Analytic results and their implications for the problem or opportunity under study
- Recommendations based on the results of the study
- Strategy for implementing and evaluating the recommendations, taking into consideration the contextual factors identified in the conceptual framework

Option 3. Alternate single dissertation formats (e.g., a book) are acceptable if approved by the student's Dissertation Committee.

There will be no final dissertation defense. Students may be asked to present their dissertation findings in a forum sponsored by the Health Policy PhD Program either in the semester they graduate or within a year after graduating. The presentation is not a requirement for graduation.

FILING THE DISSERTATION

After you have written your dissertation, formatted it correctly, assembled the pages into the correct organization, and obtained your signature, you are ready to file it with the UC Berkeley Graduate Division. Refer to the Graduate Division Dissertation Writing and Filing guidelines: <https://grad.berkeley.edu/academic-progress/dissertation/>.

In order to file, candidates must either be a registered student or be on filing fee status: this is a reduced fee for those students who have completed all requirements and are intending to file their dissertations. These candidates cannot hold a campus appointment (GSI or GSR) or receive any campus funding if they have filing fee status. Furthermore, a candidate must have been registered as a full-time student in the semester prior to filing fee period. One unit of summer session will fulfill this requirement for those students who plan to be on filing fee status for fall, and who were not registered during the previous spring.

Academic Senate regulations require that all work for a degree must be completed by the last day of the semester in which the degree is conferred. Degrees are conferred in December and in May. The last day to file a dissertation with the Graduate Division is the last day of each semester. The filing deadlines are strictly observed. To obtain the specific dates, please consult the Registrar's web site (registrar.berkeley.edu) for the student calendar. It is strongly recommended not to wait until the last day to file.

Once the manuscript is in final form and the committee members have signed the approval page of the dissertation, the student is ready to file. The dissertation should be submitted to Graduate Services: Degrees, 318 Sproul Hall, before the end of the semester in which the degree will be conferred. The Degrees Unit will verify the student's registration or filing fee status and check all of the submission requirements. For details see the Graduate Division website: grad.berkeley.edu/policy/

VI. Travel Grants

The PhD program strongly encourages students to take advantage of opportunities for professional development by submitting papers or posters for presentation at health policy, health services research and related conference. Students whose research is accepted for conference presentation will be eligible for up to \$500 in travel grant funding from the program per academic year. The number and size of awards each year will depend on the number of applications and available funds. A fund from PhD program alumni donations specifically for student travel has been established.

Conditions:

- PhD students will be eligible to receive a Health Policy PhD program travel grant once per academic year.
- Applicants must be enrolled in the program in good standing at both the time of application and time of the conference.
- Priority will be given to oral presentations over posters, and to conferences most central to health policy and health services research (e.g. AcademyHealth, Population Association of America, Academy of Management)
- The student must be the primary presenter (not co-author).
- If conference organizers have not yet announced acceptances at the time of the travel grant application deadline, students should apply for the grant anyways. If the abstract is not accepted, then the funds may be applied toward funding for another conference or toward assisting at AcademyHealth conference exhibit table (up to 2 student assistants).
- Approved expenses include: reasonable transportation, lodging, food, and conference registration fees.
- Students must also apply for other campus travel funds for which they are eligible (in order to maximize funds available for PhD students, travel awards may be reduced by the amount received from these other awards), including:
 - [AAVPG – Academic Opportunity Fund](#)
 - [The Graduate Assembly Travel Award](#)
 - [Graduate Division Conference Travel Grants](#)

Travel request applications must include:

- Conference title, date and location
- Title and abstract of accepted (or pending) presentation, and whether oral or poster.
- Proposed budget (including estimated expenses, and amounts requested from the PhD program and other sources).
- Details on other campus travel funding sources to which student has applied (or reasons why ineligible if have not applied for the Graduate Division or Graduate Assembly awards), including source, award amount and decision date.

Application Deadlines

Applications must be emailed to the Program Manager by the following deadline (rolling decision can also be made for earlier applications if necessary):

- October 1 for November-February travel
- February 1 for March-June travel
- June 1 for July-October travel

Conferences

[AcademyHealth Annual Research Meeting](#), held in June each year. The call for abstracts opens in late fall. Students should initiate discussions early on with faculty to get advice on abstract preparation.

Other popular conferences for PhD students include:

- [Academy of Management](#) is held in August
- [APHA](#) is held every November
- [ASHEcon](#) is held each summer, and [IHEA](#) is every other year
- [PAA](#) is held March/April