This introductory course incorporates three components focused upon identifying: 1) the ethical principles associated with human subjects research; 2) the primary tenets of responsible conduct of research; 3) academic career planning. This course provides a philosophical basis for current research ethics practices, identifies outstanding ethical issues and controversies in clinical and translational science and research, and provides students with knowledge and access to resources such that they may to address the ethical challenges that may arise most effectively. The course provides a more in-depth exploration of the ethics and responsible conduct of clinical and translational science research that can supplement current mandated training in the area.

1 credit, Letter graded (A, A-, B+, etc.)

HPD 605: Introductory Seminar on Doctoral Studies in Population Health and Clinical Outcomes

This is an introductory doctoral-level 3-credit seminar for all incoming PhD students in Population Health and Clinical Outcomes. This course will help students understand what earning a PhD entails, opportunities that exist after earning a PhD, typical PhD-level work activities, and beginning the process of academic writing. Students should already be thinking about what their dissertation will be about, and we will build off of that throughout the course.

3 credits, Letter graded (A, A-, B+, etc.)

HPD 619: Independent Study

Intensive reading under supervision of one or more instructors, of material not covered in the formal curriculum, or execution of a research project under the supervision of one or more faculty members. Generally a written deliverable (e.g. manuscript) will be required. Instructor consent required.

0-6 credits, Letter graded (A, A-, B+, etc.) May be repeated for credit.

HPD 650: Seminar Series: Clinical Applications of Molecular Medicine

This course will provide an overview of the field of molecular medicine, with a focus on cutting edge technologies related to the current and future clinical applications to improve early detection, to enhance diagnostic testing, to monitor treatments, and to counsel patients on their prognosis. As applied to clinical patient care questions, the specific molecular medicine topics discussed will include: DNA, RNA, proteomics, and chromosome assays. Pending the specific lecturers and topics coordinated, students will be introduced to a broad range of biomarkers for disease such as cancer, pulmonary/heart diseases, autism, and immune-related disease challenges.

An emphasis will be placed in this course on learning how molecular markers can be applied in a clinical setting to augment the patient and provider decision-making process. (NOTE: Students should have an introductory knowledge of cellular and molecular development biology, as well as a general laboratory background).

Offered in Spring, 1 credit. Letter graded (A, A-, B+, etc.)

HPD 664: Clinical Trials

This course introduces the design, conduct, and analysis of clinical trials. Topics include types of clinical trials, study design, treatment allocation, randomization and stratification, quality control, sample size requirements, patient consent, and interpretation of results.

3 credits, Letter graded (A, A-, B+, etc.)

HPD 665: Clinical Outcomes Research

This course will provide an overview of the field of clinical outcomes assessment. The specific topics covered include: risk factors identification, clinical outcomes selection, risk adjustment methods, patient safety monitoring, and provider-based quality improvement performance reporting. Students will be introduced to a broad range of clinical outcomes including (but not limited to) short-term mortality, treatment-related morbidity, health-related quality of life, condition-specific metrics, patient satisfaction, health plan member satisfaction, utility theory, and cost-effectiveness analysis. An emphasis will be placed in this course is placed on learning how clinical outcomes research can provide a data-driven approach to influence patient, provider, program, and policy decisions.

3 credits, Letter graded (A, A-, B+, etc.)

HPD 667: Causal Inference

This course introduces the design, conduct, and analysis of clinical trials. Topics include types of clinical trials, study design, treatment allocation, randomization and stratification, quality control, sample size requirements, patient consent, and interpretation of results.

3 credits, Letter graded (A, A-, B+, etc.)

HPD 681: Advanced Social Determinants of Health

This course will build on the prior HPH 523 and further examine the current evidence supporting an association between social determinants (e.g., socioeconomic status, physical living conditions, individual characteristics, social support, etc) and health. Students will review and critically examine the
current literature on the social determinants of population health with the goal of identifying gaps in this literature which may be filled by future research. Concepts relating to the social determinants of health - e.g., identification of current priority areas, theoretical frameworks and perspectives, intervention, research methodology, etc, will be addressed as each comes up in the context of the reviewed journal article. Using publicly available data sets, students will choose a research topic related to an identified gap in the current research on the social determinants of health, propose a project to examine this topic or need which can be accomplished using publicly available data sets, conduct the analysis and write up their project in a format suitable for submission for publication. Offered

**Spring, 3 credits, Letter graded (A, A-, B+, etc.)**

**HPD 682: Statistical Methods in Clinical Outcomes Research**
The purpose of the course is to familiarize students with some major topics in clinical outcomes research, the statistical models commonly employed, and statistical problems that need to be overcome. Specific topics of interest may include: risk factor analysis; static models; risk factor/disease progression analysis; dynamic models; survival analysis (including multivariable survival analysis); volume-outcomes research; and forecasting models. Statistical techniques and challenges will be discussed within the context of each research topic as they arise. By the end of this course, students should be broadly familiar with these issues, and should be able to evaluate published clinical outcomes research in terms of the appropriateness of models chosen and how well the statistical problems have been addressed, and the reliability of the results. Prerequisites: HPH 507 Biostatistics II or equivalent course. Offered

**Fall, 3 credits, Letter graded (A, A-, B+, etc.)**

**HPD 686: Mentored Research Project in Population Health and Clinical Outcomes Research**
This course will expose doctoral students to a project with which they are not currently familiar in the field of population health or clinical science. Each student will select a faculty mentor for their course project. Students will identify (with the pre-approval of their mentor and course director) a specific problem to address and/or a component of the mentor's project to complete. Following IRB approval or waiver (if applicable), the mentored project will be initiated. Final grade will be based upon the research proposal, project plan, and final project report submitted.

**3 credits, Letter graded (A, A-, B+, etc.)**

**HPD 687: Advanced Research Seminar**
The main purpose of this course is to familiarize students with empirical research methods via presentation and critiques of published research and work in progress. By presenting and discussing actual research that employs various statistical and other research methods, students will deepen their understanding of research intent and design, methodology and technique, format and presentation, and data management and analysis. This will reinforce their understanding of these methods learned in previous coursework.

**3 credits, Letter graded (A, A-, B+, etc.)**

May be repeated 1 times FOR credit.

**HPD 692: Practicum in Teaching I**
In this course, students will have the opportunity to examine, and plan for, the teaching component of the professor role. We will use a combination of strategies including lectures, discussions, small group activities, and interviews of exceptional teachers and departmental chairs to explore philosophical and practical issues related to course preparation, delivery, and evaluation. At the completion of the course, students will have a #teaching portfolio# that will have two basic components: a detailed set of plans for a specific course and a statement of their teaching philosophy. This will be an intensive #hands on# course that will require supportive and cooperative behaviors by all.

**3 credits, Letter graded (A, A-, B+, etc.)**

May be repeated for credit.

**HPD 693: Practicum in Teaching II**
The course is a supervised teaching experience with the Master of Public Health program.

**Fall, Spring, and Summer, 3 credits, S/U grading**

May be repeated 1 times FOR credit.

**HPD 694: Grant Writing**
This course will assist students in synthesizing basic public health knowledge through completion of a grant writing experience. Students will be introduced to the process of writing grant proposals, developing budgets, professional networking, publishing in the scientific literature, and planning for their future careers as public health professionals and academics. Students will also present their own individual research projects, write their own grant proposal, and do a career mapping exercise.

**3 credits, Letter graded (A, A-, B+, etc.)**

**HPD 699: Dissertation Research On Campus**
This course is normally taken by advanced PhD students when they conduct research towards their theses. Only PhD students who have been advanced to candidacy (G5 status) can take this course. Students who have the G3 and G4 status and participate in a research project with their advisor can register for HPD 619 Independent Study.

**Prerequisite: Must be advanced to candidacy (G5); permission of instructor**

**Summer, 0-9 credits, S/U grading**

May be repeated for credit.