HPD 519: Systematic Review of the Literature
This introductory course will provide students with an understanding of the process used to perform systematic review, as well as provide a "hands on" experience. Each student will perform a systematic review of the literature for their own pre-defined research question of interest. As part of the systematic literature review process, students will learn how to focus their research question; to search the literature to identify relevant studies; to appraise the quality and select studies; and to summarize studies as well as to synthesize their results in context of their original research question raised. To receive a grade for this course, moreover, a scholarly product (e.g., manuscript or letter to the editor) must be submitted to a peer-reviewed journal.
Offered Fall, 3 credits, Letter graded (A, A-, B+, etc.)

HPD 521: Introduction to Clinical Research
This seminar series course provides a broad-based introduction to the fields of population health and clinical science research. This course will prepare participants to become critical consumers of the peer-reviewed literature. Class lectures will cover a wide range of topics, which include: framing a research question, formulating a research hypothesis, evaluating the peer-reviewed literature, exploring study design options, conducting human subjects' research ethically/responsibly, selecting clinical outcomes, and evaluating analytical alternatives. Offered in Summer, 1 credit, Letter graded (A, A-, B+, etc.)

HPD 601: Human Subjects: Ethics and Responsible Conduct of Research
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. ABCF grading
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, S/U grading

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 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 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 673: Longitudinal Data Analysis
This course covers the theory and application of univariate and multivariable techniques appropriate for longitudinal data. Students will be exposed to both theory and application addressing repeated measures challenges.
3 credits, Letter graded (A, A-, B+, etc.)

HPD 674: Statistical Methods in Clinical Outcomes and Health Services Research
Clinical outcomes research frequently involves the analysis of nonexperimental retrospective databases. Such databases pose a number of statistical challenges, due to their nonexperimental design and various data limitations. This course will review and discuss multivariate methods in clinical outcomes research, focusing on specific issues involved in building and interpreting these models. These issues include causal inference, selection bias, measurement error, missing data problems, multicollinearity, and serial correlation. Clinical outcomes and health services research studies will be reviewed and discussed to illustrate these statistical issues and how they have been addressed in published research. Students will be asked to review and evaluate clinical outcomes and health services research papers, and present their reviews for discussion in class.
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. ABCF Grading 3 credits, Letter graded (A, A-, B+, etc.)

HPD 685: Research in Population health and Clinical Science.
This course will introduce students to health services and clinical outcomes research methods and applications of these approaches. The course will begin with an overview of key statistical methods, outcomes measurement issues, and methods for assessing the economic value of clinical treatments. The second part of the course will consider specific applications of health services and clinical outcomes research from a review and critique of published studies. Students will present and critique these studies together with the instructor. Specific areas of applications will include: Estimating the Production of Health Hospital Volume and Clinical Outcomes Estimating Clinical Outcomes with Patient-Level Data Racial and Ethnic Disparities and Medical Treatments Electronic Medical Records and Clinical Outcomes Cost Effectiveness Applications
3 credits, Letter graded (A, A-, B+, etc.)

HPD 686: Mentored Research Project in Population Health and Clinical Outcomes Research
Supervised research experience.
0-9 credits, May be repeated for credit.

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.)

HPD 689: 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 S/U grading, may be repeated for credit
0-9 credits, S/U grading May be repeated 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 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.)

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