Fall

PHP 0850 – Fundamentals of Epidemiology – S. Buka

As the cornerstone of public health, a strong foundation in epidemiology provides students with the ability to investigate, clarify and criticize claims of disease causation. This course provides students with a foundation in basic epidemiologic concepts and methods. Key measures of disease occurrence and effects used in epidemiology will be discussed; strengths and weaknesses of alternative epidemiologic study designs will be examined. Interpreting epidemiologic evidence to inform public health policy and practice will be emphasized throughout the course.

Open to Public Health concentrators and others by permission; Class limit 80.

PHP 1070 – The Burden of Disease in Developing Countries – S. McGarvey

Defines and critically examines environmental, epidemiologic, demographic, biomedical, and anthropological perspectives on health and disease in developing countries. Emphasis on changes in the underlying causes of morbidity and mortality during economic development. Focuses on the biosocial ecology of diseases. Required major term paper worth 50% of final grade is scholarly centerpiece of course. Weekly discussion sections and small group research projects supplement the two exams and term paper. Guest lecturers cover different diseases and public health perspectives. Enrollment limited to 65.

PHP 1700 – Current Topics in Environmental Health – K. Kelsey

This course is designed to introduce students to the field of environmental health, and demonstrate how environmental health is integrated into various aspects of our lives, both directly and indirectly. Topics to be covered include: toxic metals, vector-borne disease, food safety, water quality, radiation, pesticides, air quality, hazardous waste, risk assessment, and the role of the community in environmental health. Several topics will be presented by guest speakers so that students can learn from the expertise of professionals in the field. Enrollment limited to 65.

PHP 1710 – Climate Change and Human Health – G. Wellenius

Global climate change is occurring and these changes have the potential to profoundly influence human health. This course provides students with a broad overview of the diverse impacts of projected climate change on human health, including effects of changing temperatures, extreme weather events, infectious and non-infectious waterborne threats, vector-borne disease, air pollution, the physical and built environment and policies to promote mitigation and adaptation. Students will explore multiple sides of controversial issues through lively and informed class discussions, writing exercises, and participation in a series of end-of-term debates. Enrollment is limited to 20 students.
**PHP 1880 – Meditation, Mindfulness and Health – E. Loucks**

This course provides an overview on the relation of meditation and mindfulness (the ability to attend in a nonjudgmental way to one’s own physical and mental processes during ordinary, everyday tasks) with various health outcomes and disease risk factors such as depression, anxiety, diet, substance use, and cardiovascular disease. Mechanisms by which mindfulness may influence health will be addressed. The course will assess studies in the field for methodological rigor, and students will be taught strengths and weaknesses of current research. Students will be taught various mindfulness practices including direct experience with mindfulness meditation.

**PHP 1964 – Cancer Epidemiology and Prevention – T. Zheng**

This course is aimed at enhancing the knowledge and skills central to the application of epidemiologic methods to cancer screening, prevention, and control. We will exam cancer incidence and trends in the U.S. and globally, interpret their implication for cancer etiology, and critically analyze current evidence regarding the role of various major risk factors on human cancer risks. The class will focus on the impact of major environmental, occupational, and lifestyle risk factors on cancers of high public health significance.

**PHP 2220B – Nutritional Epidemiology – S. Liu**

*Not offered 2019-2020*

This course provides a comprehensive and systematic review of contemporary issues in human nutrition that require the application of epidemiologic principles and quantitative methods. Substantive topics range from the assessment of molecular etiologies for health and disease outcomes to evidence-based development of clinical guidelines and public health policies for foods and dietary supplements. This course is designed for graduate trainees in public health or the division of biology and medicine, visiting fellows, and advanced undergraduates who want to understand or conduct research in human nutrition and dietary assessment related to health and diseases.

Enrollment is limited to Graduate level students.

**PHP 2030 – Clinical Trials Methodology – I. Gareen**

We will examine the modern clinical trial as a methodology for evaluating interventions related to treatment, rehabilitation, prevention and diagnosis. Topics include the history and rationale for clinical trials, ethical issues, study design, protocol development, sample size considerations, quality assurance, statistical analysis, systematic reviews and meta-analysis, and reporting of results. Extensively illustrated with examples from various fields of health care research. Recommended prerequisites: introductory epidemiology and statistics. Pre-requisites: *(PHP 2120 or PHP 2150) and either PHP 2508, 2510, or 2520.* Open to graduate students only.
**PHP 2072 – Applied Public Health: Policy, Leadership and Communication – A. Gjelsvik**

Applied Public Health is a two-semester sequence of courses designed to give students the skills and experiences they need to master understanding public health and health care systems, policy in public health, leadership, communication, interprofessional practice, and systems thinking. This will be achieved through a combination of lectures, in class exercises, homework assignments, and practical experience in a public health setting. The second course (PHP 2072) is taken in the Fall of your second year.

**PHP 2090 – Research Grant Writing for Public Health – M. Lurie**

This course focuses on providing knowledge and experience in creating high quality public health research grant applications. Course objectives include developing significant and innovative scientific hypotheses, learning principles of effective written communication, and developing a research grant application suitable to submit for funding. Designed for Public Health School PhD students, post-doctoral fellows, and Masters students with advanced degrees (e.g. MD, PhD). Prerequisite: PHP 2120 or PHP 2150 or instructor permission.

**PHP 2118 – Genomics Epidemiology – S. Liu**  
**Not offered 2019-2020**

This course will describe how epidemiologists can integrate molecular, Mendelian, and population genetics to answer substantive topics of public health significance, and also inform the students of genetics and environmental health (in particular nutrition) that all genetic and environmental interaction could be assessed and understood in an integrated manner following epidemiologic principles and methods. The content will illustrate the strengths and weakness of different genetic study designs for understanding the role of genetic variation in the development of traits (continuous) or outcomes (categorical) of interest in humans and help the students to understand the emerging new concepts of genomics epidemiology. Through detailed lectures, discussion and hands-on analyses appropriate for different genetic association studies, this course will include concepts from genetic epidemiology to general epidemiologic concepts (e.g. population stratification, heterogeneity, etc.). Open to graduate students only.

**PHP 2120 – Introduction to Methods in Epidemiologic Research – M. Lurie**

Epidemiology quantifies patterns and determinants of human population health, with a goal of reducing the burden of disease, injury, and disability. An intensive first course in epidemiological methods, students learn core principles of study design and data analysis through critiques of published epidemiological studies as well as hands on practice through weekly exercises and assignments. This is a graduate-level course aimed at masters and PhD students. The course is not open to first year students or sophomores but may be available for advanced undergraduates with the instructor’s permission.

The overall objective of this course is to provide students with a strong foundation in epidemiologic research methods. This is the first of a two- or four-course sequence in epidemiologic methods aimed at students who expect to eventually conduct their own epidemiologic research. There will be a strong quantitative focus in this course. By the end of the foundations course, students should be sufficiently familiar with epidemiologic research methods to begin to apply these methods to their own work. Prerequisite: PHP 2507 or 2510 (either may be taken concurrently); the typical student will also have some introductory knowledge of epidemiology.

PHP 2220D – Reproductive Epidemiology – D. Savitz & V. Danilack

This course provides an overview of topics related to reproductive epidemiology, including substantive epidemiologic information, methodologic issues pertinent to reproductive health, and maternal and child health services and programmatic topics. The first half of class sessions will be lecture-based, while the second half will involve the discussion of a published research study in a journal club format, and students are expected to actively participate in class discussions. After several introductory lectures, students will select topics and will be responsible for organizing a presentation and discussion under the instructors’ supervision. Pre-requisite: PHP2120 or PHP2150, or permission of instructor with other Introductory Epidemiology course or corequisite PHP2120 or PHP2150.

Enrollment limited to graduate students.

PHP 2220H – The Epidemiology, Treatment and Prevention of HIV
Not offered 2019-2020

The purpose of this seminar is to use HIV as an example to introduce students to a variety of methodological issues in the epidemiologic study of infectious diseases. While we will study the treatment and prevention of HIV in detail, emphasizing the current state of knowledge and critiquing the most recent literature, this course aims to use HIV as an example to better understand the variety of methodological issues in global and domestic infectious disease epidemiology today. Enrollment limited to 25 students. Prerequisites: PHP 0850 or PHP 1854 (undergraduates); PHP 2120 or 2150 and PHP 2508 or 2511 (graduate students).

PHP 2250 – Advanced Quantitative Methods in Epidemiologic Research – C. Howe

This course provides students with conceptual and quantitative tools based on counterfactual theory to make causal inference using data obtained from observational studies. Causal diagrams will be used to provide alternative definitions of and inform correcting for common biases. Non-, semi-, and fully parametric methods for addressing these biases will be discussed. These methods include standard regression, instrumental variables, propensity scores, inverse probability weighting, and marginal structural models. Settings when such methods may not be appropriate will be emphasized. Prerequisite: PHP 2200 and 2511; or PHP 2200 and 2508; or instructor permission. Enrollment limited to 25 graduate students.
PHP 2710 – Interdisciplinary Perspectives on Disability and Death in the Global South – S. McGarvey

The course fosters interdisciplinary critical and integrative thinking and writing about the leading causes of disease, disability and death in low and middle-income countries, and potential solutions to prevent and ameliorate these burdens of disease. The first part focuses on measures of population health, health disparities, multi-causal and multi-level thinking, social epidemiology, community interventions and implementation research. These topics provide the fundamental intellectual frameworks for global public health. The second part presents scholars from key disciplinary areas contributing to global health research and practice from many academic units at Brown University. To conclude students present their potential research ideas. Prerequisites include at least one prior public health or epidemiology course, and at least one prior international/global health course or relevant experience. Written permission of the instructor is required for students not in the Global Public Health master’s program.

Spring

PHP1160 and PHP2160– Global Burden of Mental Illness: A Public Health Approach – S. Buka

Provides an introduction to the classification, epidemiology, etiology, treatment and potential prevention of psychiatric disorders from a population perspective. Reviews the magnitude and social burden associated with mental disorders worldwide and opportunities to enhance prevention and treatment.
Covers concepts and methods used to study mental illness at the population level, including definitions of “normality” and “pathology”, current classification systems and measurement approaches to assess psychopathology and severity and cross-cultural issues.
Covers the prevalence, risk factors, and etiology of major disorders of children, adolescents and adults, including autism spectrum disorders, attention deficit disorders, mood and anxiety disorders, schizophrenia and substance use disorders. PHP 0850 OR prior coursework in psychology, epidemiology, sociology or related fields.

PHP1854 – The Epidemiology and Control of Infectious Diseases – TBD

Course objectives are to introduce students to methods and concepts in the study and control of infectious diseases. By the end of this course, students will have a solid foundation in the distribution, transmission, and pathogenesis of major infectious diseases that affect human populations. We will investigate methods to design and evaluate public health strategies to prevent or eliminate infectious diseases, including: outbreak investigation, disease surveillance, infection control, screening, and vaccination. The course is open to undergraduate students who have completed PHP 0320 or PHP 0850, and to graduate students who have completed or are concurrently enrolled in either PHP 2120 or PHP 2150.

Note: Instructor TBD for 2019-2020
PHP1900 – Epidemiology of Disorders and Diseases of Childhood and Young Adulthood – A. Field

Students will learn about diseases and disorders of childhood and young adulthood, including allergies, autism, eating disorders, obesity, endometriosis, and migraines. Students will learn how these disorders are defined, how many youth are impacted, and the age-appropriate epidemiologic methods to study disorders and diseases during childhood, adolescence, and young adulthood, respectively. For the final project, students will pick a disease or disorder of interest that occurs during childhood, adolescence, or young adulthood, synthesize the results from multiple epidemiological studies, and concisely present this information in both a written report and an oral presentation. Prerequisites: (PHP 2120* or 2150*) and (PHP 0320* and 0850*) or minimum score of WAIVE in ‘Graduate Student PreReq’.

* May be taken concurrently.

PHP 1900H – Racial/Ethnic, Socioeconomic-, and Other Group-Based Health Disparities in the United States – C. Howe

Not offered 2019-2020

This course will examine the epidemiology of health disparities in the United States (US). This examination will include discussing various definitions of a “health disparity” and the distinction between health disparities and health equity. US-based disparities in health-related outcomes (e.g., care, disease, and behaviors) by various factors such as race/ethnicity, gender identity, sexual orientation, socioeconomic position, and geography will be examined. Students will discuss the importance of and approaches (e.g., epidemiologic) for documenting and reducing US health disparities. Successful completion of PHP 0850, PHP 2120, PHP 2150, or an equivalent course is strongly recommended prior to enrolling in PHP 1900H.

PHP 2018 – Epidemiology of Cardiometabolic Health – S. Liu

This course surveys the entire landscape of the nutritional, biochemical, and genetic aspects of cardiometabolic health addressing issues of obesity, diabetes, metabolic syndrome, and their micro- and macro-vascular complications. Students will learn about both the descriptive and analytical epidemiology of these seemingly distinct but clearly clustered disorders including the so-called metabolic syndrome comprehensively and in-depth. International comparison of prevalent data in different social contexts will also be reviewed, so that strategies for prevention by either changing our cultures or natures can be appreciated and debated with a better understanding of the related issues confronted by public health and medical professionals.

Prerequisites: PHP 2150 or 2120.

Enrollment is limited to Graduate level students.
PHP 2070 – Public Health/Community Service Internship – A. Gjelsvik

The course is an introduction to the history, organization, resources, concepts and issues of public health and health care. Students will be matched according to their interests in a related practical experience in a health-related organization, with the expectation that they complete a project or produce a product of public health utility. This gives students an opportunity to critically apply knowledge and skills learned in didactic sessions. Instructor permission required.

PHP 2071 – Applied Public Health: Systems and Practice – A. Gjelsvik

Applied Public Health is a two-semester sequence of courses designed to give students the skills and experiences they need to master understanding public health and health care systems, policy in public health, leadership, communication, interprofessional practice, and systems thinking. This will be achieved through a combination of lectures, in class exercises, homework assignments, and practical experience in a public health setting. The first course in the sequence (PHP 2071) is taken in the Spring of your first year.

PHP 2130 – Human Biology for Public Health – K. Kelsey

This course provides basic principles of human biology and its applications to public health. Examples of biology topics include the cardiovascular system, endocrine system, immune system, nervous system, genetics, cancer, cardiovascular disease, HIV/AIDS, and depression. Examples of applied topics include strengths and weaknesses of using biomarkers, accuracy and precision of biological measures, quality assurance and quality control methods for using biomarkers for public health research. Mixed teaching methods are used, including small group discussions, problem-based learning and guest lectures. Prerequisite: PHP 2120 (may be taken concurrently) or instructor permission. Enrollment limited to 20 graduate students.

PHP 2180 – Interpretation and Application of Epidemiology – D. Savitz

This course builds upon the foundation of introductory epidemiology and a basic understanding of quantitative and conceptual methods, with a focus on the interpretation of the strength and meaning of epidemiologic findings. The goal is to help students develop critical thinking skills in order to become more sophisticated interpreters of epidemiologic evidence for guiding policy, clinical practice, and individual decisions, combining subject matter knowledge and epidemiologic methods to wisely evaluate the available research findings. We will focus on judging causality and identifying gaps that future research would need to fill to strengthen our understanding. Prerequisite required or permission of instructor.


This second course in epidemiologic methods reinforces the concepts and methods taught in PHP 2150, with in-depth instruction in issues of study design, assessing threats to study validity including confounding and selection bias, and analyzing data with standard regression models. The course emphasizes hands-on learning and includes a combination of didactic lectures, discussions of methodologic papers, and a required laboratory component where students will learn to apply the
concepts learned in class to real-world problems. Prerequisites: PHP 2150 and either 2510 or 2507, or permission of the instructor. Co-requisite: PHP 2511 or 2508.

**PHP 2220B – Nutritional Epidemiology – S. Liu**  
Not offered 2019-2020

This course provides a comprehensive and systematic review of contemporary issues in human nutrition that require the application of epidemiologic principles and quantitative methods. Substantive topics range from the assessment of molecular etiologies for health and disease outcomes to evidence-based development of clinical guidelines and public health policies for foods and dietary supplements. This course is designed for graduate trainees in public health or the division of biology and medicine, visiting fellows, and advanced undergraduates who want to understand or conduct research in human nutrition and dietary assessment related to health and diseases.

**PHP 2220C – Perinatal Epidemiology: Woman and Infants’ Health during Pregnancy in a Global Context - A. Bengston**

This course introduces students to major topics that affect the health of women and their infants during pregnancy and the perinatal period. We will address issues relevant to both high and low-resource settings, but will pay particular attention to low-resource settings. The course covers pregnancy loss and pregnancy outcomes, chronic and infectious diseases during pregnancy, and key methodological issues when studying health outcomes during the perinatal period. The course will include course lectures, informal discussions with experts, and student-led discussions and journal clubs. Student will complete a course paper and brief presentation on a selected research topic. This course is open to masters and PHD students in any concentration or program who have taken an introductory epidemiology course such as PHP 2120 or PHP 2150, and, with instructor permission, to undergraduate students who have taken PHP 0850.

**PHP2220E – Topics in Environmental and Occupational Epidemiology – J. Braun**  
Not offered 2019-2020

This course introduces students to the epidemiological study of historical and contemporary environmental/occupational agents, focusing on study design, biases, and methodological tools used to evaluate and extend the evidence linking exposures to human disease. The course will discuss applications, strengths, and limitations of different study designs and their use in studying specific environmental agents. Didactic lectures and student-led discussions will be used to provide students with a basic understanding of and the tools to apply/extend their knowledge of specific environmental agents (endocrine disruptors) and special topics (children's neurodevelopment). Prerequisite: PHP 2120, PHP 2150, or equivalent. Undergrads with PHP 0850 and instructor's permission.