Public Health (PHTH)

PHTH 1260. The American Healthcare System. (4 Hours)
Introduces the organization and dynamics of the healthcare system and the role of consumers. Explores basic elements of healthcare including financing, personal insurance, high-risk status, and patient rights within the context of the U.S. system. Central to this exploration is an analysis of healthcare issues requiring informed consent from patients: patient bill of rights, healthcare directives, and the use of a proxy for decision making. Introduces the roles and responsibilities of various healthcare workers within the framework of an interdisciplinary model of healthcare.

Attribute(s): NUpath Societies/Institutions

PHTH 1261. Comparative Healthcare Systems. (4 Hours)
Designed to enable health profession students to develop a basic understanding of health-delivery systems and key issues confronting healthcare in the United States and in the study country in this study-abroad course. Explores issues such as the affordability of medical care, patient rights, health risks and behaviors, disease prevention, quality and access to care, the growth of managed care and corporate influence on healthcare, new medical technologies, the aging population, the impact of biotechnology, and trends in employment of health professionals. Incorporates self- and group-reflection exercises, Internet and contemporary media exploration, and in-class discussions. Compares and contrasts key healthcare issues in the study country with those in the United States using literature, Internet and contemporary media, observations in the study country, and discussions with guest speakers.

Attribute(s): NUpath Societies/Institutions

PHTH 1270. Introduction to Global Health. (4 Hours)
Introduces global health in the context of an interdependent and globalized world focusing on four main areas of analysis: infrastructure of global health; diseases; populations; and terms, concepts, and theories. While the focus is on lower-income countries, the course examines issues in a broader global context, underscoring the interconnections between global health disparities and global health policy response. Applies case studies describing interventions to improve healthcare in resource-poor settings in sub-Saharan Africa and elsewhere to help illuminate the actors, diseases, populations, and principles and frameworks for the design of effective global health interventions. AFRS 1270 and PHTH 1270 are cross-listed.

Attribute(s): NUpath Societies/Institutions

PHTH 2210. Foundations of Biostatistics. (4 Hours)
Introduces the fundamental concepts of biostatistics. Offers students an opportunity to learn to apply statistical thinking to practical problems across several health disciplines. Draws examples and readings from clinical and public health literature. Introduces R programming language.

Attribute(s): NUpath Analyzing/Using Data, NUpath Formal/Quant Reasoning

PHTH 2300. Communication Skills for the Health Professions. (4 Hours)
Offers students in the health professions an opportunity to learn how to communicate effectively with patients, colleagues, and other professionals. Covers interpersonal communication with patients and families from culturally diverse backgrounds, public speaking and presentations, and communicating as a leader. Requires students to create/prepare and deliver several presentations throughout the semester.

Attribute(s): NUpath Difference/Diversity, NUpath Creative Express/Innov

PHTH 2301. Communication Skills for the Health Professions—Global. (4 Hours)
Studies how to communicate effectively with patients, colleagues, and other professionals—regardless of race, culture, or ethnicity—on interpersonal, organizational, and global levels. Introduces traditional and new media health communication strategies, public speaking/presentation techniques, and communication as leaders in a global environment. Compares cultures and healthcare systems in the country of study with the American system by engaging with health professionals, patients, caregivers, and communications and other specialists. Introduces students to art and techniques of health communication for informing and influencing patients, caregivers, and the community-at-large. Offers students in the health professions an opportunity to learn interpersonal, organizational, mass media, and global communication skills to empower individuals to become health literate and participate in their own healthcare. May be repeated without limit.

Attribute(s): NUpath Difference/Diversity, NUpath Creative Express/Innov

PHTH 2350. Community and Public Health. (4 Hours)
Provides students with a basic familiarity with and appreciation of public health and community-based methods for improving the health of populations. Explores the purpose and structure of the U.S. public health system, contemporary public health issues such as prevention of communicable diseases, health education, social inequalities in health and healthcare, public health responses to terrorism, and control of unhealthy behaviors like smoking, drinking, drug abuse, and violence. Prior completion of PHTH 1260 is recommended but not required.

Attribute(s): NUpath Societies/Institutions

PHTH 2351. Community and Public Health - Global. (4 Hours)
Offers a basic familiarity with (and appreciation of) public health and community-based methods for improving the health of populations in a global context. Discusses the purposes and structures of the public health systems of the United States and the host country. Explores contemporary public health issues, including the global burden of disease; social determinants of inequalities in health and healthcare; communicable disease detection and management; environmental health risks; nutrition and physical activity; and unhealthy behaviors, such as substance use and violence. Analyzes the application of public health practices and principles to urban health concerns through the use of comparative case studies.

Attribute(s): NUpath Societies/Institutions

PHTH 2414. Environmental Health. (4 Hours)
Offers an overview of the field of environmental health, with focus on what the National Institute of Environmental Health Sciences terms "environmental public health." This broad field increasingly involves transdisciplinary approaches that use social science/environmental health collaborations, and it includes the physical, built, and social environments. Asks students to think critically about the economic, scientific, social, and political factors that shape environmental health and to consider how the field is relevant to other public health issues.

PHTH 2515. Healthcare Policy and Administration. (4 Hours)
Focuses on management and policy issues in healthcare. Discusses management and administrative structures in hospitals and other healthcare organizations, including community clinics and health organizations, both private and public. Introduces the financial systems, economic information, and payment mechanisms necessary to understand healthcare financing. Also explores the variety of factors that influence population health from a healthcare policy perspective. Offers students an opportunity to learn how to analyze, prepare, and write policy briefs based on understanding the various economic, legal, and political forces shaping healthcare in the United States.

Prerequisite(s): PHTH 1260 with a minimum grade of C or PHTH 1261 with a minimum grade of C

PHTH 2616. Rural Health: An Interdisciplinary Seminar. (4 Hours)
Addresses current issues in rural health. Maine, one of the nation's most rural states, is the primary case example. Highlights interdisciplinary approaches to identifying priority health concerns, addressing root causes of diseases and poor health and developing sustainable policy and programmatic interventions for improving health outcomes of individuals, families, and communities in rural areas. Reviews models of rural healthcare delivery, rural public health systems and practices, rural public policy and health reform, the role of health technologies in rural practice, and health disparities among vulnerable rural populations (including but not limited to immigrants, migrant workers, older people, people living with disabilities, LGBTQIA+ persons, and indigenous/first peoples). Critically analyzes the complex contextual factors that must be addressed to sustainably improve health outcomes in rural settings.

Attribute(s): NUpath Societies/Institutions

PHTH 2991. Research in Public Health. (1-4 Hours)
Offers an opportunity to conduct introductory-level research or creative endeavors under faculty supervision. May be repeated once.

PHTH 4120. Global Perspectives on Discrimination and Health. (4 Hours)
Explores how discrimination can lead to population-level health disparities among marginalized groups globally. Topics include constructions of social categories, such as race and gender; differences in patterns of disease across populations, both intra- and internationally; how work from various disciplines, such as anthropology, medicine, and public health, inform understanding about how discrimination relates to health; and theoretical models from different disciplines that explain public health disparities.

Prerequisite(s): (PHTH 2350 with a minimum grade of C or PHTH 2351 with a minimum grade of C); (ENGW 3302 with a minimum grade of C or ENGW 3304 with a minimum grade of C or ENGW 3306 with a minimum grade of C or ENGW 3307 with a minimum grade of C or ENGW 3308 with a minimum grade of C or ENGW 3314 with a minimum grade of C or ENGW 3315 with a minimum grade of C)
Attribute(s): NUpath Difference/Diversity, NUpath Interpreting Culture, NUpath Writing Intensive

PHTH 4202. Principles of Epidemiology in Medicine and Public Health. (4 Hours)
Introduces the principles of epidemiology necessary to critically evaluate the published research in medicine, public health, and related fields. Through careful reading of literature, class discussion, and lectures, familiarizes students with the study of design-related considerations that are an indispensable part of interpreting scientific literature. Offers students an opportunity to learn how to recognize critical elements of research design and execution (e.g., loss to follow-up in randomized clinical trials and other cohort designs, selection bias in case control studies, etc.); identify the strengths and limitations of different approaches to research questions; deepen their understanding of causal inference; and recognize the provisional nature of scientific knowledge. Covers issues of statistical methods and data analysis; however, there are no computational requirements.

Prerequisite(s): (CRIM 3700 with a minimum grade of C or ECON 2350 with a minimum grade of C or ENVR 2500 with a minimum grade of C or INSH 3102 with a minimum grade of C or MATH 2280 with a minimum grade of C or MATH 3081 with a minimum grade of C or MGSC 2301 with a minimum grade of C or NRSG 5120 with a minimum grade of C or PHTH 2210 with a minimum grade of C or POLS 2400 with a minimum grade of C or PSYC 2320 with a minimum grade of C or SOCL 2320 with a minimum grade of C)
Attribute(s): NUpath Natural/Designed World

PHTH 4511. Healthcare Management. (4 Hours)
Provides an opportunity to develop skills and abilities related to management within the context of interdisciplinary study. Students explore issues in healthcare management in small-group, case-based educational experiences or problem-solving approaches. Within the context of small groups, students explore complex problems frequently encountered in clinical practice. Group projects related to leadership, management, or administrative issues are pursued and developed as classroom or poster presentations.

Prerequisite(s): PHTH 1260 with a minimum grade of C or PHTH 1261 with a minimum grade of C

PHTH 4515. Critical Issues in Health and Public Health Policy. (4 Hours)
Explores current public health and healthcare policy issues. Uses a case-based format to analyze, explain, and address ongoing problems within the U.S. public health and healthcare systems. Assesses the status of U.S. healthcare reform. Evaluates alternative payment mechanisms. Reviews national and state drug pricing negotiations, implications for drug development and patient access, and other current issues in public health and healthcare.

Prerequisite(s): PHTH 2515 with a minimum grade of C ; (ENGW 3302 (may be taken concurrently) with a minimum grade of C or ENGW 3304 (may be taken concurrently) with a minimum grade of C or ENGW 3306 (may be taken concurrently) with a minimum grade of C or ENGW 3307 (may be taken concurrently) with a minimum grade of C or ENGW 3308 (may be taken concurrently) with a minimum grade of C or ENGW 3314 (may be taken concurrently) with a minimum grade of C or ENGW 3315 (may be taken concurrently) with a minimum grade of C)
Attribute(s): NUpath Capstone Experience, NUpath Societies/Institutions

PHTH 4540. Health Education and Program Planning. (4 Hours)
Offers a writing-intensive course that introduces concepts central to health education and the program-planning process. Examines current public health issues that require intervention through health education or other types of prevention programs. Studies and applies models and theories used in health education and program planning. Offers students an opportunity to conduct a needs assessment; design and plan a program for a public health issue; create a mission statement for the program as well as goals, objectives, and strategies; and design the intervention, develop an evaluation plan, and create a budget and marketing plan. Prior completion of PHTH 2300 and PHTH 2350 is recommended but not required.

Prerequisite(s): ENGW 3306 with a minimum grade of C or ENGW 3302 with a minimum grade of C or ENGW 3304 with a minimum grade of C or ENGW 3307 with a minimum grade of C or ENGW 3308 with a minimum grade of C or ENGW 3314 with a minimum grade of C or ENGW 3315 with a minimum grade of C
Attribute(s): NUpath Writing Intensive

PHTH 4602. Private Guns, Public Health. (4 Hours)
Introduces a public health approach to preventing firearm violence in the United States. Reviews the epidemiologic basis for prevention approaches, including why reducing access to firearms can prevent suicide deaths; structural obstacles to gun violence research; and how researchers have tried to overcome these impediments. Covers perspectives on firearm violence prevention from medicine, criminology, law, and economics. Offers students an opportunity to synthesize concepts from prior coursework, especially from epidemiology, and bring this background to close reading and class discussion of journal articles. Focuses on how different study designs are well or ill suited to address pressing questions related to gun violence.

Prerequisite(s): CRIM 3600 with a minimum grade of C or INSH 3101 with a minimum grade of C or PHTH 4202 with a minimum grade of C or SOCL 2321 with a minimum grade of C
Attribute(s): NUpath Capstone Experience

PHTH 4616. Addressing Rural Health Inequities. (4 Hours)
Presents an overview of health inequities among rural populations and seeks to facilitate understanding of the complex causes through a public health perspective. Investigates innovative approaches to addressing rural health challenges, and provides examples of evidence-based policy, program, and technological interventions that impact the health and well-being of rural communities. Explores public health and healthcare issues that have been at the core of the health sciences/public health curriculum. Offers students an opportunity to select a specific rural health inequity in a defined geographic area as the focus of a final capstone project.

Attribute(s): NUpath Capstone Experience

PHTH 4717. Advancing Health Justice Through the Law. (4 Hours)
Uses pressing challenges at the intersection of public health and safety to build skills and expertise in public health law and public health law research. Utilizes the active portfolio of the Action Lab of the Northeastern University School of Law's Center for Health Policy and Law to build student capacity in project management, mixed methods research, and policy/program evaluation. Offers students an opportunity to gain direct experience devising solutions to real-world problems through project-based learning in the form of a term project, matching student interests with the Action Lab's ongoing initiatives.

Attribute(s): NUpath Capstone Experience

PHTH 4818. Let's Talk About Sex: Exploring Key Topics and Current Issues in Sexual and Reproductive Health. (4 Hours)
Provides a comprehensive examination of sexual and reproductive health (SRH) issues. Explores foundational concepts in human sexuality, including sexually transmitted infections (STIs), reproductive anatomy, sexual response, and the portrayal of sex in media. Explores contemporary SRH issues, such as reproductive rights in the post-Roe v. Wade era, sexual health education policies, and access to contraception. Evaluates the factors shaping SRH issues and explore potential strategies for addressing them.

Attribute(s): NUpath Capstone Experience

PHTH 5120. Race, Ethnicity, and Health in the United States. (3 Hours)
Explores the role of economic, social, and individual factors in explaining racial and ethnic health disparities and examines intervention approaches to eliminate them. Topics include genetic and social constructions of race and ethnicity, measuring race and ethnicity, and the differences in prevalence and patterns of disease across groups; cultural and structural factors that affect healthcare delivery, such as discrimination, racism, and health status; and public health approaches to prevention and improving healthcare delivery.

Attribute(s): NUpath Difference/Diversity, NUpath Interpreting Culture, NUpath Writing Intensive

PHTH 5202. Introduction to Epidemiology. (3 Hours)
Introduces the principles, concepts, and methods of population-based epidemiologic research. Offers students an opportunity to understand and critically review epidemiologic studies. Lectures and discussions aim to serve as a foundation for training in epidemiology, quantitative methods, and population-based health research. The course is a required introductory course for students in the Master of Public Health program and is appropriate for students who are interested in epidemiologic research. Students not meeting course restrictions may seek permission of instructor.

PHTH 5210. Biostatistics in Public Health. (3 Hours)
Offers public health students an opportunity to obtain the fundamental concepts and methods of biostatistics as applied predominantly to public health problems and the skills to perform basic statistical calculations Emphasizes interpretation and comprehension of concepts. Topics include descriptive statistics, vital statistics, sampling, estimation and significance testing, sample size and power, correlation and regression, spatial and temporal trends, small area analysis, and statistical issues in policy development. Draws examples of statistical methods from the public health practice. Introduces use of computer statistical packages. Requires permission of instructor for students outside designated programs.

PHTH 5212. Public Health Administration and Policy. (3 Hours)
Offers students an opportunity to obtain practical knowledge concerning the planning, organization, administration, management, evaluation, and policy analysis of health programs. Surveys what we know and think about public health administration and policy and what we do in practice. Introduces the main components of public health policy and administration using notable conceptual frameworks and case studies. Requires permission of instructor for students outside designated programs.

PHTH 5214. Environmental Health. (3 Hours)
Introduces the field of environmental health, which encompasses concerns related to physical, built, and social environments. Discusses the tools used to study environmental exposures and diseases. Examines environmental health hazards, the routes by which humans are exposed to hazards, various media in which they are found, and disease outcomes associated with exposures. Offers students an opportunity to become familiar with methods used to conduct environmental health research and with the federal and state agencies responsible for protecting environmental health.

Attribute(s): NUpath Capstone Experience

PHTH 5222. Health Advocacy. (3 Hours)
Seeks to educate students about the role of advocacy in public health while providing tools and support to address current healthcare issues. Provides information and theory about advocacy, education, and community organizing in public health practice and skills geared toward direct application. Covers various techniques related to developing and conducting an advocacy project within a community setting. Offers students an opportunity to develop, communicate, and refine a community-based advocacy program. Requires permission of instructor for students outside designated programs.

PHTH 5226. Management and Leadership in Public Health and Healthcare. (3 Hours)
Focuses on leadership and management challenges facing public health and healthcare organizations, particularly community-based agencies and their role in public health and healthcare delivery systems. Introduces strategic thinking, negotiation, and leadership approaches that must be considered for managing a successful public health or healthcare organization. Selected topics include strategic planning; organizational development and barriers to organizational change; management strategies and principles; approaches to negotiation in public health and healthcare settings; systems thinking; and the key elements for effective organizational leadership.

PHTH 5230. Global Health. (3 Hours)
Presents an overview of global health issues and focuses on less economically developed countries. Covers measures of disease burden; demography of disease and mortality; Millennium Development Goals (under the auspices of the United Nations); infectious diseases such as HIV/AIDS, tuberculosis, and malaria and their prevention; vaccine utilization and potential implications; chronic diseases; tobacco-associated disease; nutritional challenges; behavioral modification; mother and child health; health human resources; and ethical issues in global health.

Attribute(s): NUpath Capstone Experience

PHTH 5232. Evaluating Healthcare Quality. (3 Hours)
Focuses on the conceptual and methodological foundations for evaluating the quality of care of healthcare providers—both individual providers and healthcare organizations. Aimed at students pursuing careers in public health, public policy, healthcare management, and the various health professions in the growing field of quality evaluation and improvement. Also designed to give healthcare providers an appreciation for how they may be evaluated. Examines scientific issues in the measurement of quality of care as well as key quality evaluation methods. Also covers the use of risk adjustment and other methodologies for comparing the quality of healthcare providers. Focuses on mechanisms that assess quality, including licensure, accreditation, and board certification.

PHTH 5234. Economic Perspectives on Health Policy. (3 Hours)
Uses basic economic concepts to illuminate the many factors that shape health, healthcare, and the healthcare system in the United States. Examines the role of these concepts in explaining the challenges faced in achieving three core goals of the healthcare system: increasing access, limiting cost, and improving quality. Explores how policy makers, market participants, and others can remedy access, cost, and quality deficiencies. Illustrates how economic concepts can be applied to the study of health and health behaviors.

PHTH 5236. Food, Nutrition, and Health. (3 Hours)
Uses an interdisciplinary lens to examine issues at the intersection of food, nutrition, and health. Explores how food is distributed and analyzes the relationships between food retailers and food banks and how this affects food access. Investigates the role of public health services, policies and legislation, funding, marketing, and communication strategies for the development, evaluation, implementation, and dissemination of nutrition programs. Examines and critiques the role of food in the US healthcare industry, including “Food Is Medicine” interventions, clinic-based food referrals, and how these interventions address chronic diseases like diabetes, obesity, and hypertension.

Attribute(s): NUpath Capstone Experience

PHTH 5300. Project Management in Public Health. (1 Hour)
Presents principles of project management as applied to public health organizations and their programs. Offers students an opportunity to learn the components of the project management life cycle, including human resource components, material resources, and related components.

PHTH 5310. Budget Principles in Public Health. (1 Hour)
Details the public health revenue and funding environment, identifies key budget development functions, and describes the importance of utilizing the budget process for sound management of the programs. Public health programs in public agencies and nonprofit organizations require managerial skills to assure that programs are implemented efficiently and effectively. Funding for public health frequently comes from governmental revenue sources—federal and state budgets or grants from government or foundations. It is critical that the funds are utilized well and appropriate to the objectives of the agency and program. Advancing the environment for public health through effective budgeting and promotion of program impact is important to support the continued funding for public health. The course takes students through these topics and offers them the opportunity to gain the practical experience of developing a budget for a public health program as the central activity.

PHTH 5320. Grant Writing in Public Health. (1 Hour)
Explores the grant funding landscape, identifies different types of funders and grants,and identifies potential funders. Offers participants an opportunity to develop their skills in grant writing and in reviewing grants, to develop a grant proposal, and to understand the submission and peer review process.

PHTH 5350. Using SAS in Public Health Research. (1 Hour)
Introduces the SAS statistical software system to manage, report, summarize, and analyze public health data. The SAS suite can be used to provide a broad analysis of different types of data. Public health research often requires one to access, manipulate, and analyze datasets relating to individuals, groups, or healthcare systems. Explores approaches in SAS to accessing datasets, data manipulation, working with multiple datasets, summarizing and reporting data, and analytic results. Includes various statistical methods and testing procedures, such as t-tests, chi-square tests, and linear regression, to illustrate applications of SAS. The second part of the course explores more advanced programming methods, including SAS macros, using the Output Delivery System and data arrays.

PHTH 5360. AI at the Intersection of Health and Society. (3 Hours)
Studies how artificial intelligence can be applied in the domain of health and the issues that arise as a result. Examines how AI tools could affect social determinants of health, which are conditions that influence health and well-being (e.g., poverty, education, work, place, as well as discrimination by gender and racial identities). Explores the principles of machine learning predictions, classification, causality, and fairness. Covers the techniques to mitigate such concerns, notably through human-centered AI, participatory design, and value-sensitive design.

PHTH 5540. Health Education and Program Planning. (3 Hours)
Focuses on underlying concepts of health education and explores current health education issues that require intervention. Covers program planning models and theories used in health education. Offers students an opportunity to develop a working knowledge of the planning process for health education through the analysis of case studies and by creating a program plan to address a health issue of their choice.

Prerequisite(s): (ENGL 1102 with a minimum grade of C or ENGL 1111 with a minimum grade of C or ENGW 1102 with a minimum grade of C or ENGW 1111 with a minimum grade of C or ENGW 1113 with a minimum grade of C or ENGW 1114 with a minimum grade of C) or graduate program admission
Attribute(s): NUpath Writing Intensive

PHTH 5560. Public and Community Health Program Evaluation. (3 Hours)
Focuses on health equity, constrained funding, and an increasing need for evidence that public health programs work to improve health and social outcomes. Covers evaluation methods to help students acquire the technical skills necessary to design a comprehensive, rigorous, viable evaluation plan for a local community-based organization. Utilizes active learning strategies and partnership with a local community health partner organization to support relevance of course content. Explains the technical tasks of defining stakeholders. Articulates theories of change using logic models. Identifies appropriate process and outcome evaluation indicators using quantitative and qualitative methods.

Prerequisite(s): PHTH 4540 with a minimum grade of C or (PHTH 5540 with a minimum grade of C or PHTH 5540 with a minimum grade of B (Graduate))
Attribute(s): NUpath Capstone Experience

PHTH 5603. Qualitative Methods. (4 Hours)
Introduces the principles and use of common qualitative methods with a particular focus on their application in the social sciences. Students practice designing qualitative research. Offers students an opportunity to gain experience using diverse analytic and theory building techniques, conducting field observations and interviews, and analyzing content. Examines the foundation of core concepts in research. Topics include objectivity, bias, empiricism, validity, triangulation, and ethical issues surrounding human subjects—such as confidentiality, anonymity, and vulnerable populations.

PHTH 6130. Public Health Technologies: Ethics and Equity. (3 Hours)
Offers students an opportunity to develop an understanding of the multiple forms of technology that are deployed to advance both healthcare and public health and the broad range of ethical challenges and individual and community-level disparities associated with these technologies. Examines theoretical and conceptual frameworks to address disparities associated with public health technologies. Explores case studies to understand how a social justice framework can be applied to the development, implementation, and evaluation of public health technologies.

PHTH 6200. Principles and History of Urban Health. (3 Hours)
Focuses on the aspects of urban development and life that impact the health and well-being of city residents. Offers students an opportunity to learn about the impact of migration patterns, built environments, occupational stratification, and other cultural and community contextual factors that impact health status and healthcare access. Examines the level of overall health and healthcare found in urban populations, particularly the urban poor, and the disproportionate impact on racial and ethnic minorities in the United States and elsewhere. Considers public policy approaches for addressing the unique health issues of urban areas. Examines urban health issues both from a national and international perspective. Requires permission of instructor for students outside designated programs.

Attribute(s): NUpath Capstone Experience

PHTH 6202. Intermediate Epidemiology. (3 Hours)
Offers an intermediate-level course covering key principles, concepts, and methods of population-based epidemiologic research. Topics include observational study designs, measures of disease occurrence and association, validity and bias, confounding, effect modification, multivariate analysis for stratification and adjustment, critical appraisal and meta-analysis, mediation analysis, missing data analysis, and concepts and methods for strengthening causal inference. Offers graduate students unique opportunities to engage in practical applications, including critical reviews of published epidemiologic journal articles, and to conduct hands-on analyses of empirical datasets using SAS statistical software. Designed to serve as a foundation for further advanced training in specialized branches of epidemiology, quantitative methods, and epidemiologic research.

Prerequisite(s): PHTH 5202 with a minimum grade of B-

PHTH 6204. Society, Behavior, and Health. (3 Hours)
Explores individual, interpersonal, and social influences on health. Offers students in public health an opportunity to learn the application of the social and behavioral sciences. Examines foundations of public health, including prevention and the prevention paradox, theories of disease causation, and public health ethics. In addition, multilevel influences on health are examined, including behavioral theories and social determinants of health. Throughout the semester, attention is paid to disparities in health. Finally, we examine strategies to reduce health disparities, such as education, interventions, and policy-level changes, and discuss their relative effectiveness. Requires permission of instructor for students outside designated programs.

PHTH 6208. Foundations of Community Health Assessment. (3 Hours)
Offers an opportunity to develop a basic understanding of the complex public health issues confronting communities across the nation. Uses a community organization and development framework for public health practice. Seeks to provide skills, tools, and experiential learning opportunities that result in community assessments that may be used in public health planning, programming, and policy. Covers key principles and methods for conducting community health assessments utilizing a range of quantitative and qualitative methods, including community epidemiology, major data sets, surveillance data, behavioral risk and other population-based surveys, as well as other primary and secondary data sources. Includes collaborative and interactive exercises, including self- and group reflection, Internet and contemporary media exploration, and in-class discussions.

PHTH 6210. Applied Regression Analysis. (3 Hours)
Builds upon the fundamental concepts and methods of biostatistics with applications to health disciplines. Topics include hypothesis testing, analysis of variance, linear regression, multiple regression, and logistic regression. Examples and readings are drawn from the public health literature. The SAS statistical software package is introduced and used throughout the course.

Prerequisite(s): PHTH 5210 with a minimum grade of B-

PHTH 6224. Social Epidemiology. (3 Hours)
Focuses on social epidemiology, which is defined as the study of the distribution and determinants of health in populations as related to the social and economic determinants of health. Includes theories, patterns, and controversies, as well as programs and policies that can be applied to address health inequalities. Readings include articles that situate one dimension of social epidemiology with articles addressing the empirical patterns, address prevailing theories and controversies regarding the causes of the inequalities, as well as address interventions or policies that may be applied to address the inequalities.

Prerequisite(s): (PHTH 5202 with a minimum grade of B- or PHTH 5202 with a minimum grade of B-); (PHTH 5210 with a minimum grade of B- or PHTH 5210 with a minimum grade of B-)

PHTH 6320. Qualitative Methods in Health and Illness. (3 Hours)
Discusses qualitative inquiry in general and specifically in topics related to public health and experiences of self, health, illness, and the body. Qualitative research aims to achieve in-depth and contextual understanding of people, culture, and societies and usually employs texts, interviews, published materials, images, and focus group discussions as sources of data. The course integrates theoretical and methodological readings and discussions with designing and conducting a qualitative project. Offers students an opportunity to understand meanings of health, illness, and the body in a variety of "local worlds" and reflect on their importance for informing policy, public health, research, and practice. Requires prior completion of one undergraduate- or graduate-level course in research methods.

PHTH 6400. Principles of Population Health 1. (3 Hours)
Seeks to provide students with historical background and methodological and critical-thinking tools needed to perform high-quality, interdisciplinary research in population health. Using a problem-solving and interdisciplinary framework, offers students an opportunity to gain the skills to develop research hypotheses, design research strategies, analyze data to test study hypotheses, and communicate their findings both orally and in writing. Also offers students an opportunity to gain experience in research methodology and application of basic methods for population health research, including epidemiological and biostatistical concepts. Finally, students demonstrate their mastery of these skills through problem sets and through written proposals that include communication of preliminary data.

Prerequisite(s): PHTH 5210 with a minimum grade of C- or PHTH 5210 with a minimum grade of D-

PHTH 6410. Principles of Population Health 2. (3 Hours)
Continues PHTH 6400, exploring additional population health research topics and methods and applying more advanced biostatistical and epidemiological analysis methods.

Prerequisite(s): PHTH 6400 with a minimum grade of C-

PHTH 6440. Advanced Methods in Biostatistics. (3 Hours)
Explores in detail the analysis of complex survey design, including adjustments for cluster sampling, weighting, and stratification. Designs that incorporate clustering of data are common in health science research. These designs are characterized by data that capture nonindependent repeated measurements on primary sampling units or that collect data with schemes more complex than simple random sampling. The statistical analyses of these types of data need to include appropriate adjustments to provide proper estimates and accurate testing. The second part of the course investigates the use of mixed regression models to analyze repeated measurements on individuals, multilevel data, and growth models.

Prerequisite(s): PHTH 6210 with a minimum grade of C-

PHTH 6800. Causal Inference in Public Health Research. (3 Hours)
Exposes students to causal inference approaches, including causal diagrams and counterfactual theory. Students are also asked to draw upon their own research experiences and prior epidemiology training to evaluate public health studies. Covers how to apply the fundamental concepts of counterfactuals and causal diagrams; assess threats to validity in study designs and analysis, including confounding, selection bias, and measurement error/misclassification; evaluate the validity of a public health research study's design and analysis with respect to addressing causal questions; and critically analyze scientific literature and apply findings to clinical or policy decisions. Offers students an opportunity to think critically and rigorously about the implications of study design and analysis toward addressing public health questions.

Prerequisite(s): PHTH 6202 with a minimum grade of C-

PHTH 6801. Causal Inference 1. (4 Hours)
Introduces causal inference approaches, including causal diagrams and counterfactual theory. Draws upon personal research experiences and/or prior training. Covers insights on how to apply the fundamental concepts of counterfactuals and causal diagrams; assess threats to validity in study designs and analysis including confounding, selection bias, and measurement error/misclassification; evaluate the validity of a research study's design and analysis with respect to addressing causal questions; and critically analyze scientific literature and apply findings to decisions. Offers students an opportunity to think critically and rigorously about the implications of study design and analysis toward addressing questions.

PHTH 6802. Causal Inference 2. (4 Hours)
Continues PHTH 6801. Expands on foundational knowledge of causal inference by examining time-varying exposures, introducing the g-formula for estimating standardized outcome distributions, and unraveling the intricacies of marginal structural models. Navigates through key topics, including static and dynamic treatment regimes. Engages in discussions on sensitivity analysis, graphical models, identification algorithms, and the complex domain of causal discovery. Examines advanced techniques in causal inference, offering students an opportunity to apply theoretical principles to practical scenarios. Tackles challenging aspects such as time-varying exposures and sophisticated modeling techniques in the pursuit of accurate and meaningful outcomes.

Prerequisite(s): PHTH 6800 with a minimum grade of B or PHTH 6801 with a minimum grade of B

PHTH 6810. Survival Analysis. (4 Hours)
Focuses on the theoretical understanding and computational analysis of time-to-event data, which may or may not be censored or truncated through the course of their collection. Presents foundational nonparametric methods, such as the log-rank test and Kaplan-Meier curves and a deeper discussion of the Cox proportional hazards model. Discusses power and sample size techniques for methods. Reviews examples from public health, clinical trials, and large-scale observational health studies.

PHTH 6820. Design and Analysis of Clinical Trials. (4 Hours)
Presents theoretical and computational aspects of conducting clinical trials research. Covers topics such as phase 1, 2, 3, and 4 trials. Explores creation of a statistical analysis plan, adaptive study designs, randomization techniques, interim monitoring, and reporting. Offers students an opportunity to practice a programming language for regulatory decision making, a solid foundation in the theoretical and computational aspects of conducting clinical trials research, and exercising the skills needed for success in this critical field. Applies theoretical concepts through practical exercises.

PHTH 6830. Generalized Linear Models. (4 Hours)
Focuses on selecting, fitting, and evaluating the general class of generalized linear models. Emphasizes linear, logistic, Poisson, and proportional hazards regression in addition to time series analyses. Stresses proper construction of models through the evaluation of modeling assumptions and assessment of model diagnostics. Introduces concepts of confounding, effect modification, and methods for missing data. Offers students an opportunity to fit, evaluate, and appropriately communicate and visualize the results of modeling techniques using a programming language and statistical software packages, as well as practice on techniques for data cleaning on real examples of messy data.

PHTH 6880. Statistical Consultancy. (1 Hour)
Offers students an opportunity to demonstrate skills including problem solving, communication, visualization, and adaptability through a consultancy small group project. Students work in interdisciplinary groups in a consultancy role. Topics include problem solving, consulting session management, written and oral communication, research ethics, experiment design, data collection, and application of statistical and data visualization methods with real-world problems. May be repeated once.

Prerequisite(s): MATH 5010 with a minimum grade of B ; PHTH 6830 with a minimum grade of B

PHTH 6910. Public Health Capstone. (3 Hours)
Offers students an opportunity for scholarly work on-site in a range of diverse public health settings reflective of their particular urban health focus. Students have an opportunity to integrate their theory and practice experiences in a major research, program planning, program implementation, policy development, management, service delivery, or evaluation project. Student-led and designed in consultation with community partners and faculty advisors, seeks to support students in the implementation and completion of their projects.

Prerequisite(s): PHTH 6966 with a minimum grade of B-

PHTH 6962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

PHTH 6966. Practicum. (3 Hours)
Provides eligible students with an opportunity for practical experience.

PHTH 7101. Qualitative Research Design. (4 Hours)
Introduces the logic of qualitative inquiry and various qualitative data collection strategies including field observation, in-depth interviews, focus groups, and archival materials. Suitable for students in a range of social scientific disciplines including anthropology, sociology, political science, public policy, criminal justice, population health, nursing, and applied psychology. Offers students an opportunity to obtain a foundation for essential aspects of research design as well as hands-on experience in data collection techniques around a topic of the student's choosing.

PHTH 7102. Qualitative Data Analysis. (4 Hours)
The goal of this course is to introduce students to methods for analyzing different forms of qualitative data. The course will train students in developing coding strategies to analyze qualitative data and introduces them to qualitative data software. Students will learn how to apply deductive and inductive coding, how to develop coding structures appropriate for various genres (e.g., exploratory, descriptive, narrative), and how to theorize from qualitative data. Students will receive extensive training in writing up qualitative research findings, from analytic memos to a publishable paper or dissertation chapter.

Prerequisite(s): INSH 5603 with a minimum grade of C or INSH 5603 with a minimum grade of C or INSH 7101 with a minimum grade of C or PHTH 5603 with a minimum grade of C or PHTH 5603 with a minimum grade of C or PHTH 7101 with a minimum grade of C

PHTH 7103. Mixed Methods Research. (4 Hours)
Introduces the theory and practice of mixed method inquiry in the social sciences, broadly defined. Presents an overview of historical roots of mixed methods research, the major paradigms driving contemporary mixed methods research, and the four most common research designs applied in mixed methods research (concurrent, sequential, embedded, and multiphase). Studies how to evaluate the validity and quality of mixed methods research. Offers students an opportunity to develop a research protocol for a mixed methods research project.

PHTH 7976. Directed Study. (1-3 Hours)
Offers the student the opportunity to bring individual, concentrated attention to a particular public health topic or competency area as arranged and agreed upon in advance by a faculty member and the student. This option is generally recommended when the student desires a more intensive analysis of a particular subject. May be repeated without limit.

PHTH 8960. Exam Preparation—Doctoral. (0 Hours)
Offers students an opportunity to prepare for the PhD qualifying exam under faculty supervision.

PHTH 8984. Research. (1-4 Hours)
Offers an opportunity to conduct research under faculty supervision. May be repeated without limit.

PHTH 8986. Research. (0 Hours)
Offers an opportunity to conduct research under faculty supervision. May be repeated without limit.

PHTH 9000. PhD Candidacy Achieved. (0 Hours)
Indicates successful completion of program requirements for PhD candidacy.

PHTH 9990. Dissertation Term 1. (0 Hours)
Offers doctoral students an opportunity to work with their advisors and doctoral research committees to perform their doctoral research and to write their dissertation.

Prerequisite(s): PHTH 9000 with a minimum grade of S

PHTH 9991. Dissertation Term 2. (0 Hours)
Offers dissertation supervision by members of the department.

Prerequisite(s): PHTH 9990 with a minimum grade of S

PHTH 9996. Dissertation Continuation. (0 Hours)
Offers continuation of dissertation research to doctoral students.

Prerequisite(s): PHTH 9991 with a minimum grade of S or Dissertation Check with a score of REQ