

# COURSE DESCRIPTIONS

Course descriptions are organized by the academic department that offers them. To skip to course descriptions for a specific department, select from one of the departments below.

*Course descriptions in school catalogs and the Course Search (<https://catalog.uth.edu/course-search/>) are correct at the time of publication. See myUTH (<https://uthidp.uth.edu/nidp/saml2/sso/?id=Campus-Affiliate-LOA2-DUO&sid=0&option=credential&sid=0>) for more recent course information and to register for courses.*

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## PH 101 Foundations of Public Health (not-for-credit)

This course is required for all students enrolled in a degree-seeking program. This course is an online, not-for-credit course that covers the Foundational Knowledge Competencies set forth by the Council on Education for Public Health (CEPH). Students will be added to the course in Canvas during their first semester and must complete the course within one year of matriculation.

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## Health Promotion and Behavioral Science Course Descriptions

### PHM 1110L Health Promotion and Behavioral Sciences in Public Health (3 Credits)

After completing this MPH core course, students will be able to explain the contribution of health promotion and behavioral sciences to public health. Students will learn about commonly used theories and models, community engagement, needs assessment, and program design, implementation, and evaluation. Throughout the semester, students will improve communication skills while applying newly acquired knowledge related to public health problems. Letter Graded

### PHM 1111L Health Promotion Theory and Methods (4 Credits)

This course introduces students to the application of selected behavioral science theories and concepts in health promotion directed to affect individual behavior change, and environmental and policy theories and concepts to affect changes in organizations, communities, and governments. Topics specific to environmental and policy change include organizational change theory, mass media, community organizations, diffusion of innovations, social networks, community development, community engagement, and public policy campaigns. Students are provided opportunities to demonstrate knowledge and gain experience in applying theory, in designing interventions, and in building coalitions to affect programs, policies, and environmental conditions. Prerequisites: PHM 1110L Letter Graded

### PH 1112L Community Assessment Methods in Public Health (3 Credits)

This course will ground students in key concepts and methodologies related to community health needs assessment (CHNA), including the meaning of community and methods for assessment that span primary and secondary data collection. The students will learn to design a community assessment with partnering community agencies. The assessment process will be conceptualized as a research methodology and process for developing and prioritizing community health programs and policies for a stakeholder organization. The course also introduces new and non-traditional methods and technologies for CHNA. It covers practical assessment considerations such as social action, strategic communications, Community-based Participatory Research (CBPR) approaches, and supporting the community in action planning and implementation. Prerequisites: PHM 1110L. Letter Graded

### PHM 1113L Advanced Methods for Planning and Implementing Health Promotion Programs (Intervention Mapping) (3 Credits)

This course integrates and extends the knowledge of behavioral science theory into planning models for health promotion programs that include conducting a needs and assets assessment, determination of priorities, setting goals, stating objectives, designing interventions, and developing an implementation and evaluation plan. The teaching methods emphasize group process skills through modeling and guided practice applied to the planning process. Student evaluations include a guided written health promotion project plan and participation in class and group assignments. Prerequisites: PHM 1110L & PHM 1111L & [PHM 2610 or PHM 2612L]; strongly recommend: PHM 1690L or PH 1700L Letter Graded

### PHD 1113L Advanced Methods for Planning and Implementing Health Promotion Programs (Intervention Mapping) (3 Credits)

This course integrates and extends the knowledge of behavioral science theory into planning models for health promotion programs that include conducting a needs and assets assessment, determination of priorities, setting goals, stating objectives, designing interventions, and developing an implementation and evaluation plan. The teaching methods emphasize group process skills through modeling and guided practice applied to the planning process. Student evaluations include a guided written health promotion project plan and participation in class and group assignments. Prerequisites: [PHM 2610 or PHM 2612L] & [PHM 1111L or PHD 1122L]; strongly recommend: PHM 1690L or PH 1700L Letter Graded

### PHM 1116 Introduction to Intervention Mapping (2 Credits)

This course integrates and extends the knowledge of behavioral science theory into planning models for health promotion programs that include conducting a needs and assets assessment, determination of priorities, setting goals, stating objectives, designing interventions, and developing an implementation and evaluation plan. The teaching methods emphasize group process skills through modeling and guided practice applied to the planning process. Students work on health problems of their choice. Student evaluations include a guided written health promotion project plan and participation in class and group assignments. Prerequisites: PHM 1110L & [PHM 2610 or PHM 2612L]; strongly recommend: PHM 1690L or PH 1700L Pass/Fail, F not in GPA

**PHD 1116 Introduction to Intervention Mapping (2 Credits)**

This course integrates and extends the knowledge of behavioral science theory into planning models for health promotion programs that include conducting a needs and assets assessment, determination of priorities, setting goals, stating objectives, designing interventions, and developing an implementation and evaluation plan. The teaching methods emphasize group process skills through modeling and guided practice applied to the planning process. Students work on health problems of their choice. Student evaluations include a guided written health promotion project plan and participation in class and group assignments. Prerequisites: [PHM 1110L or PHM 1111L or PHD 1122L] & [PHM 2610 or PHM 2612L]; strongly recommend: PHM 1690L or PH 1700L Pass/Fail, F not in GPA

**PHD 1118L Qualitative Methods (3 Credits)**

The course covers the underpinnings of qualitative research from the approaches, methods, and practice of data collection used in the conduct of qualitative inquiries to thematic analysis and write up. Students gain experiences in the design and practices of fieldwork including observation and mapping, developing interview and group discussion guides, and conducting interviews. They also learn to develop a codebook and basics of qualitative analysis as they prepare to disseminate their work in presentations and papers. Letter Graded

**PH 1119L Qualitative Analysis (3 Credits)**

Building on their coding and thematic analysis skills, this course introduces students to a range of qualitative analyses (e.g., narrative, discourse, constructivist grounded theory, framework and policy analyses) and appropriate ways to use them. Each student is guided through the process of identifying a qualitative data set and selecting an appropriate analysis approach for it. Students move from conducting their data analysis through writing up a draft manuscript. Classroom sessions include lectures, writing exercises, discussions, and presentations of analyses and findings. Prerequisites: PHD 1118L or PHM 5015 Letter Graded

**PHM 1120L Program Evaluation (3 Credits)**

This course introduces students to program evaluation, emphasizing a range of evaluation goals and designs and prepares students to develop a plan for the evaluation of a health program or policy. In this course, the evaluation plan structure focuses on three levels: (1) the design of a logic model; (2) program implementation and process; and (3) program impact and outcomes, including threats to validity and measurement issues. Program logic models guide the program evaluation process. Stakeholder involvement emphasizes collaborative approaches to promote evaluation plan feasibility and relevance. MPH students will work in small groups to identify a community-based program or policy as the basis for their work to enhance the "real world" experience. Prerequisites: [PHM 2610 or PHM 2612L] & [PHM 1110L or PHM 1111L] Letter Graded

**PHD 1120L Program Evaluation (3 Credits)**

This course introduces students to program evaluation, emphasizing a range of evaluation goals and designs and prepares students to develop a plan for the evaluation of a health program or policy. In this course, the evaluation plan structure focuses on three levels: (1) the design of a logic model; (2) program implementation and process; and (3) program impact and outcomes, including threats to validity and measurement issues. Program logic models guide the program evaluation process. Stakeholder involvement emphasizes collaborative approaches to promote evaluation plan feasibility and relevance. Doctoral students will work independently to develop an evaluation plan for a multi-level, community-based program or policy as the basis for their work; they will additionally learn the skills associated with designing a multi-level evaluation project to address a public health issue. This project will prepare doctoral students to explain how evaluation methods can address health issues at multiple levels. Prerequisites: [PHM 2610 or PHM 2612L] and [PHM 1110L or PHM 1111L] Letter Graded

**PHD 1121L Advanced Quantitative Analysis for Behavioral Sciences (3 Credits)**

The course will focus on statistical methods for research evaluation that extend basic principles of multiple regression, including limited dependent variables, mediation, moderation, and correlated data models (e.g. multilevel models); missing data models, including multiple imputation; study designs and methods that can enhance the internal validity of an evaluation and compensate for a lack of randomization and selection bias, including propensity scores. Class time will be used for lectures, and a semester project will provide an opportunity to apply the methods of this course to analyze real-world data. Prerequisites: PHD 1120L & PHD 1420L & [PHD 1421L or equivalent] & [Recommended: PHD 1130L]. If required courses were taken elsewhere or in departments other than HPBS, provide syllabi to instructor for approval. Letter Graded

**PHD 1122L Health Promotion Theories for Individuals and Groups: Part I (3 Credits)**

This course provides HPBS doctoral students with an overview of the application of selected behavioral science theories and models used in health education and health promotion programs directed toward individuals and groups. The goals for this class are to provide students opportunities to apply behavioral science theories and models to the development of interventions for health problems and to improve scientific writing skills. Students will demonstrate their ability to use theory for understanding a health issue and improve scientific writing skills through written assignments. Prerequisites: strongly recommend: PHM 1110L or PHM 1111L or equivalent Letter Graded

**PHD 1123L Community Health Promotion Theory and Practice (3 Credits)**

This course aims to build students' knowledge and skills in community health promotion research and practice via exploration and application of community and environmental-level health promotion theories, community health promotion planning models, and community/ environmental-level health promotion change methods that include participatory problem solving and coalition building. Students will engage in multiple learning activities including the development of an NIH community health promotion research funding proposal. Prerequisites: PHM 1110L or equivalent. Letter Graded

**PH 1124 Introduction to Data Management in Stata (1 Credit)**

This course is designed for masters or doctoral students who have no exposure to any statistical software, and want to gain hands-on familiarity with using statistical software (Stata), prior to taking a semester-long statistical analysis course, such as PHM 1690L or PHD 1421. Students will practice a variety of skills necessary to create a clean and annotated dataset prior to analysis of a specific research question, including reading external data files in Stata, cleaning and creating new variables, conducting preliminary descriptive analyses, and basic regression. Pass/Fail, F not in GPA

**PHD 1132 Latent Variable Models and Factor Analysis (3 Credits)**

This course helps students develop the skills and understanding necessary to use and apply several statistical techniques included under the umbrella of Latent Variable Analysis. The course covers Exploratory and Confirmatory Factor Analysis, Path Analysis, Structural Equation Modeling, Assessment of Measurement Invariance, and Latent Growth Curve Modeling. The course focuses on the application of these methods in public health, reading and understanding research studies that use these methods, and developing research reports and presentations from analyses they have conducted. Prerequisites: PH 1700L or PHD 1421L or consent of instructor. The completion of an applied multivariate statistics course is strongly recommended. Pass/Fail, F not in GPA

**PHD 1130L Applied Measurement Theory (3 Credits)**

This course introduces students to the basic aspects of psychometric theory, with an emphasis on the development of valid and reliable measurement scales. The course covers classical test theory; common scaling methods; analytic methods relevant to scale construction, including exploratory and confirmatory factor analysis; and survey construction, design, and administration. Students have an opportunity to become familiar with various statistical approaches and software used to assess psychometric properties of scales as well as with strategies for survey construction and administration. Prerequisites: PHD 1421L Letter Graded

**PHD 1227L Health Promotion Theories for Individuals and Groups: Part II (3 Credits)**

This course focuses on theories that will advance the students understanding of health behavior and their application to health behavior interventions. The course provides an overview of the philosophy of science, a review and critique of key health behavior theories and an in-depth exploration of the key conceptual building blocks making up these theories. This course complements PHD 1122L as a continuation in health promotion theory and is a requirement for all PhD students in Health Promotion and Behavioral Sciences. Prerequisites: PHD 1122L. Letter Graded

**PH 1228 Food Policy (3 Credits)**

The purpose of this course is to identify the ways in which social, cultural, economic, commercial, and institutional factors promote or act as barriers to the design and implementation of equitable agriculture, food, and nutrition policies and programs, and the ways in which these policies and programs affect health. The course can serve as an elective for those interested in community-based health promotion, policy, and/or nutrition. Pass/Fail, F not in GPA

**PHM 1229 Medical Nutrition Therapy Simulation Lab (2 Credits)**

This course, in the simulation lab in Houston, will offer the student the opportunity to learn the Nutrition Care Process, which includes nutrition focused physical assessment and the assessment process of malnutrition. In a realistic treatment setting with a computer-controlled and instructor-manipulated manikin "patient," students will learn specific clinical skills leading to proficiency in clinical judgment and performance. Behavioral-based strategies for counseling relating to nutrition will also be included in this course. Prerequisites: Currently enrolled in Dietetic Internship Program-MPH/Dietetic Intern or MD/MPH. Pass/Fail, F not in GPA

**PHM 1231L Advanced Medical Nutrition Therapy (3 Credits)**

This advanced course focuses on the assessment, application, and nutritional management of persons with conditions requiring medical nutrition therapy in general medicine and critical care. Specialized nutritional needs and principles of clinical management are covered. Prerequisites: Consent of instructor Letter Graded

**PHM 1232L Public Health Nutrition Practice (3 Credits)**

This course presents an overview of the practice of public health nutrition. Topics include community assessment; behavioral strategies for nutrition education; evaluation methods for nutrition programs; identification of community problems related to dietary intake, needs, and capacities; nutrition policies and related legislation; food and culture; and current public health nutrition topics. Students will adapt nutrition education programs to various populations. Practical experiences from research and local state, and national nutrition initiatives will be included. This course is required for dietetic interns but is open to all students. Letter Graded

**PH 1233L Introduction to Public Health Nutrition (3 Credits)**

This course is an overview of the predominant food and nutrition issues that affect the public health of developed countries, specifically the United States. Topics include national nutrition and dietary guidelines, dietary assessment methods, macronutrients, micronutrients, prevention of chronic diseases (obesity, diabetes, cardiovascular disease, cancer), food safety and sustainability, food insecurity, and current topics in public health nutrition. Dietary issues are presented using a life cycle approach, in which the issues are introduced and developed within the framework of specific age categories. Letter Graded

**PH 1236 Issues in Aging (2 Credits)**

This course is designed to expose students to different aspects of aging. The course content covers the biopsychosocial aspects including the biology of aging, healthy aging, physical activity and aging, cognitive, psychological, and social changes related to aging as well as a host of aging-related conditions. The recorded lectures provide content and context for the course material and learners are expected to demonstrate applied understanding through discussion boards and mastery via quizzes and exams. Pass/Fail, F not in GPA

**PH 1237 Obesity, Nutrition, & Physical Activity (1 Credit)**

This seminar course provides a forum for students to learn to critically review the research literature in the areas of obesity, nutrition, and physical activity. Topics will vary and will be driven by the current published literature and emerging areas of research. Seminars will be set up in an informal manner, with faculty leading the first session and students assuming the lead later in the semester. Review of papers will be accompanied by in-depth discussions focusing on study design and analysis and interpretation of results, as well as on the relationship of the paper to the existing body of knowledge. Pass/Fail, F not in GPA

**PH 1238 Healthy Relationships and Development in Adolescence (3 Credits)**

This course examines key factors and approaches related to adolescent health and relationships with peers, family, dating partners, and other trusted adults during adolescence. The course reframes adolescent health as a multi-faceted public health issue and offers a comprehensive view of adolescent health education and research, emphasizing the importance of public health approaches. Topics covered include the prevalence of adolescent health issues such as pregnancy, dating violence, STIs, and HIV; risk and protective factors; prevention; legal and policy considerations; effective programming for youth; and strategies for addressing sensitive issues. The course provides both theoretical insights and practical opportunities for personal reflection and skill-building through experiential learning. Pass/Fail, F not in GPA

**PHD 1239L Theories of Child and Adolescent Development (3 Credits)**

The purpose of the course is to provide students with a foundation in historical and contemporary theories of developmental science and explores how these theories facilitate our understanding of normative development from infancy through adolescence. In addition, the course will utilize developmental theories to examine the factors contributing to public health problems affecting children and youth as well as the development and implementation of public health interventions serving these populations. Prerequisites: Must be a doctoral student Letter Graded

**PH 1241 Disability and Public Health (3 Credits)**

This course explores a variety of issues that affect the ability of individuals with disabilities to be healthy in the context of living with their disability. Today, about 61 million Americans live with disabilities, which represents 26% of the population, and this number is expected to increase. Unlike previous generations, the life expectancy of those living with a disability now approximates that of the general population, and passage of the Americans with Disabilities Act of 1990 has increased employment opportunities and participation in community life. In order to fully take advantage of these opportunities, people with disabilities need to remain healthy. Topics to be covered include existing federal legislation protecting the rights of individuals with disabilities, surveillance, issues related to access and health care services, evidence regarding lifestyle behaviors and preventive health practices, and approaches for promoting health and reducing disease. Pass/Fail, F not in GPA

**PH 1300 Public Health Communications (3 Credits)**

In this course each student selects a significant public health challenge involving behavior and policy/environmental change that can be promoted through media communication. In collaborative teams, students learn how to define audiences and aims, set objectives, select strategies, and design products for an evidence-based multi-component communication plan - with guided practice of skills including news media engagement and public relations, writing and graphic arts for low-literacy audiences, constructing theory/evidence-based logic models, audience research and social marketing analysis, and use of new social and mobile media. Prerequisites: PHM 1110L or PHM 1111L or equivalent Pass/Fail, F not in GPA

**PH 1321L Social Networks and Health (3 Credits)**

This course provides students an opportunity to gain understanding on conducting research that uses social network analysis, including major areas of health research. This course will provide students with practical applications of analytical techniques using appropriate software. Topics include theory, research design, data collection, sampling methods, and quantitative descriptions of networks, statistical modeling of networks, and example interventions relevant to various disciplines in public health. Prerequisites: [PHM 1690L or PH 1700L] & [PHM 2610 or PHM 2612L or PHD 1420L or PH 1421L] & [Recommended: a basic theoretical statistics or categorical data analysis or generalized linear model course] Letter Graded

**PH 1323L Applied Methods for Longitudinal and Ecological Momentary Assessment (EMA) Data (3 Credits)**

The prevalence of smart phones and electronic monitoring devices makes it possible to collect data in real-time and the natural environment (i.e., ecological momentary assessment). The resulting intensive longitudinal data have brought along methodological challenges. This course is the first of its kind offered in the UTHealth to equip SPH students with sufficient skills to handle not only conventional longitudinal data but also EMA data that are becoming more popular in public health research. This course will focus on software application, as well as presentation and interpretation of results. Prerequisites: PH 1700L Letter Graded

**PH 1324L Applied Discrete Data Analysis using Stata (3 Credits)**

This course provides students an opportunity to gain practical use and obtain discrete data analytic techniques, including data management and various regression methods for the analysis of categorical outcome variables using Stata statistical software. Topics include the logistic regression model, sampling methods, model building strategies, assessing model fit, multiple logistic regression, and Poisson regression, and some extensions of generalized linear model. This course will provide students with practical applications of these statistical methods using Stata commands. Prerequisites: [PH 1700L or PH 1421L or equivalent] & [Recommended: a basic theoretical statistics course] Letter Graded

**PH 1400 Planetary Health (1 Credit)**

Public human health depends on the health of the planet. Earth's natural systems -the air, the water, the biodiversity, the climate are our life support systems. Yet climate change, biodiversity loss, scarcity of land and freshwater, pollution and other threats are degrading these systems. The emerging field of planetary health aims to understand how these changes threaten public health and how to protect ourselves and the rest of the biosphere. The goal of the course is to provide a forum in which current research in planetary health can be reviewed and critiqued. Topics will be variable and driven by interest of the students. Seminars will be set up in an informal manner, with faculty leading the first discussion and students assuming the lead later in the semester. Pass/Fail, F not in GPA

**PH 1409L Injury and Violence Prevention (3 Credits)**

This course aims to broadly survey pertinent injury and violence prevention (IVP) topics in the field of public health by exploring several IVP issues in practice. These include current research on relevant psychosocial, behavioral, and environmental determinants related to different IVP topics. As well as the most innovative and effective prevention approaches that currently exist. Students will also explore salient theories related to injury and violence and be able to deep dive into an IVP topic of their choice. This course prepares students for professional work in the field of IVP. Letter Graded

**PH 1410L Addiction and Society (3 Credits)**

This two-part seminar will examine substance use and addiction using two approaches: 1) historical and anthropological, and 2) psychological approaches. In the historical and anthropological part of the course, students will study social and structural influences on development and definition of substance use disorders (SUD), prevention, intervention, harm reduction, treatment, recovery and disparities. In the psychological part of the course, students will learn about diagnostic criteria for SUD, prevalence in the U.S., comorbidity with mental health issues, developmental processes from childhood to adulthood, genetic and neurocognitive basis, health policy, and health communication. Letter Graded

**PHD 1420L Quantitative Research Design for Behavioral Sciences (3 Credits)**

This course equips students with the skills to develop research questions appropriate to the behavioral sciences that can be translated into testable hypotheses and feasible, effective research designs. Students are exposed to a variety of research design elements through published journal articles, and are expected to learn to evaluate and compare the suitability of different study designs to test specific hypotheses. A key aspect of evaluating research design is identifying potential threats to internal and external validity, as well as examining statistically conclusion validity and construct/measurement validity that are present in greater or lesser degree in all research designs, including observational, experimental, and quasi-experimental designs. Assignments and exams will focus on developing the skills to construct valid research designs appropriate to the proposed research question. Prerequisites: consent of instructor Letter Graded

**PHD 1421L Quantitative Analysis for Behavioral Sciences (3 Credits)**

This course expands on the material covered in PHD 1420L and focuses on the choice and implementation of statistical analyses that assess differences between groups, associations among variables, and prediction of outcomes. This course will cover descriptive statistics as well as statistical inference. Emphasis is placed on appropriate use of statistical software for conducting analyses to address research questions, interpreting the results from these analyses, and presenting the findings in both oral and written form. Students will also be involved in critiquing scientific journal articles that make use of these methods. Prerequisites: ([PHM 1690L or equivalent] & PHD 1420L) or consent of instructor Letter Graded

**PHD 1431 Tools and Methods for Systematic Review (2 Credits)**

This course is designed to introduce students to best practices, resources, and methods for systematic reviews, and to guide students through the steps of a protocol. The course uses examples from a wide variety of protocols and completed reviews as well as exercises and readings. Course resources and materials are available throughout the semester to assist students in applying them to an Integrative Learning Experience or dissertation. Students who expect to continue with their own reviews and to receive further support should enroll in independent study with the instructor. Prerequisites: Must be a doctoral student Pass/Fail, F not in GPA

**PH 1433 Research Seminar in Health Promotion and Behavioral Sciences (1 Credit)**

This research seminar aims to enhance students' understanding of the field of health promotion and behavioral sciences via exploration of a range of research topics and methods. Faculty will present planned, ongoing, and completed research that covers a range of health promotion and behavioral science topics, and students will have the opportunity to critically discuss and reflect on current topics, methods, and theories based on these projects as well as supplemental readings. Pass/Fail, F not in GPA

**PHD 1435 Health Promotion and Behavioral Sciences Doctoral/Post-Doctoral Research Seminar (2 Credits)**

This seminar course affords the opportunity for doctoral students and post-doctoral fellows to improve their research skills and increase their scientific productivity in the formulation of research proposals and journal publications and presentations at scientific meetings. Participants present their work-in-progress and act as reviewers for others' work. Students also learn other career skills and the principles of the responsible conduct of research, e.g., making poster presentations, presenting job talks, writing cover letters and teaching philosophy statements, and observing fair practices for authorship and acknowledgement. This course provides opportunities to involve mentors (e.g., advisers, dissertation supervisors, committee members) and to practice mentoring and teaching with other participants. Prerequisites: Doctoral student or post-doctoral fellow or consent of instructor Pass/Fail, F not in GPA

**PHD 1440 Proposal Writing for Health Promotion and Behavioral Sciences (3 Credits)**

The purpose of this course is for HPBS doctoral students to accelerate the completion of a well-developed draft of their dissertation proposal. Students will read and engage in class discussions to develop their writing and study approach with attention to the organization of their background research (evidence tables), research plan, content, and clarity of writing. In addition to drafting their own proposal, students will provide peer reviews of other students' work. Prerequisites: Doctoral students in HPBS (DrPH or PhD) who have successfully completed preliminary exams and have identified a dissertation chair. Prior to the beginning of the course, the instructors expect the student to submit a draft of at least two specific aims and data source(s) with their dissertation chair's e-mail approval. The instructors also expect the student to set up regular meetings with their dissertation chair for feedback and guidance on sections of the proposal. Pass/Fail, F not in GPA

**PH 1447 Technology, Entrepreneurship, and Applied Innovation in Public Health (1 Credit)**

This seminar class provides the opportunity to extend professional networks while considering career paths "less travelled." In a series of engaging personal life stories, successful practitioners working at the intersection of public health, technology, and entrepreneurship share "how-tos" and insights for success in their for-profit start-ups, non-profit 503c, foundations, fortune 500 corporations, venture capital firms, and academic institutions. A common theme is the translation of academic IP to the marketplace to maximize reach, impact, and sustainability. Pass/Fail, F not in GPA

**PHD 1450 Dissemination & Implementation Research and Practice (1 Credit)**

This course introduces students to dissemination and implementation (D&I) theories and methods. In-class lectures and discussions focus on the foundations of D&I science including terminology, conceptual models and frameworks, measures, and implementation strategies. Student evaluations include participation in class and a D&I plan that addresses a public health problem. Students do not need prior knowledge or experience with D&I research in order to participate in the class. Pass/Fail, F not in GPA

**PHD 1451 Dissemination & Implementation Research and Practice (3 Credits)**

This course introduces students to dissemination and implementation (D&I) theories and methods. In-class lectures and discussions focus on the foundations of D&I science, including terminology, conceptual models and frameworks, measures, outcomes, and implementation strategies. Student evaluations include participation in class, student presentations, and written assignments. Pass/Fail, F not in GPA

**PHD 1452L Designing and Tailoring Implementation Strategies (3 Credits)**

Effective implementation is key to achieving meaningful outcomes. Implementation strategies are methods or techniques used to enhance the adoption, implementation, and sustainability of interventions.

This course will introduce students to the concept of implementation strategies including compilations of strategies commonly used to accelerate and improve the use of healthcare and public health innovations. They will learn about and apply Implementation Mapping, a systematic approach for developing and/or selecting and tailoring implementation strategies using participatory co-design principles. Letter Graded

**PHM 1496 Capstone for HPBS Students (3 Credits)**

This integrative learning experience is designed to demonstrate synthesis of major themes from the MPH core and major-specific courses. Students will develop, write, and present a proposal for a health promotion intervention. The proposal will be a grant and will focus on the development and evaluation of a proposed theory-based intervention. Prerequisites for HPBS majors: Completed MPH Core & PHM 1111L & PH 1112L\* & PHM 1113L\* & PHM 1120L\* & completed at least 30 semester credit hours the semester before enrolling in capstone \*One of these courses can be taken concurrently with PHM 1496. It is strongly recommended that students take PHM 1120 prior to enrolling in the course, but can be taken concurrently if needed Prerequisites for Dietetic Internship students: Must be a dietetic intern & completed the MPH Core & completed at least 30 semester credit hours the semester before enrolling in capstone Pass/Fail, F not in GPA

**PH 1498 Special Topics in Health Promotion and Behavioral Sciences (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of health promotion and behavioral sciences. Pass/Fail, F not in GPA

**PH 1498L Special Topics in Health Promotion and Behavioral Sciences (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of health promotion and behavioral sciences. Letter Graded

**PH 1499 IS: Health Promotion and Behavioral Science (1-9 Credits)**

An independent study allows students to explore a specific public health topic and gain knowledge and skills that are not available through preexisting courses, under the guidance of a faculty advisor. This self-directed course enables students to design and complete a personalized learning experience aligned with their academic and professional interests. Students must complete an Independent Study form before enrollment. Pass/Fail, F not in GPA

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## Biostatistics and Data Science Course Descriptions

**PH 1624L Introduction to SAS Data Management (3 Credits)**

This course covers reading ASCII files using various formats qualifiers, using DROP and KEEP statements, merging files, writing subsets of files, sorting, labeling variables, calculating date intervals, and using the LAG function. Minimal statistical processing, such as t tests and chi-squares, will also be introduced. Students are given several small coding assignments that are due approximately one (1) week later. To complete the assignments, students must have access to a computer on which SAS is installed. Letter Graded

**PH 1630L Introduction to R Programming for Biostatistics and Data Science (2 Credits)**

This course is an introduction to programming for statistics and data science using R programming language. The first half of the course covers basic programming concepts including variables, data types, data structures (lists, arrays, data frames, etc.), selection and repetition structures, to functions and packages. The second half includes data manipulation, exploration and visualization using tidyverse. Implementation of basic Statistical techniques are included in the course. Letter Graded

**PH 1631L Introduction to Python Programming for Biostatistics and Data Science (2 Credits)**

This course is an introduction to programming for statistics and data science using the Python programming language. Starting with basic programming concepts including variables, data types, data structures (lists, arrays, dictionaries, data frames, etc.), selection and repetition structures, to functions and packages, and finally data manipulation, exploration and visualization using the Python programming language. Letter Graded

**PHM 1690L Introduction to Biostatistics in Public Health (4 Credits)**

This course is designed as the first biostatistics course for students who have not previously taken a course in biostatistics; it is a designated core course for MPH students. Students will learn how to analyze quantitative data using appropriate biostatistical methods and software and interpret analysis results for a given public health context. Letter Graded

**PH 1700L Intermediate Biostatistics (3 Credits)**

This course is required for students minoring in Biostatistics and for students in Biostatistics who have not previously taken biostatistics courses. This course extends the topics covered in Foundations of Biostatistics to provide a deeper foundation for data analysis, and includes some coverage of the mathematical underpinnings of biostatistics. However, the main focus of the course is the application of biostatistics to research problems of public health and the biological sciences. Computer applications are included. Prerequisites: PHM 1690L or equivalent knowledge/training Letter Graded

**PH 1745L Sampling Techniques (3 Credits)**

This course introduces the principles and current practices of survey sampling with health-related applications. Topics include basic concepts and practical issues in statistical sampling; design and analysis for common sample designs: including simple random sampling, stratified random sampling, systematic sampling, cluster sampling, and multistage sampling; variance estimation techniques, and how to estimate the sampling weights. Statistical methods using national, and local complex surveys from descriptive statistics to linear and logistic regression with sampling weights are presented, such as the National Health and Nutrition Examination Survey (NHANES) or the Population Assessment of Tobacco and Health (PATH) Study, among others. Prerequisites: PH 1700L or consent of instructor Letter Graded

**PH 1820L Applied Linear Regression (3 Credits)**

The course emphasizes the design, implementation, analysis, and reporting of research investigations. Topics include two-sample inference using t-distributions, robustness and resistance, alternatives to the t-test based analyses, comparisons among several samples, linear combinations and multiple comparisons, simple and multiple linear regression methods, regression diagnostics, variable selection, and related methods. The course requires intensive computer analyses of case studies, emphasizing graphics and proper use and interpretation of statistical software packages using Stata as a model statistical software package. Prerequisites: PH 1700L or consent of instructor Letter Graded

**PH 1821L Applied Multivariate Analysis for Biostatistics (3 Credits)**

This course is a continuation of PH 1820L. Topics include the analysis of variance for two-way classifications, factorial arrangements and blocking designs, analysis of repeated measures and other multivariate responses, exploratory tools for summarizing multivariate responses, logistic methods for binary response variables and binomial counts, and log-linear regression for Poisson counts. Prerequisites: [PH 1820L or consent of instructor] & linear algebra Letter Graded

**PH 1830L Categorical Data Analysis (3 Credits)**

This course presents the theory and applications of categorical data analysis. Topics include contingency tables, applied generalized linear models, logistic regression model, sampling methods, model building strategies, assessing model fit, conditional logistic regression for matched analyses, polychotomous logistic regression, and Poisson regression. Prerequisites: [PH 1700L & calculus] or consent of instructor Letter Graded

**PH 1831L Survival Analysis (3 Credits)**

This course presents the theory and applications of survival analysis. Topics include censoring, parametric and nonparametric models, hypothesis testing, proportional hazards model with fixed and time-varying covariates, model building strategies, and assessing model fit. Prerequisites: (Calculus & [PH 1830L (preferred) or PH 1820L]) or consent of instructor Letter Graded

**PH 1835L Statistical Methodology in Clinical Trials (3 Credits)**

This course covers the use of current statistical methodology in the design, execution, and analysis of clinical trials. Some of the topics include basic study design, randomization, sample size issues, data analysis issues, and interim monitoring. Prerequisites: [PH 1700L & calculus & PH 1831L] or consent of instructor Letter Graded

**PHD 1838 Communication, Collaboration and Leadership for Biostatisticians and Data Scientists (3 Credits)**

The objectives of this course are to enable the students to: 1). Understand the role of statisticians and data scientists in a large multidisciplinary team; 2). Effectively analyze and assess different communication modes for efficient communications; 3). Apply effective presentation and communication skills to communicate statistical concepts and ideas with different types of audiences; 4). Apply scientific writing skills in preparing and writing data analysis plan, data analysis report, grant proposals and manuscripts for publications; 5). Understand the differences and prepare to play a leadership role under different job environments in academia, research institutions, industries and governments. Pass/Fail, F not in GPA

**PH 1840L Statistical Methods for Handling Missing Data (3 Credits)**

This course covers the use of current statistical methodology for handling missing data in health research studies. Primary emphasis will be given to population-based studies using surveys and secondary emphasis will be given to clinical-based studies, e.g. clinical trials, where dropout is commonly present. Some of the topics include missing data patterns, single imputation methods, estimation of imputation uncertainty, likelihood-based methods, multiple imputation, selection models, pattern-mixture models, shared-parameter models, and sensitivity analysis. Prerequisites: PH 1700L or consent of instructor Letter Graded

**PHD 1855L Distribution Free Methods (3 Credits)**

This doctoral-level course introduces the theory and applications of distribution-free (non-parametric) statistical methods. Topics include properties of distribution functions, K-S tests, runs tests, rank sum tests, non-parametric analysis of variance, rank correlation, contingency table analysis, and distribution-free confidence intervals. Prerequisites: PH 1700L Letter Graded

**PHD 1861 Introduction to Meta-Analysis (1 Credit)**

The goal of this course is to introduce students to best practices, resources, and methods for conducting a meta-analysis. The process of meta-analysis will be illustrated through the use of published case studies. The format includes face-to-face classes, online exercises, readings, recorded lectures, and a STATA-based experience for meta-analysis. R software for meta-analysis will also be introduced side-by-side with STATA, but students may choose to use either language. Pass/Fail, F not in GPA

**PH 1910L Probability and Distribution Theory (3 Credits)**

This course covers probability theory, distributions of discrete and continuous random variables, mathematical expectation, moments and moment generating functions, distribution of transformed variables, limiting distributions, and estimation. Theoretical results are applied to selected research problems in public health and the biomedical sciences. Prerequisites: Working knowledge of differential and integral calculus Letter Graded

**PH 1911L Statistical Inference (3 Credits)**

This course is a continuation of PH 1910L. Topics include statistical hypothesis tests, LR tests, Bayes tests, noncentral distribution and power, selected non-parametric tests, sufficiency, completeness, exponential family, and the multivariate normal distribution. Theoretical results are applied to research problems in public health and biomedical sciences. Prerequisites: PH 1910L or consent of instructor Letter Graded

**PHD 1912L Large Sample Theory (3 Credits)**

Large sample theory constitutes a coherent body of concepts and results that are central to both theoretical and applied statistics, and underlies much of the work on fundamental biostatistical topics such as likelihood ratio tests and bootstrapping. The course will start from the introduction to real analysis including limits and order, and basic probabilistic tools. The fundamental large-sample theory most relevant to biostatistical applications will then be taught, including convergence and large sample tests. Prerequisites: Calculus & Linear Algebra & PH 1910L & PH 1911L Letter Graded

**PHD 1915L Linear Models I (3 Credits)**

This doctoral-level course introduces the fundamentals of linear statistical models for students with preparation in statistical theory and methods. Using matrix algebra, distributions of quadratic forms are presented and used to develop the general linear model for multi-factor data. Topics include estimation and hypothesis testing in the full rank model, estimability, and statistical inference in the less than full rank model. Theory and computation are emphasized. Prerequisites: PH 1911L or consent of instructor Letter Graded

**PH 1916L Generalized Linear Models (3 Credits)**

This course focuses on methods for generalized linear models (GLMs), not on the use of software for data analysis with GLMs. Emphasis will be placed on statistical modeling, building from standard normal linear models, extending to and going beyond GLMs, and going beyond GLMs. The main subject areas are logic models for nominal and ordinal data, log-linear models, models for repeated categorical data, generalized linear mixed models and other mixture models for categorical data. Methods of maximum likelihood, weighted least squares, and generalized estimating equations will be used for estimation and inference. The course focus will be on theory, but examples of application will also be presented. Prerequisites: PH 1910L & PH 1911L Letter Graded

**PHD 1918L Statis Meth in Correlated Outcome Data (3 Credits)**

This doctoral-level course presents extensions of general and generalized linear models to correlated outcome data. Such models arise from hierarchical designs such as longitudinal studies or sample surveys. Major topics include mixed linear models for continuous, binomial, and count data; maximum likelihood estimation; generalized estimating equations; REML, EM algorithm; current general and specialized software applicable to these methods; and readings from current statistical literature. This course is intended for students with a background in linear models. Prerequisites: PH 1916L or consent of instructor Letter Graded

**PHD 1930L Statistical Computing (3 Credits)**

This doctoral-level course consists of two parts. Part 1 covers programming and other computer skills required for the research and application of statistical methods. The focus will be on programming in the R language. Other computing topics covered are Unix/Linux, Emacs, LaTeX, R graphics, culling C code from R, writing R package, running simulation in statistical research, using high-performance computing cluster, and best coding practices. Part 2 covers the theory and application of common algorithms used in statistical computing. Topics include root finding algorithms, optimization algorithms, numerical integration methods, EM algorithm, importance sampling, rejection sampling, Gibbs sampling, Markov chain Monte Carlo (MCMC), bootstrapping, jackknife, and permutation test. Letter Graded

**PHD 1950L Stochastic Processes in Biostatistics I (3 Credits)**

This doctoral-level course covers the application of stochastic processes to problems in the biological and health sciences. Topics include discrete-time Markov chains; discrete-time branching processes; random walks; estimation of parameters in discrete-time Markov chains with complete or partially observed data; test of the Markov property and test of stationarity; time-reversible Markov chains; basic theory of Markov chains; Monte Carlo methods and its applications; and Poisson processes. Recent developments in related areas and their applications will be explored. Basic statistical theory, especially the estimation methods and EM algorithm, will be reviewed. Prerequisites: PH 1911L and a thorough knowledge of calculus Letter Graded

**PHD 1951L Stochastic Processes in Biostatistics II (3 Credits)**

This course is a continuation of PHD 1950L. This course briefly reviews differential equations and partial differential equations, but it mainly covers several models of continuous-time Markov processes that include the Poisson process, the Yule process, the birth-and-death process, the epidemic process, the queuing process, the illness-death process, and other stochastic models in public health. Statistical inference for some of these models will also be explored. The appropriate data using these models will be analyzed. Applications of counting processes and the concept of Martingale theory to other statistical methods including survival analysis will be introduced. Brownian motion will be briefly discussed. Prerequisites: PHD 1950L or consent of instructor Letter Graded

**PH 1961 Spatial-Temporal Analysis for Population Health Data (3 Credits)**

This course is designed for students who are interested in analyzing spatial-temporal data, including disease surveillance and environmental health data. Main topics include research ethics, study design, databases for spatial-temporal population health data, data retrieving and processing with R programming (e.g., retrieving US Census data and geocoding in R), exploratory data analysis, data visualization with R and modeling for spatial-temporal data. The course will also introduce a variety of statistical methods (e.g. spatial-temporal disease mapping models) for point-level and area-level population data, and focus on application and interpretation. Prerequisites: [Applied linear regression at the level of PH 1820 or equivalent] & working knowledge of R programming Pass/Fail, F not in GPA

**PHD 1965L Bayesian Data Analysis (3 Credits)**

This doctoral-level course examines basic aspects of the Bayesian paradigm including Bayes theorem; decision theory; general principles (likelihood, exchangeability, de Finetti's theorem); prior distributions (conjugate, non-conjugate, reference); single-parameter models (binomial, Poisson, normal); multi-parameter models (normal, multinomial, linear regression, general linear model, hierarchical regression); inference (exact, normal approximations, non-normal iterative approximations); computation (Monte Carlo, convergence diagnostics); and model diagnostics (Bayes factors, posterior predictive checks). Letter Graded

**PH 1975L Introduction to Data Science (3 Credits)**

This course covers the basics of algorithms, programming in Python, relational and modern NoSQL database systems, data management, analytical databases and data warehouses, big data systems and computing, data collection and statistical processing methods, statistical learning and inference, statistical data exploration and analysis, machine learning, data visualization, communication in data science. Prerequisites: PHM 1690L & basic knowledge of computer programming. Letter Graded

**PH 1976L Fundamentals of Data Analytics and Predictions (3 Credits)**

This course introduces modern statistical methods and computational algorithms and tools for big data analysis including descriptive statistics, sampling technique, regression learning, clustering, and classification (e.g., support vector machine, tree-based methods). Students will be introduced to the basic concepts behind data science. Hands-on sessions will familiarize students with the details and use of the most commonly used online tools and resources. Prerequisites: [PH 1700L or the equivalent] & [PH 2783 or PH 1998L ST: Introduction to Statistical and Data Science Programming] & [calculus, linear algebra, basic statistical theory and convex optimization methods at the introductory level] Letter Graded

**PH 1977L Data Science Computing (3 Credits)**

This course is about principles, programming, infrastructures, and tools for computing and data management in data science to facilitate statistical analysis and make it efficient for population health. Its topics include efficient algorithm design and analysis, parallel and distributed programming in Python, relational databases and data warehouses, NoSQL databases, Apache Spark infrastructure and data science tools for management of and statistical inference on structured and unstructured data. Prerequisites: PH 1975L or equivalent knowledge or training Letter Graded

**PH 1978L Machine Learning in Practice (3 Credits)**

This course covers advanced data analysis and prediction techniques and tools with applications. Prerequisites: PH 1976L & Python programming skills Letter Graded

**PHD 1979L Advanced Data Analytic Methods: AI and Deep Learning (3 Credits)**

Learn the advanced technologies in Artificial Intelligence (AI), including Convolutional Neural Network (CNN), Variational Auto Encoder (VAE), Generative Adversarial Network (GAN), multimodal and multitask found models, Generative Pretrained Transformer (GPT)-4, GPT-4V, and Generalized Multimodal Intelligence Network Interface (GEMINI); their applications, and their ability to be trained to carry out interdisciplinary study. Prerequisites: Calculus & algebra & PH 1976 Fundamentals of Data Analytics and Predictions & PH 1978 Machine Learning in Practice Letter Graded

**PH 1982L Evolution of DNA and Protein Sequences (3 Credits)**

This course provides basic principles for understanding factors that govern the evolution of DNA and protein sequences. Students will be provided with the opportunity to learn about the formation and evolution of multigene families and other evolutionary phenomena. They will also be introduced to statistical methods and computer programs for analyzing DNA and protein sequence data. There will be computer demonstrations of some topics. The application of these principles and methods to genome-wide epidemiology will be discussed. [Cross-listed with GSBS GS110103] Prerequisites: Calculus & statistics & consent of instructor Letter Graded

**PH 1984L Population Genetics (3 Credits)**

This is an intermediate level course in the area of statistical genetics/computational biology. It is designed to help students to understand the fundamentals of theoretical population genetics and to be able to apply such knowledge in analyzing samples of DNA sequences from a population. Students will learn to understand allele/genotypic frequencies and how they are affected by various evolutionary forces, including mating pattern, mutation, random genetic drift, linkage, natural selection and population subdivision/migration. Special emphasis is on the coalescent theory and statistical properties of some fundamental summary statistics, as well as their application. [Cross-listed with GS11 1123] Prerequisites: Some background in genetics and statistics & consent of instructor Letter Graded

**PH 1986L Introduction to Statistical Genetics (3 Credits)**

This course is designed to enable the student to understand the interplay between statistics and genetics. Specifically, by the end of the course, students should be able to: (1) describe the fundamental principles and theory in some areas of genetics in which statistics plays an important role; (2) apply some widely used statistical methods and approaches to solve specific genetic questions; and (3) be prepared for advanced courses in the area of statistical genetics. This course has been revamped in 2021 to merge the course "Introduction to Statistics Genetics" and "Introduction to Genomics and Bioinformatics". [Cross-listed with GSBS GS11 1113] Letter Graded

**PH 1988 Biostatistics Seminar (1 Credit)**

The seminar in biostatistics consists of presentations from guest speakers and some students who are working on doctoral dissertation research. It will provide an overview of various topics of current importance in the field of biostatistics and public health while emphasizing the mathematical and statistical tools needed to address these issues. Pass/Fail, F not in GPA

**PH 1992 Big Data in Practice - EHR Data Processing and Analytics (3 Credits)**

In this Big Data era, it is necessary to train our students to have creative thinking and problem-solving skills in dealing with complex real-world Big Data, in addition to solid statistical foundations. In this course, will provide a new perspective for Big Data issues and potential solutions to Big Data problems. In addition to Big Data analytic methods, we also introduce soft skills such as communication and collaboration skills in a multidisciplinary Big Data team environment. Electronic Health Record (EHR) Big Data projects will be used as examples for hands-on practice. Prerequisite: PH 1975L & PH 1976L Pass/Fail, F not in GPA

**PHD 1995 Research Practice Experience for Biostatistics Students (3 Credits)**

A research practice experience is a unique learning experience that a student pursuing a PhD in Biostatistics must acquire outside the classroom. This opportunity allows students to apply classroom education towards a real-world public health work setting. Prerequisite: Must be a PhD Biostatistics student, successful completion of the Biostatistics and Data Science Preliminary Exam. Pass/Fail, F not in GPA

**PHM 1996 Capstone for BIOS Students (3 Credits)**

This integrative learning experience is designed to demonstrate synthesis of major themes from the MPH core and major-specific courses. Students produce at least one high-quality written product. Prerequisites: Students must be a MPH in Biostatistics major & completed the MPH core courses & completed at least 30 semester credit hours the semester before enrolling. Pass/Fail, F not in GPA

**PHD 1997 Teaching Quantitative Topics in Public Health and Biostatistics (1 Credit)**

This doctoral-level course provides an overview of the application of teaching methods in biostatistics. The objectives for this class are: (1) Apply teaching methods learned in the course, for example, through presentations on modern statistical topics, and/or via their role as teaching assistants (TAs) in Biostatistics courses; (2) Develop group leadership and teaching skills; and (3) Monitor and improve presentation skills. The student will receive instruction and feedback on their group leadership and teaching skills from faculty. Students will discuss the problem-based learning case studies based on examples provided and on their own teaching experiences. Pass/Fail, F not in GPA

**PH 1998 Special Topics in Biostatistics (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of biostatistics and data science. Pass/Fail, F not in GPA

**PH 1998L Special Topics in Biostatistics (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of biostatistics and data science. Letter Graded

**PH 1999 Individual Study in Biostatistics (1-9 Credits)**

An independent study allows students to explore a specific public health topic and gain knowledge and skills that are not available through preexisting courses, under the guidance of a faculty advisor. This self-directed course enables students to design and complete a personalized learning experience aligned with their academic and professional interests. Students must complete an Independent Study form before enrollment. Pass/Fail, F not in GPA

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## Environmental and Occupational Health Science Course Descriptions

**PHD 2105L Environmental and Occupational Health Sciences Doctoral Seminar (1 Credit)**

This seminar course is designed for doctoral students and post-doctoral fellows in EOHS. Doctoral students in other departments and programs may enroll with the consent of the instructors. The course combines research seminar presentations with specific assignments to provide students an opportunity to improve their knowledge of the latest EOHS topics, their presentation skills, and their scientific productivity in the formulation of research proposals and journal publications and presentations at scientific meetings. The seminar provides opportunities to involve mentors (advisors, dissertation supervisors, committee members) and to practice mentoring and teaching with other class members. Letter Graded

**PHD 2106L Introduction to Doctoral Research Methods in Environmental and Occupational Health Sciences (2 Credits)**

This course provides doctoral students with a background in the perspectives, key concepts, and methods involved in conducting research and evaluating scientific claims in the EOHS context, part of the necessary training to undertake a future research project. The course considers basic aspects and challenges of the philosophy of science and the inference of causality; ethical issues on conducting research; study design and sampling methods; the role of statistics; and the appropriateness of the measures of association, including hypothesis formulation and testing; and presentation of findings. Students are also introduced to the scientific production process. Letter Graded

**PH 2107L Advanced Research Design in Environmental and Occupational Health Sciences (3 Credits)**

An in-depth examination of complex research methodologies, enabling students to critically analyze and develop sophisticated research designs, with a particular focus on implementing methodologically sound research projects in environmental and occupational health. A strong emphasis is placed on applying these concepts to critique existing research literature, identify potential limitations in current theories, and apply classroom instruction into real-world practice. Prerequisites: PHD 2106L. Letter Graded

**PHM 2110L Public Health Ecology & the Human Environment (3 Credits)**

This course provides an introductory overview of the basic principles underpinning public health ecology and environmental health. It satisfies the core environmental health MPH requirement for majors and non-majors. Students are provided with foundational knowledge in public health ecology, principles of environmental health and an introduction to environmental policies & controls. Applications of this knowledge will be applied to an environmental case study, wherein students will use a systems thinking approach to identify the key elements of the problem, develop solutions and articulate a dissemination plan. In addition, inter-professional engagement simulations will be used to provide students with skills for engaging stakeholders, including community members, policy makers/enforcers, and other healthcare professionals. Letter Graded

**PH 2120 Climate Change & Health - Human Impact on the Environment (3 Credits)**

This course provides a general awareness of how the man-made and natural ecosystem interact to affect health and the quality of life, reviews relevant principles from the natural sciences, and discusses issues influencing the solutions to environmental health problems. The course content will focus on the impact of climate change on human health. The intersection between environmental degradation and climate change and adverse human health outcomes will be examined. The course objectives will be accomplished through lectures, videos, class discussions, group activities, written assignments, and examinations. Pass/Fail, F not in GPA

**PH 2132L Infection Control and Biosafety (3 Credits)**

The field of infectious disease and control is mainly composed of four professions: infection preventionists, biosafety professionals, environmental health specialists, and public health professionals. Although the targeted populations for each of these professions differ, a common set of core competencies exists that are essential in order to successfully prevent or control infection. This course focuses on the core competencies that are common amongst all of these professions and will also discuss differences between these trades. Prerequisites: Undergraduate biology required. A course in microbiology preferred. Letter Graded

**PHM 2135L Risk Analysis: Principles and Practice (3 Credits)**

The purpose of this course is to provide students with the principles of risk assessment for environmental and occupational health hazards. This course introduces important components in risk assessment including hazard identification, exposure assessment, dose-response assessment, and risk characterization. Materials of risk management and risk communication are also covered. Case studies are used to demonstrate important principles and practices of risk analysis. Letter Graded

**PHD 2135L Risk Analysis: Principles and Practice (3 Credits)**

The purpose of this course is to provide students with the principles of risk assessment for environmental and occupational health hazards. This course introduces important components in risk assessment including hazard identification, exposure assessment, dose-response assessment, and risk characterization. Materials of risk management and risk communication are also covered. Case studies are used to demonstrate important principles and practices of risk analysis. Letter Graded

**PH 2150 Air Environment (3 Credits)**

This course provides a comprehensive introduction of air pollution with a focus on its effects on human health. It covers a variety of topics related to air quality, including fundamental principles, measurements and control, exposure and risk assessment, epidemiology, energy and air quality, environmental justice, and regulations. Both outdoor ambient air and (non-occupational) indoor air quality are considered. Special emphasis is placed on human health effects and the determinants of human exposure. Pass/Fail, F not in GPA

**PHM 2155 Environmental Sampling Analysis (4 Credits)**

This course covers the theoretical bases and practical applications of sampling techniques and analytical methods used in the identification of hazards in the environment. Students will plan environmental sampling design, develop sampling strategies, interpret and communicate generated results, and critique data related to environmental studies. Prerequisites: [Undergraduate chemistry & undergraduate mathematics] or consent of instructor Pass/Fail, F not in GPA Lab Fee: \$30

**PHD 2155 Environmental Sampling Analysis (4 Credits)**

This course covers the theoretical bases and practical applications of sampling techniques and analytical methods used in the identification of hazards in the environment. Students will plan environmental sampling design, develop sampling strategies, interpret and communicate generated results, and critique data related to environmental studies. Prerequisites: [Undergraduate chemistry & undergraduate mathematics] or consent of instructor Pass/Fail, F not in GPA

**PH 2175L Toxicology I: Principles of Toxicology (3 Credits)**

This course presents basic principles of toxicology and their applications to the understanding of xenobiotic-induced target organ toxicity. Topics covered include toxicant disposition, mechanisms of toxicity, and target organ responses to toxic agents. A broad overview of various classes of toxic agents will be presented in the context of their exposure routes, disposition, toxicologic sequelae, and mechanisms of toxicity. This course is designed to provide a foundation for understanding the complex interactions between toxicants and biologic systems. Prerequisites: Prior biological science coursework required (i.e., biology, chemistry, or physiology) and consent of instructor Letter Graded

**PH 2177 Toxicology II: Toxic Agents and the Environment (3 Credits)**

This course provides in-class discussions, based on guided readings, on current topics in toxicology. The discussions include the historical context for our understanding of toxicant-induced adverse health effects. Class activities will be based on discussions of books designed for the lay public and the scientific literature on which these books are based. Principle mechanisms of toxicity as they relate to the understanding of environmentally induced disease form the framework for the course. In-depth reviews of various classes of environmental contaminants and their adverse health effects will be presented. Prerequisites: PH 2175L (preferred) or consent of instructor Pass/Fail, F not in GPA

**PH 2205L Health & Safety Program Management (3 Credits)**

This course introduces students to real world challenges related to the management of occupational health and safety programs. Students will be equipped with the knowledge and skills needed to effectively manage a successful health and safety program. This course is a practical introduction to occupational health and safety program management for field practitioners with interest in related disciplines (e.g., industrial hygiene, ergonomics, occupational epidemiology, safety engineering). It draws on concepts from strategic, quality, and accounting management; sociology; political science; and behavioral sciences. Using real-world health-and safety-based examples, students will be challenged to apply the concepts presented in class to real-world scenarios. Letter Graded

**PHM 2230L Water Environment (3 Credits)**

This course provides students with an overview of the ecological, cultural, and human health significance of water. Students will learn through a combination of lectures, class discussions, and case studies. Issues of water quantity and quality, sustainability, chemical and biological contaminants, water treatment, and conservation practices will be covered. Current water regulations, underlying risk assessments, and related health issues for selected contaminants will be presented. Doctoral students will select a water-related health issue and complete a project describing its importance to public health, identify any gaps in current knowledge and policy, and predict future impacts on environmental science and/or public health. Letter Graded

**PHD 2230L Water Environment (4 Credits)**

This course provides students with an overview of the ecological, cultural, and human health significance of water. Students will learn through a combination of lectures, class discussions, and case studies. Issues of water quantity and quality, sustainability, chemical and biological contaminants, water treatment, and conservation practices will be covered. Current water regulations, underlying risk assessments, and related health issues for selected contaminants will be presented. Doctoral students will select a water-related health issue and complete a project describing its importance to public health, identify any gaps in current knowledge and policy, and predict future impacts on environmental science and/or public health. Letter Graded

**PH 2241L Fundamentals of Occupational Safety (3 Credits)**

This course is designed as a practical introduction to occupational safety for practitioners with interest in related disciplines (e.g. industrial hygiene, ergonomics, occupational epidemiology, safety engineering). The course will focus on hazard recognition, assessment of accident potential, and hazard control. Students will be introduced to the evolution of the safety profession and will be presented with a variety of laws, regulations, codes and standards, and other occupational safety and accident prevention information. Letter Graded

**PH 2245 Fundamentals of Industrial Hygiene (4 Credits)**

This course introduces students to concepts of industrial hygiene and occupational health hazards. Typical industrial conditions that may produce work-related disorders and diseases are studied. Major chemical, physical, and biological stresses in the industrial environment are presented, and important sources, effects, and evaluation and control measures are discussed. Where appropriate, typical calculation methods are included. Prerequisites: Undergraduate biology & undergraduate chemistry (organic chemistry preferred) & undergraduate mathematics Pass/Fail, F not in GPA

**PH 2246L Principles of Occupational Ergonomics (3 Credits)**

This course is designed to introduce students to the principles of ergonomics with a focus on the physiological and anatomical capabilities of the worker and interaction with their environment. The course will review anthropometry, physiological basis of work, occupational musculoskeletal disorders and risk factors, workplace and equipment design, environment, job analysis, and elements of the ergonomics process to improve job design. Letter Graded

**PH 2250 Occupational Health Controls (4 Credits)**

This course presents the principles and practice of controlling workplace and associated hazards, and details CPC, respiratory protection, dilution, and local exhaust ventilation engineering controls: basic design and evaluation of industrial ventilation systems, and noise control. Prerequisites: [PHM 2110L & PH 2245] or consent of instructor Pass/Fail, F not in GPA

**PH 2255 Clinical Occupational Medicine (4 Credits)**

This course offers students the opportunity to familiarize themselves with the clinical practice of and current issues in occupational medicine, supplements their basic knowledge in the clinical presentations of occupational illness and injury by organ systems, and introduces them to systematic approaches to the evaluation and management of work-related injury and illness. The course is designed for students interested in occupational medicine practice and who have taken at least one college-level biology course. Pass/Fail, F not in GPA

**PH 2256 Occupational Health Psychology (2 Credits)**

This course provides an introductory overview of the basic theories, principles and topics encompassed in the field of occupational health psychology, at both the individual worker and worker population levels. Pass/Fail, F not in GPA

**PH 2260 Occupational Health Field Trips (3 Credits)**

This course takes students into approximately six industrial and occupational settings, with analysis of processes and potential worker health hazards involved. This course aims to introduce students to basic industrial processes and delivery of occupational health services through plant visits; to enable students to perform simple walk-through evaluations of plant facilities and to provide written reports on these evaluations in order to identify potential workplace hazards and evaluate their level of control; and to help students appreciate the importance of using an integrated interdisciplinary approach in the anticipation, evaluation, and control of workplace hazards. Prerequisites: PH 2245 or consent of instructor Pass/Fail, F not in GPA

**PH 2265 Occupational Medicine Practice (2 Credits)**

This seminar-style course presents topics of current interest in the practice of occupational medicine. In this course, both faculty and students prepare and discuss topics. Topics vary from year-to-year and semester-to-semester, and include didactic presentations by students, faculty, or invited speakers; field visits to selected worksites; board certification review sessions; and an annual in-service practice examination to assist in preparation for the American Board of Preventive Medicine certification examination. Pass/Fail, F not in GPA

**PH 2270 Principles and Practice of Total Worker Health (2 Credits)**

Total Worker Health® (TWH) involved the policies, programs and practices integrating protection from work-related safety and health hazards with promotion of injury and illness prevention to enhance worker well-being. The terminology, concepts and conceptual frameworks surrounding the field of THW and worker well-being are introduced along with resources for planning, implementing and evaluating interventions. Students evaluate the effectiveness of TWH interventions in all size businesses and explore potential modifiers of occupational factors influencing worker well-being. Pass/Fail, F not in GPA

**PHD 2271 Total Worker Health Field Experience (3 Credits)**

Total Worker Health (TWH) PhD degree track students work with an industry/occupational preceptor on a worker well-being project for one semester. Students work on the project at the facility. Projects require application of the theories and principles of total worker health to a real-world situation. The course is offered to students in campuses where the PhD in Environmental Sciences, TWH track is offered. Prerequisites: PH 2205L & PH 2270L & PH 2241L & PH 2245 & PH 2256 & PHD 1113L & PHD 1120L & (PHD 1118L or PHD 1123L) Pass/Fail, F not in GPA

**PH 2280L Environmental Microbiology (3 Credits)**

This course introduces to environmental microbiology, with particular emphases on how microorganisms are transmitted to humans as well as ways to identify and prevent this transmission. Topics include microbial sources of contamination; environmental sampling and laboratory techniques; preventive strategies for air-, water-, and food-borne disease; global issues impacting microbial disease; and the roles of epidemiology and risk assessment in addressing human exposure to environmental microbes. Letter Graded

**PHM 2360L Occupational Epidemiology (3 Credits)**

This course describes the types and magnitude of workplace injuries and illnesses, which exact a large human and economic toll on adult and child workers in the United States and worldwide (many, if not most, of these adverse health outcomes are preventable); examines the epidemiologic methods used to identify risk factors for these events; and examines the role of academia, industry and public health practice in understanding and controlling these conditions from an epidemiologic perspective. The course is especially targeted as a Special Topics course for epidemiology majors and to provide an epidemiologic and public health perspective to occupational health for occupational health, environmental science and other interested students. Letter Graded

**PHD 2360L Occupational Epidemiology (3 Credits)**

This course describes the types and magnitude of workplace injuries and illnesses, which exact a large human and economic toll on adult and child workers in the United States and worldwide (many, if not most, of these adverse health outcomes are preventable); examines the epidemiologic methods used to identify risk factors for these events; and examines the role of academia, industry and public health practice in understanding and controlling these conditions from an epidemiologic perspective. The course is especially targeted as a Special Topics course for epidemiology majors and to provide an epidemiologic and public health perspective to occupational health for occupational health, environmental science and other interested students. Doctoral students will have additional projects. Letter Graded

**PHM 2362L Environmental Epidemiology (3 Credits)**

This course is designed to introduce students to specific research areas within the field of environmental epidemiology as well as to epidemiologic and exposure assessment methodologies commonly used in the field. The course provides an introduction to selected topics and concepts in environmental epidemiology and will prepare students to critically appraise the environmental epidemiologic literature. Topical areas may include (but are not limited to) air pollutants, persistent organic pollutants, pesticides, metals, environmental disasters, and environmental justice. Letter Graded

**PHD 2362L Environmental Epidemiology (3 Credits)**

This course is designed to introduce students to specific research areas within the field of environmental epidemiology as well as to epidemiologic and exposure assessment methodologies commonly used in the field. The course provides an introduction to selected topics and concepts in environmental epidemiology and will prepare students to critically appraise the environmental epidemiologic literature. Topical areas may include (but are not limited to) air pollutants, persistent organic pollutants, pesticides, metals, environmental disasters, and environmental justice. Letter Graded

**PH 2491 Public Health Preparedness & Disaster Response (3 Credits)**

This course provides an overview of the emergency response system and the public health system responsibilities in management of disasters with a special emphasis on planning and response. The course format is an interactive graduate level electronic seminar. Website resources are identified for students to obtain basic background information regarding disaster preparedness, emergency response systems, and emergency plans. Combined with PH 2991. Prerequisites: PHM 1110L & PHM 1690L & PHM 2110L & PHM 3715L & PHM 5015L Pass/Fail, F not in GPA

**PHM 2496 Capstone for EOHS Students (3 Credits)**

This integrative learning experience is designed to demonstrate synthesis of major themes from the MPH core and major-specific courses. Students produce at least one high-quality written product. Prerequisites: Completed MPH core courses & [concurrent enrollment in or completed: PH 2175L & PHM 2135L] & completed at least 30 semester credit hours the semester before enrolling in capstone. Pass/Fail, F not in GPA

**PH 2498 Special Topics in Environmental and Occupational Health Sciences (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of environmental and occupational health sciences. Pass/Fail, F not in GPA

**PH 2498L Special Topics in Environmental and Occupational Health Sciences (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of environmental and occupational health sciences. Letter Graded

**PH 2499 Indiv Study/Environmentl and Occ Health (1-9 Credits)**

An independent study allows students to explore a specific public health topic and gain knowledge and skills that are not available through preexisting courses, under the guidance of a faculty advisor. This self-directed course enables students to design and complete a personalized learning experience aligned with their academic and professional interests. Students must complete an Independent Study form before enrollment. Pass/Fail, F not in GPA

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## Epidemiology Course Descriptions

**PHM 2612L Introduction to Epidemiology (3 Credits)**

This course provides a strong foundation in concepts, principles, and methods specific to epidemiology. By the end of this course, students should be able to apply these skills to (a) assess the health of a population; (b) describe the natural history, distribution, and determinants of health-related states and events; and (c) evaluate programs designed to improve public health. To accomplish this, the course considers epidemiology in the context of core public health functions and services. Letter Graded

**PH 2615L Field Epidemiology (3 Credits)**

This course focuses on the principles and activities necessary to carry out information collection that is implemented and managed in an ethical manner consistent with the principles of the scientific method. This course addresses practical aspects of epidemiologic research. Systems theory, epidemiologic methods, principles of survey research, operations research methods, and computer uses in research are covered. The final product from the class is the development of an epidemiologic field "Manual of Procedures" for a study. PH 2615L Epidemiology II and PH 2710L Epidemiology III can be taken interchangeably. Prerequisites: [PHM 2612L or PHM 2610 or equivalent] & [PH 1700L or PHM 1690L] Letter Graded

**PH 2710L Intermediate Epidemiology (3 Credits)**

This course covers advanced concepts in epidemiologic methods with an emphasis on observational studies. Topics include causal inference, measures of disease frequency, measures of association, study design, precision and validity in epidemiologic studies, introduction to stratified and logistic regression analysis, concepts assessing effect modification and confounding, interpretation of epidemiologic study results, and manuscript development. PH 2615L Epidemiology II and PH 2710L Epidemiology III can be taken interchangeably. Prerequisites: [PHM 2612L or PHM 2610] & [PHM 1690L & (PH 1700L or equivalent)] Letter Graded

**PHD 2711L Advanced Epidemiology (3 Credits)**

This course prepares students to use and make reasonable inferences regarding causality from epidemiologic data analyses. Students address research questions using data from a variety of study designs. Students acquire hands-on experience with stratified analysis, logistic regression, and survival analysis. Other learning activities cover meta-analysis, advanced issues in assessment of confounding and effect measure modification, strategies for building multivariable models, and sensitivity analysis. Prerequisites: [PH 2615L & PH 2710L & PH 1700L & enrolled in SPH doctoral program] or consent of Instructor Letter Graded

**PHD 2712L Experimental Methods in Epidemiology (3 Credits)**

This course equips students to evaluate and interpret evidence concerning preventive or therapeutic measures, especially those recommended for public health application. It concerns principles and methods of experimental studies in epidemiology and public health, from simple clinical trials to prevention trials in multiple communities. Applications span many areas, including cardiovascular diseases, cancer, and infectious diseases. Students participate actively in a seminar format, critique published reports, and undertake a collaborative project to develop a research protocol for an experimental study. Prerequisites: PH 2710L or consent of instructor. Letter Graded

**PHD 2720L Epidemiologic Proposal Development (3 Credits)**

This course covers the structure and content of a student thesis research proposal, scientific writing conventions, critical evaluation and synthesis of epidemiological literature, development of specific aims and research methods, and procedure for writing and editing research proposals. Doctoral students will also cover NIH grant applications and the NIH grant review process. Prerequisites: PHD 2711L & PHD 2712L Letter Graded

**PH 2725L Neuroepidemiology (2 Credits)**

This course provides an overview of the risk factors for a variety of neurologic and neuropsychiatric diseases, including stroke, Alzheimer's disease and other dementias, Parkinson's disease, brain tumors, autism, and mood disorders. Areas covered include a description of the prevalence, incidence, mortality, risk factors, and etiologic mechanisms of these diseases and conditions. Students will gain an understanding of the impact of these diseases on public health; of the unique methodological issues associated with epidemiologic and genetic studies of these diseases; and of the basic pathobiology and clinical aspects of these disorders. The course aims to aid students' comprehension of published literature in neuroepidemiology and neurogenetics. Letter Graded

**PH 2730L Epidemiology and Control of Infectious Diseases (3 Credits)**

This course introduces epidemiologic aspects of infectious diseases and provides information regarding prevention and control of these diseases. At the end of the course, students have an understanding of the epidemiologic aspects of infectious diseases including incidence, distribution, and pattern of disease occurrence as well as different modes of transmission and associated risk factors. They should understand the importance of surveillance systems in detecting epidemics, the application of epidemiological methods to determine the risk and associated factors, and the significance of prevention and control programs for infectious diseases. Students gain knowledge and skills in carrying out epidemic investigations through a series of case study assignments. Prerequisites: [PHM 2612L or PHM 2610] or consent of instructor Letter Graded

**PH 2735L Physical Activity and Health: Epidemiology and Mechanisms (3 Credits)**

This course presents evidence that exercise training and physical activity can prevent disease and increase the quality of life. The course covers heart disease, hypertension, diabetes, obesity, osteoporosis, eating disorders, cancers, immune system, and aging, as well as inter-relationships among and between these conditions. Each section starts with the physiology basis for the disease, and the epidemiologic evidence that exercise training and physical activity will reduce the risk of developing the disease. Then, cross-sectional and longitudinal studies are presented supporting the epidemiological data. Finally, studies are presented that focus on the mechanisms by which exercise and physical activity prevents the development of the disease, and, in some cases, how it can improve the disease state. Letter Graded

**PH 2740L Cardiovascular Disease Epidemiology and Prevention (3 Credits)**

This course provides an overview of the field of cardiovascular disease (CVD) epidemiology. Topics include the pathophysiology of CVD, CVD survey methods, trends in CVD mortality and morbidity, CVD risk factors, major strategies for CVD prevention, and a summary of major CVD clinical trials. Students will gain an understanding of the impact of CVD on public health. Prerequisites: [PHM 2612L or PHM 2610] or consent of instructor Letter Graded

**PH 2742L Epidemiology of Mental Health (3 Credits)**

This course reviews descriptive and analytic epidemiology for major mental health symptoms and conditions worldwide. Course topics include understanding: functional and societal burden of mental health conditions, psychiatric epidemiology research designs, causality in mental health, cross-societal comparisons, risk factors and protective factors, plus an overview of treatment, health systems, and prevention. Prerequisites: [PHM 2610 or PHM 2612L or PHD 1420L or PHD 1421L or PH 3660] or consent of instructor. Letter Graded

**PH 2745 Cancer Epidemiology (3 Credits)**

This primarily introductory-level course reviews the causes of cancer and the epidemiology of cancer by anatomical site. The course will introduce seminal studies and current issues in cancer epidemiology, and will cover basic concepts pertinent to cancer epidemiology research including biology, pathology, statistics, classic and novel risk factors, prevention, and genetics. Selected publications from epidemiologic literature provide opportunity for student-faculty discussion. Pass/Fail, F not in GPA

**PH 2750 Disease: Natural History, Prev, Control (3 Credits)**

This course is intended for students who have not had significant training in biology. It will cover common diseases, medical terminology, and the associated scientific and medical literature. The course will consist predominantly of online lectures, readings, and discussion board participation. Objectives include attaining a basic understanding of the biological basis of health and of disease processes; developing a vocabulary of medical terminology that will enhance the student's ability to read and comprehend public health literature; and developing an understanding of common human diseases and their importance in a public health context. The grade is based on participation, assignments, a mid-term examination, and research project. Pass/Fail, F not in GPA

**PH 2765L Pediatric Epidemiology (3 Credits)**

This course describes the public health impact of pediatric conditions and introduces special considerations in the design and conduct of epidemiological studies of pediatric conditions. Resources for pediatric epidemiology and the epidemiology of common chronic pediatric conditions are also covered. Prerequisites: PHM 2612L Letter Graded

**PH 2766L Pediatric Population Health (3 Credits)**

This course will provide a local, national and global perspective on critical pediatric population health issues and health outcomes and will be taught within a life course framework. We will identify the determinants of these health outcomes and the current public policy surrounding these issues, including a special focus on women of reproductive age, infants, children, and adolescents. We will cover the epidemiological methods, design and statistical approaches that are typically applied to pediatric population health data. Letter Graded

**PH 2767 Pediatric Behavioral Epidemiology (3 Credits)**

Course covers 2 public health areas: (A) Epidemiology of 6 leading causes of acute and chronic diseases, including: 1) Tobacco; 2) Alcohol/other drugs; 3) Nutrition; 4) Physical activity; 5) Intentional and unintentional injuries; and 6) HIV, STD, pregnancy. (B) Health promotion strategies to prevent acute and chronic disease. These include methods to increase health-enhancing and decrease health compromising behaviors. Other topics include: 1) Physical, social, cognitive development; 2) Factors contributing to differences in health; 3) Sleep, social media and video games; 4) Effects of climate change on health; and 5) Mental health. Prerequisites (or co-requisites): PHM 2612L & PHM 1110L Pass/Fail, F not in GPA

**PH 2775L Epidemiologic Methods in Population Health Differences (3 Credits)**

This course provides an overview of health trends and differences across population groups in the U.S. Special emphasis is given to epidemiologic methods and perspectives in research studies; that examine demographic patterns; mortality and life expectancy; and biological, environmental, and social factors that may contribute to population-level differences in health outcomes. Prerequisites: PHM 2612L. Letter Graded

**PH 2780L Genetic Epidemiology (3 Credits)**

This course introduces statistical methods and software for analyzing measured genetic variation in human studies. The primary focus will be on analytic methods with hands-on use of sample datasets and available software. Students will be refreshed on the genetic and statistical theory underlying current methodologies. Students are recommended to have previous exposure to the principles of genetics and biostatistics. Letter Graded

**PH 2781L Practical Python Programming & Algorithms for Data Analysis (3 Credits)**

This course is intended for students who are focused on big data analysis in the Python programming language from large scale epidemiologic datasets, electronic medical records, or next generation sequence data. It will cover basic programming including strings, array, dictionaries, conditional statements, data visualization, external data sources, and algorithms with a focus on using programming to solve challenges within the students' own research projects. Letter Graded

**PH 2782L Practical Computational Genetics and Bioinformatics (3 Credits)**

This course is designed as a training of necessary computational and bioinformatics skills used in everyday analysis of biological data, especially DNA sequence and polymorphism data. Topics include basic Unix/Linux command line, programming (Python), human sequence/polymorphism databases, and DNA analysis. Prerequisites: Basic knowledge of genetics and DNA sequence Letter Graded

**PH 2783 Introduction to R Programming and Data Management (3 Credits)**

This course aims to provide students with hands-on experience in R programming and data management. The students should be familiar with basic concepts in epidemiology and biostatistics. Previous experience in using SAS, STATA or SPSS is helpful, but not required. Topics include downloading and installing R, basic programming concepts, basic programming best practices, R packages and environments, R data structures, data transfer, creating and manipulating data, visualizing data, conditional operations, working with multiple data frames, restructuring data frames, repeated/iterative operations, writing functions, basic analyses used in epidemiology, and techniques for presenting results to various audiences. Special emphasis will be given to using the Tidyverse family of R packages. Pass/Fail, F not in GPA

**PH 2784L Introduction to R Analysis for Epidemiologic Research (3 Credits)**

This course aims to provide students with hands-on experience in R analysis for epidemiologic research. The students should be familiar with basic concepts in epidemiology and biostatistics. Previous experience in using SAS, STATA or SPSS is helpful, but not required. Topics include R data structure, data management and visualization, loops and conditions, classical statistical tests, functions, packages and environments, sample size and power calculation. Prerequisites: PHM 1690L & PHM 2612L Letter Graded

**PH 2785L Laboratory Methods: Applications and Implications to Public Health (3 Credits)**

This introductory course provides an overview of various methods and techniques utilized in laboratory settings and epidemiologic investigations. Emphasis is placed on laboratory methods that are relevant to the study of public health, such as the techniques utilized in investigating disease outbreaks. This course addresses a unique need and the necessity for public health students to know the basic laboratory methods used in epidemiologic studies. An understanding of the basic concepts of immunology, molecular biology, and/or genetics would be helpful, but is not a prerequisite. Letter Graded

**PH 2786 CRISPR in Public Health: The Science and Ethics of Genetic Engineering (3 Credits)**

The course "CRISPR in Public Health: the science and ethics of genetic engineering" offers a comprehensive exploration of the revolutionary gene editing technology CRISPR-Cas and its applications in combating infectious and human genetic diseases. CRISPR technology have provided unprecedented tools for understanding, treating, and preventing these diseases. This course combines scientific theory with practical applications and bioethics implications through a deep understanding of CRISPR's potential in human diseases. Prerequisites: Basic biology knowledge is encouraged. Pass/Fail, F not in GPA

**PH 2793 Current Topics in Infectious Disease Epidemiology (2 Credits)**

This course is designed as an introduction to the epidemiology of emerging pathogens, their mechanisms of transmission and virulence, and new technologies for surveillance, prevention, and treatment. At the end of the course students will have an understanding of the broad categories of infectious microbes (viruses, bacteria, fungi, and parasites) and the different ways these pathogens transmit and cause disease. Additionally, students will learn the fundamentals of different technologies, including cutting edge `omics techniques (such as genomics and transcriptomic), used to identify and track these pathogens. Prerequisite: a previous introductory course in biology, either in high school or undergraduate study Pass/Fail, F not in GPA

**PH 2795 Disease Detectives: International Epidemic Investigations (3 Credits)**

This course presents a series of outbreaks in global settings and asks the student to conduct the investigation as though they were leading it. Information is given in stages, and as the information evolves the student has to work through possible approaches to working out the cause of an outbreak and how to control it. The student has to determine what information is needed, obtain it, determine cause, how to intervene, and finally achieve control. Prerequisites: PHM 1690L & [PHM 2610 or PHM 2612L] & consent of faculty Pass/Fail, F not in GPA

**PH 2796 Molecular Epidemiology and Genomics - Viruses (3 Credits)**

This course provides a comprehensive overview of the principles, methods, and applications of molecular epidemiology in the study of viral diseases. Main topics include: introduction to molecular epidemiology; fundamentals of molecular biology and virology; molecular diagnostics and surveillance of viral diseases; wastewater-based epidemiology; viral diseases transmission dynamics; prevention and control strategies; emerging and re-emerging viral diseases. Pass/Fail, F not in GPA

**PH 2797 Shoeleather Epidemiology: Essential Skills of Applied Epidemiology (2 Credits)**

This applied epidemiology seminar brings in speakers from different areas of public health practice to discuss current public health practices. Prerequisite: PHM 2612L or equivalent Pass/Fail, F not in GPA

**PH 2803L Vaccines: Cornerstone of Public Health (3 Credits)**

This course allows students to fully understand the origin of vaccines, the immune response to vaccines, how vaccines are manufactured, how they are assessed for efficacy, the role of surveillance, the importance of vaccine safety and the key issues of vaccine regulation and economics. Students will learn about specific vaccines from the time they were conceived, and how they are used, how they provide immunity, and the economics of their use, especially in lower- and middle-income countries. Students will understand the natural history of the diseases prevented by the vaccines. Prerequisites (recommended): a basic course in epidemiology, statistics and biology. Letter Graded

**PH 2805L Medical Microbiology (3 Credits)**

The course is designed as an introductory course in medical microbiology; a basic background in biology should be sufficient preparation. An understanding of the basic concepts of immunology would be helpful, but is not a prerequisite. The course will consist of a combination of lectures on selected topics. For a number of topics, guest lecturers who have a unique perspective of the subject will be enlisted. Particular bacterial pathogens of humans have been selected for study based on their public health importance. Key factors in the selection of topics include prevalence, morbidity and mortality, and societal impact of the microbe. Letter Graded

**PH 2808L Overview of Tropical Medicine (2 Credits)**

This course focuses on health issues and public health problems common in tropical and subtropical regions of the world, with an emphasis on research in South America. The course gives an overview of the main tropical diseases such as malaria, tuberculosis, HIV, neglected tropical diseases and maternal and child health issues. The course will cover global epidemiological data of these diseases with an emphasis on developing countries; some basic information on the clinical presentation and diagnosis; the current main challenges for prevention and control; and potential areas for research. Letter Graded

**PH 2809L Immunology (3 Credits)**

This course covers the essential concepts of the human immune response and their relevance to disease control and prevention. There will be presentations from guest lecturers who have expertise in specific areas where the principles of immunology find their application to human health. Throughout the course, extra emphasis is placed on aspects of immunology with particular relevance to public health, such as immunodeficiency, blood transfusion, nutrition and immunology, tumor immunology, and vaccines. Each student will prepare a report on an area of immunology that is of particular interest to them. Prerequisites: Basic background in biology Letter Graded

**PH 2810 Pathology and Public Health (3 Credits)**

This course provides an overview of the pathophysiology of disease. The first third of the semester is devoted to studying pathophysiologic processes. Thereafter, for each body system, two to three diseases are examined and studied in detail, including clinical, histologic, and anatomic changes that occur, as well as public health implications of each. Each student presents a final research project on a disease process or type, including the pathology and public health aspects. The final grade is based on attendance, participation, examinations, and class projects. Prerequisites: PHW 2750 or [one semester of college biology or zoology] Pass/Fail, F not in GPA

**PH 2815L Genetics and Human Disease (3 Credits)**

This course introduces principles and methods of human genetic analysis with special reference to the contribution of genes to the burden of human disease. Although molecular, biochemical, and morphogenic processes controlled by genes will be briefly surveyed, the aim of the course is to describe the analytical processes whereby genetic mechanisms are inferred based on pedigrees and population-based designs using tools ranging from segregation and linkage analysis to genome-wide association studies and multi-omic integration. Prerequisites: Consent of instructor & general genetics and statistics Cross-listed with GSBS GS110013 Letter Graded

**PH 2817L Big Data Foundations for Genes, Environment and Interactions (3 Credits)**

This course introduces the principles and methods for making inferences regarding genes, environments and their interactions in the context of Big Data resources including, electronic medical records, genomics, transcriptomics, epigenetics, microbiomics, metabolomics and environmental assessment. An overview of the data constructs, utility, limitations and integration of these area will be given along with brief introductions to Python and R in order to evaluate how genes and the environment interact to maintain or compromise health. Letter Graded

**PH 2830L Clinical Genetics in Epidemiology (3 Credits)**

This course teaches the role clinical genetics plays in the practice of epidemiology, and the relationship between epidemiology and medical genetics. Emphasis will be on the practice of medical genetics as it may be encountered by professionals in public health. The subject material covers basic biology of clinical genetics, genetic diseases and birth defects as seen in a medical genetics clinic, the provision of genetic services in Texas, and public policy issues relating to the practice of medical genetics. Prerequisites: Recent course in college biology or equivalent Letter Graded

**PHM 2835 Injury Epidemiology (3 Credits)**

This course provides overview of the leading types of injury in the United States, as well as the epidemiologic methods employed in conducting injury research. Students will learn about injury surveillance methodology employed to foster the reporting and capturing of injury events. Students will learn to systematically critique the injury literature by applying epidemiologic methodology. Students will have the opportunity to engage in online discussion about motor vehicle accidents, violence, drowning, nail gun injury, needle stick injury, musculoskeletal, and farm-related injuries, to name a few topics. Pass/Fail, F not in GPA

**PHD 2835 Injury Epidemiology (3 Credits)**

This course provides overview of the leading types of injury in the United States, as well as the epidemiologic methods employed in conducting injury research. Students will learn about injury surveillance methodology employed to foster the reporting and capturing of injury events. Students will learn to systematically critique the injury literature by applying epidemiologic methodology. Students will have the opportunity to engage in online discussion about motor vehicle accidents, violence, drowning, nail gun injury, needle stick injury, musculoskeletal, and farm-related injuries, to name a few topics. Pass/Fail, F not in GPA

**PHM 2845L Nutritional Epidemiology (3 Credits)**

This course teaches how to describe the methods and evaluate the issues associated with nutritional assessment of populations using dietary, biochemical, and anthropometric data. A combination of lecture, seminar, and hands-on activities are incorporated to examine the strengths and weaknesses of nutritional assessment methodologies used with epidemiologic study designs. Students are provided data and guided to explore methodologies of statistical analysis and interpretation of nutritional data. Prerequisites: [PHM 2612L or PHM 2610] & [PHM 1690L or PH 1700L or equivalent] or consent of instructor Letter Graded

**PHD 2845L Nutritional Epidemiology (3 Credits)**

This course teaches how to describe the methods and evaluate the issues associated with nutritional assessment of populations using dietary, biochemical, and anthropometric data. A combination of lecture, seminar, and hands-on activities are incorporated to examine the strengths and weaknesses of nutritional assessment methodologies used with epidemiologic study designs. Students are provided data and guided to explore methodologies of statistical analysis and interpretation of nutritional data. Prerequisites: [PHM 2612L or PHM 2610] & [PHM 1690L or PH 1700L or equivalent] or consent of instructor Letter Graded

**PH 2858L Quantitative Analysis for Public Health Research and Practice (3 Credits)**

This course bridges epidemiological and biostatistical skillsets. The overall objective is to provide students with the tools and hands-on experience of analyzing datasets guided by research questions. Students will learn how to conduct a research project from conceptualization to dissemination, including: development of research questions and analytic plans; cleaning and coding data; assessing the degree of missingness; evaluating and interpreting univariate, bivariate, and multivariate analyses and building models; analyzing and conceptualizing interaction; analyzing complex survey data; and appropriate research dissemination techniques. Prerequisites: [PHM 2612L or PHM 2610] & [PHM 1690L or PH 1700L] Letter Graded

**PH 2860 Adv Design Analysis Meth in Epidemiology (3 Credits)**

This course primarily covers topics related to study design and appropriate data analysis using advanced techniques. At the core, the faculty will discuss basic and generalized regression models for binary (logistic), continuous (linear), and count (Poisson) outcomes; multivariate data reduction techniques, such as factors analysis and Principal Component Analysis; longitudinal models; analysis of clustered data; and select data mining methods. Whenever possible, the faculty will illustrate how to carry out data analyses in SAS or STATA or other suitable statistical packages. Prerequisites: PH 2710L & PH 1830L Pass/Fail, F not in GPA

**PH 2888 Epidemiological Research Using Claims-Based Healthcare Data (3 Credits)**

The purpose of this course is to provide students with the skills required to manage and analyze claims-based (or billing-based) healthcare datasets such as nationwide Medicare claims data, Medicaid claims data, private health insurance databases (e.g., BlueCross-BlueShield insurance data), or hospital discharge data for epidemiological research. These databases provide great potential for answering many important epidemiological and clinical research questions and for evaluating the outcomes of medical care. They also require advanced techniques and skills in analyzing these data. Prerequisites: PHM 2612L & PH 1700L. Letter Graded

**PH 2890L Using Mobile Health (mHealth) Technologies in Public Health (3 Credits)**

This seminar is an avenue for students to familiarize themselves with electronic health (eHealth) technologies and mobile health (mHealth) tools and to discuss their applicability for public health efforts in a supportive environment of peers and faculty. Letter Graded

**PHD 2908L Applied Epidemiological Analysis (3 Credits)**

The course gives doctoral students experience in developing skills and designing strategies to plan the analysis of and critically evaluate epidemiological data from occupational and environmental settings. The goal of the course is to prepare students to integrate their knowledge of epidemiology and biostatistics through applied data analysis in the context of occupational and environmental problems. Letter Graded

**PH 2926 Fundamentals and Applications of GIS (3 Credits)**

This course teaches basic concepts of GIS and common methods of spatial analysis that are critical for understanding where health events happen (e.g., Snow's cholera map) and important across all components of public health, including environmental sciences, epidemiology, health planning and policy, health promotion, and international health. The course objectives will be accomplished through a combination of lectures, hands-on labs, and student projects. Pass/Fail, F not in GPA

**PHM 2950L Genetic Epidemiology of Chronic Disease (2 Credits)**

This course exposes students to the evidence and logic involved in inferring the contribution of genetic mechanisms to those diseases of public health importance. Emphasis will be on developing a framework for assessing the impact of genes on common disease, in a non-technical manner. The course does not include detailed methodological developments or statistical techniques. The format will be a weekly two-hour session during which a single disease will be examined. In this way, students will be introduced to a broad spectrum of diseases and learn to recognize the similarities and the uniqueness inherent to each and the prospects of utilizing genetic and genomic data for improving health outcomes for individuals, families and public health, in general. [Cross-listed with GSBS GS110092] Letter Graded

**PH 2960 Seminar in Genetics and Population Biology (1 Credit)**

Students analyze and present individual topics or research. [Cross-listed with GSBS GS110711] Prerequisites: Consent of instructor Pass/Fail, F not in GPA

**PH 2970L Foundations of Public Health Genetics (3 Credits)**

This course is designed mainly (but not exclusively) for students with a limited background in genetics who want to gain an appreciation of the importance and current limitations of the application of human genetics to public health approaches to identifying and ameliorating disease. The course aims to provide enough background in genetics, human biology, and genomics to allow students to understand and appreciate the role of human genetics in public health. Doctoral students will complete additional work to demonstrate the ability to synthesize information from published papers and online resources and use it to analyze features of genetic diseases that are unique, unusual, or not yet well understood. Letter Graded

**PH 2975 Community Oriented Quality Improvement (3 Credits)**

This course introduces students to concepts of Community Oriented Quality Improvement (COQI): 1) Meeting with field representatives; 2) Conducting a needs assessment and/or systematic review; 3) Determining areas of organizational quality improvement; 4) Design QI project based on their and empirical evidence; 5) Develop an evaluation plan. Pass/Fail, F not in GPA

**PH 2989 Communicating Scientific Data to Professionals and the Public (2 Credits)**

After completing this course, learners will be able to translate scientific findings to a wide variety of audiences through various tools, while choosing appropriate communication strategies, applying methods of effective health communication, building a concise, organized and balanced narrative using scientific data. Throughout the course, learners will work through a set of assignments to apply various approaches to deliver their scientific presentation effectively, and to select appropriate supporting materials and evidence to reinforce the main points of their presentation. Learners will also practice designing visual aids to support, clarify and reinforce their ideas and help deliver scientific message, including tables, graphs and video. Any developed materials will target and adapt the message towards the audience with various levels of understanding of scientific disciplines. Prerequisites: PH 2612L & [PHM 1690L or PH 1700L]. Pass/Fail, F not in GPA

**PHD 2990 Epidemiology Seminar (1 Credit)**

The Epidemiology Seminar and Journal Club is open to all students, but is mandatory for epidemiology doctoral students who have not yet taken their preliminary examination. The seminar is intended to hone research and presentation skills, and to provide students an opportunity to present data, a research proposal, or an epidemiology-related topic to an audience of their peers and mentors. The seminar will provide students an opportunity to receive critical feedback on their research and develop professional interactions between faculty and other students. Pass/Fail, F not in GPA

**PH 2991 Public Health Preparedness & Disaster Response (3 Credits)**

This course provides an overview of the emergency response system and the public health system responsibilities in management of disasters with a special emphasis on planning and response. The course format is an interactive graduate level electronic seminar. Website resources are identified for students to obtain basic background information regarding disaster preparedness, emergency response systems, and emergency plans. Combined with PH 2491. Prerequisites: PHM 1110L & PHM 1690L & PHM 2110L & PHM 3715L & PHM 5015L Pass/Fail, F not in GPA

**PHM 2996 Capstone for EPID Students (3 Credits)**

This integrative learning experience is designed to demonstrate synthesis of major themes from the MPH core and major-specific courses. Students produce at least one high-quality written product. Prerequisites (for students admitted prior to fall 2023): Completed MPH core courses & completed PH 2615L Epidemiology II & completed at least 30 semester credit hours the semester before enrolling in capstone. Prerequisites (for students admitted in fall 2023 or later): Completed MPH core courses & completed PH 2615L Epidemiology II & PH 2710L Epidemiology III & completed at least 30 semester credit hours the semester before enrolling in capstone. Pass/Fail, F not in GPA

**PH 2998 Special Topics in Epidemiology (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of epidemiology. Pass/Fail, F not in GPA

**PH 2998L Special Topics in Epidemiology (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of epidemiology. Letter Graded

**PH 2999 Individual Study in Epidemiology (1-9 Credits)**

An independent study allows students to explore a specific public health topic and gain knowledge and skills that are not available through preexisting courses, under the guidance of a faculty advisor. This self-directed course enables students to design and complete a personalized learning experience aligned with their academic and professional interests. Students must complete an Independent Study form before enrollment. Pass/Fail, F not in GPA

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## Management, Policy and Community Health Course Descriptions

**PH 3616 Thinking for the Future (3 Credits)**

This course addresses both the drivers of change in the 21st century that impact public health and the cognitive skills that will allow individuals to participate in effecting positive change. Students will be exposed to problem approaches that are appropriate for complex situations that arise in public health. Pass/Fail, F not in GPA

**PH 3617 Thinking for Public Health (3 Credits)**

This course is self-paced and online. It is designed to aid the student in identifying systematic thought processes that impact the quality of the analysis of public health issues and the design of potential solutions. The student will be exposed to theories that cross disciplinary boundaries of psychology, behavioral economics, and decision science with an application to public health. It is this applicable to the cognitive bases of several public health competencies. Pass/Fail, F not in GPA

**PHM 3620L Principles and Practice of Public Health (4 Credits)**

This course illustrates how the health of populations is promoted and protected by organized public health practice. Students are acquainted with current evolving concepts and performance of public health practice, and are introduced to essential public health services performed by public health agencies. Students will learn expectations of the effective and efficient performance of agencies and the competencies required of individual public/community health workers. Representatives from community/public health programs will participate in class presentations along with faculty. Letter Graded

**PHD 3620L Principles and Practice of Public Health (4 Credits)**

This course illustrates how the health of populations is promoted and protected by organized public health practice. Students are acquainted with current evolving concepts and performance of public health practice, and are introduced to essential public health services performed by public health agencies. Students will learn expectations of the effective and efficient performance of agencies and the competencies required of individual public/community health workers. Representatives from community/public health programs will participate in class presentations along with faculty. Letter Graded

**PHM 3630 Health Program Planning, Implementation, and Evaluation (3 Credits)**

This course introduces students to the fundamental concepts and techniques of planning, implementing, and evaluating public health programs. The course will cover concepts that are relevant to evaluation of health interventions, as well as social and behavioral interventions, in the community settings. These will include program/intervention; implementation and impact evaluation concepts; models/designs; methods; indicators; and data collection, analysis, and interpretation strategies. Design and application of evaluations will include both quantitative and qualitative research methods. Pass/Fail, F not in GPA

**PHD 3631L Community Engagement/ Community-Based Participatory Research (3 Credits)**

This course is designed to provide students with essential concepts of both Community Based Participatory Research (CBPR) principles as well as overall guidance in Community Engagement (CE) practices with public health research. CBPR and CE is a partnership approach to research that equitably involves community members and researchers in all aspects of the research process. This engagement allows all partners to contribute their own expertise and share in the decision-making process and overall ownership of the research. This course is intended for doctoral students interested in using CBPR approaches. Letter Graded

**PH 3642L Community Violence in Public Health (3 Credits)**

Community violence imposes a profound social, economic, and emotional toll on communities across the United States. This course explores the complexities of community violence, examining how violence affects individuals, families, and communities and shapes public health outcomes. Students will gain foundational knowledge about data, theory, and perspectives on various forms of violence and its impact on health at the individual, community, and societal levels. The course will assess risk factors, patterns, and social determinants contributing to community violence, alongside a critical review of evidence-based prevention and intervention strategies. Legal, political, and institutional challenges to addressing community violence in public health will also be discussed. Letter Graded

**PHM 3715L Management & Policy Concepts in Public Health (3 Credits)**

This course provides an overview of theory and practice in the management and policy sciences applied to the field of public health. Topics include public health in the U.S. health system/legal bases of public health, public policy institutions, planning and management to promote health, emergency preparedness, public sector institutions, management, and decision-making. Students will gain skills in oral and written communication with individual and group projects. Letter Graded

**PHM 3718L Accounting for Healthcare Management (2 Credits)**

This course covers relevant topics in financial accounting and management. Students will improve their understanding of financial accounting principles and will learn different analytical approaches for evaluating financial performance in the healthcare sector. In addition, it will enable students to demonstrate a mastery of key theories and principles of healthcare accounting and to apply ethical decision making in financial management. Letter Graded

**PHM 3720L Healthcare Finance (2 Credits)**

This course offers students the opportunity to improve their understanding and use of financial concepts and principles in the health care industry. Financial management under prospective payment and capitation systems, as well as product costing and pricing, are included. The lecture format will be augmented by student readings, homework assignments, and class discussion. Students are expected to attend class, participate in discussions, and complete homework assignments. Letter Graded

**PHD 3731L Research Design and Inquiry (3 Credits)**

This doctoral-level course explores the foundational principles of research design and methodology, emphasizing the breadth and variety of approaches to systematic inquiry within the domains of management and policy sciences, health services research, and community health practice. Key areas of focus include quantitative, qualitative, and mixed methods; experimental and quasi-experimental designs; cross-sectional studies; sample surveys; and comparative case study designs. This course gives particular attention to philosophical assumptions, terminology, and causal inference. Issues in the measurement of quality and effectiveness in healthcare, and pragmatic strategies for community-based research will also be considered. It serves as a core course for doctoral programs in management and policy, community health practice, and health economics/health services. Letter Graded

**PH 3732L Research Methods in Public Health Law (3 Credits)**

In this class, students will learn about the variety of mechanisms, theories and models central to conducting public health law research, a growing field dedicated to empirically measuring and analyzing law as a central means for advancing population health. Students will learn to integrate theories from social and behavioral sciences in examining public health law and policy. Students will learn to research statutes, regulations, and case law and how those can be used to alter the informational, socioeconomic, and built environments for population health. Students will compare optimal research designs for randomized trials and natural experiments for public health law evaluation, as well as methods for qualitative and cost-benefit studies of public health law. They will also discuss the challenge of effectively translating the results of scientific evaluations into public health laws. Letter Graded

**PH 3733L Law and Policy (3 Credits)**

In this class, students will review important aspects of the US government and its functions and then learn how public agencies combine the three functions of government that are normally separated - executive, legislative, and judicial - into single institutions with jurisdiction over many policies that act as social determinants of health. Federal, state, and local agencies have broad powers to create and enforce those regulations. As the scope and power of administrative law is extensive, students will also learn about the limitations on agency action, from constitutional constraints to judicial review. Letter Graded

**PH 3734L Public Health Policy Surveillance and Legal Epidemiology (3 Credits)**

Students will learn to conceptualize a public health policy research topic, collect and codify the relevant laws and apply statistical techniques to analyzing public health law datasets. Students will learn the techniques for tracking policy changes over time (policy surveillance), legal mapping (comparing policies across jurisdictions), and legal epidemiology (analyzing causal relationships between policy changes and population health outcomes). The course will prepare students to complete a research project in the subsequent semester as an independent study. Prerequisites: Previous courses in biostatistics and epidemiology or equivalent experience Letter Graded

**PH 3735L Healthcare Strategic Management (3 Credits)**

This course focuses on the development and implementation of strategy by health care organizations in the changing healthcare marketplace. The course stresses practical approaches to articulate an organization's mission and vision and to formulate strategies that fit the external and internal situation. In addition, basic principles of community-based health planning are examined, and the potential linkages between organizational strategic planning and population health are explored. This is a required course for the healthcare management MPH program. Letter Graded

**PH 3736L Healthcare Payment Systems and Policy (3 Credits)**

This course reviews current U.S. healthcare policy in terms of the national healthcare system and the various payments systems. This course builds on system theory and examines the unique approach in the US and how it is changing. In the United States, payment systems are provided in the form of private or public insurance plans, or other forms of group coverage that are offered to eligible populations. Each healthcare payment system will be examined in depth to reveal the policies that serve as the foundation of the program; the authority, the economics, the targeted population, and the current challenges. Students will apply systems theory and policy concepts to theoretically redesign the U.S. healthcare system. Letter Graded

**PH 3738L Legal Issues in Healthcare (3 Credits)**

This course provides an overview of legal and ethical issues facing the health care industry and examines legal and ethical issues in the administration of health care programs. Students will gain a working knowledge of how to apply federal and Texas health laws and regulations to real-world problems. Components studied include: key legal process and resources, ethical issues of concern to health providers, medical staff issues and peer review, quality and malpractice concerns, legal and ethical issues related to access to healthcare, end of life issues, reproductive health, role and structure of hospital ethics committees, tort law and professional liability, fraud and abuse, governmental regulation, informed consent, confidentiality and medical records, and ethical decision-making. Letter Graded

**PHD 3743L Organizational and Management Theory (3 Credits)**

This course helps doctoral students to develop frameworks for thinking about the world of health care organizations and its complexity. The specific emphasis will be health services organizations and management research, with an emphasis on organization theory. Organization theory is a set of approaches to the understanding of how organizations form, survive and grow, interact with each other, recruit and process members, gain and manage resources, and deal with internal and external problems. The primary goals of this course are to apply relevant theories to a range of organizational problems and to attain skills needed to be an effective researcher in health services organization and management research. Letter Graded

**PHM 3744L Organizational Behavior and Human Resource Management in Health Services Organizations (3 Credits)**

This course provides students with an application of organizational behavior theory; models to analyze; and evaluation factors that affect behavior, performance, and job satisfaction of people working in organizations. This course exposes students to a body of knowledge and equips them with skills needed to successfully manage and lead health services organizations. It focuses on applying different approaches for managing individuals, teams, and organizations to achieve organizational excellence. Letter Graded

**PHM 3746L Evaluation & Improvement of Healthcare Quality (3 Credits)**

This course provides students with requisite knowledge and skills for understanding, evaluating, and improving clinical and operational processes, as well as healthcare outcomes both within an organization and across a population. Qualitative and quantitative approaches to quality management and improvement are examined through historical perspectives, real-world cases, and didactic exercises. Letter Graded

**PH 3747L Healthcare Operations Management (2 Credits)**

This course introduces students to key management functions, processes, issues, and challenges currently face by health care agencies and organizations. This course uses more advanced methods to improve healthcare processes and outcomes. Specific focus will vary but may include: understanding how organizational context influences processes and patient care; problem-solving and using key tools such as SWOT or gap analysis; understanding how policies and regulations affect operations; making process improvements (e.g. reducing hospital readmissions); understanding performance measure and how these are used for mandatory reporting and tacking program or patient outcomes; and learning about tools, concepts of techniques used to improve management performance. Letter Graded

**PHM 3800L People-Centered Research and Practice (3 Credits)**

This introductory course will focus on providing students with the knowledge and tools necessary to increase cultural awareness. The class begins with an intensive workshop, introducing students to key concepts. Following the introductory workshop, readings from each week will focus on the unique needs and challenges of a different community. Letter Graded

**PHD 3800L People-Centered Research and Practice (3 Credits)**

This introductory course will focus on providing students with the knowledge and tools necessary to increase cultural awareness. The class begins with an intensive workshop, introducing students to key concepts and community members. Following the introductory workshop, readings from each week will focus on the unique needs and challenges of a different community. Letter Graded

**PHD 3801L Community Grant Writing (1 Credit)**

The goal of this introductory-level doctoral course is to provide students with the knowledge and tolls necessary to write a community-based grant proposal. This course covers the complete process of grant proposal development: legal and policy background of funding organizations; theory and culture of philanthropy; funder relations; research and identification of an achievable and fundable project; logistical concerns when preparing a proposal; proposal writing; budget development; preparation of a full proposal package for submission; and post award or rejection follow-up with funders. Students gain an understanding of community based organizations and become familiar with tools and resources available to assist them as they seek funds for their projects, institutions, or causes. Letter Graded

**PHM 3810 Health Policy in The United States (3 Credits)**

This course provides an overview of health policy in the United States. The principal institutions, processes, and ideas shaping health policy at the federal level will be described and explained. Health policy questions will be illustrated using substantive topics of importance to public health. Principal policy-making institutions, processes, and ideas that shape health policy at the federal level will be assessed and criticized. Pass/Fail, F not in GPA

**PHD 3810 Health Policy in The United States (3 Credits)**

This course provides an overview of health policy in the United States. The principal institutions, processes, and ideas shaping health policy at the federal level will be described and explained. Health policy questions will be illustrated using substantive topics of importance to public health. Principal policy-making institutions, processes, and ideas that shape health policy at the federal level will be assessed and criticized. Doctoral students will appraise health policy in the United States and evaluate its strengths and weaknesses. Pass/Fail, F not in GPA

**PHD 3812 Comparative Health Systems (3 Credits)**

This doctoral seminar course examines national health systems. The World Health Organization building blocks framework is introduced to appraise different components of national health systems with the intent of strengthening them. The second half of the course is devoted to systematically comparing national health systems, as well as the industries within the health system and sectors that are associated with the health sector. The course draws on organizational theory and other theories in the social sciences. It has a balanced focus on low-, middle-, and high-income countries. Pass/Fail, F not in GPA

**PH 3815 Health Policy Analysis (3 Credits)**

This course examines the process of policy development and the role of research and analysis in the process. A framework is introduced for selecting the type of research and analysis needed to address different policy questions. Key concepts and methods of policy research and analysis are introduced and applied to real-world policy problems in public health. Upon completion of the course, students should have an understanding of the role of policy analysis in the policy development process, be able to frame policy issues for research and analysis, and be able to identify and appropriately apply research methods and analysis to policy questions. Pass/Fail, F not in GPA

**PH 3818 Texas Health Policy: Emerging Issues and New Approaches (3 Credits)**

This course examines major issues, new programs, and legislative initiatives in Texas health policy. Background information on the state legislative process, budget, and historical role in health policy is presented. Policy analysis concepts and methods are introduced as a guide for class discussion and student assignments. When the legislature is in session, topics are selected that reflect proposed legislation. In semesters between legislative sessions, topics are selected based on interim study assignments and other sources. Topics typically include: Medicaid/CHIP changes/reform, healthcare regulation, behavioral health, long-term care, medical education, rural and border health, disease prevention and control, and health promotion. Pass/Fail, F not in GPA

**PH 3825 Public Health Law (3 Credits)**

This course introduces students to public health law, which defines the extent to which the state can interfere with private interests when protecting the health of the population. Students will study, through constitutional and statutory analysis, how the balance between these interests is determined. Because administrative agencies are used extensively to regulate matters that affect the public health, students will examine the legal characteristics of these governmental entities. The use of the common law to establish public health policy and remedies for public health problems will be considered. Pass/Fail, F not in GPA

**PHD 3830 Ethics and Policy (3 Credits)**

This course focuses on the application of ethics, values, and moral reasoning to problems and issues in public health. It offers a careful overview of approaches to moral theory and modes of assessment to develop students' skills in reasoning and evaluation. Special attention will be given to justice and fairness as key moral claims in public health. Practical examples will be used to illustrate moral arguments, criteria, and modes of reasoning connected with health promotion, disease prevention, and healthcare delivery. Pass/Fail, F not in GPA

**PH 3835 Public Health Advocacy (1 Credit)**

This course provides the basic underlying skills, tools, and knowledge necessary to participate in public health policy advocacy initiatives at the local, state, or federal level. The policy making process and organizational advocacy strategies will be explained, and students will apply their learning and develop their oral and written advocacy skills through assignments. Pass/Fail, F not in GPA

**PHD 3846L Quality Management Improvement in Healthcare (3 Credits)**

This course provides students with requisite knowledge and skills for evaluating and conducting research in the areas of quality, performance improvement, high reliability, and patient safety at the unity, organization and population levels. Frameworks for defining, analyzing and comparing quality outcomes are presented, including confounding factors. Operational approaches to population health and organization quality improvement are examined through expert speakers and real-world cases. Students are also introduced to management science techniques commonly used to assess and improve systems and workflows. Letter Graded

**PHM 3910 Health Economics (3 Credits)**

This course covers the theory of microeconomic analysis and its application to health and health services. It emphasizes the use of theory to understand problems of organization, delivery, and financing of health services; discrepancies in health levels among members of society; and the choices available to society regarding these issues. Pass/Fail, F not in GPA

**PHD 3910 Health Economics (3 Credits)**

This course covers the theory of microeconomic analysis and its application to health and health services. It emphasizes the use of theory to understand problems of organization, delivery, and financing of health services; discrepancies in health levels among members of society; and the choices available to society regarding these issues. Doctoral students will also be required to write a paper that identifies and discusses the major policy and research issues in one of the areas that is introduced in the course, critically reviews relevantly published research in this area, synthesizes their view of the state of this research and suggests what types of research might be most fruitful, e.g., as if pursued in a dissertation. Pass/Fail, F not in GPA

**PH 3915 Methods for the Economic Evaluation of Health Programs (3 Credits)**

This course covers the concepts and methods for the economic analysis of healthcare decision alternatives. Topics will include cost-benefit, cost-effectiveness and cost-utility analysis, and other methods of decision analysis. It emphasizes the application of these methods to the evaluation of alternative health programs. Prerequisite: Consent of instructor Pass/Fail, F not in GPA

**PHM 3918L Geographic Information Systems Science (3 Credits)**

This introductory level elective course in Geographic Information Systems Science (GIS) introduces the science and skills required for the geographic exploration of public health data. Topics will include cartography, sources of GIS data, working with Census and other secondary data sources, geoprocessing, geocoding and basic spatial analysis, among others. Students will acquire skills through a combination of lecture, labs and hands-on assignments using ArcGIS and other software packages. Letter Graded

**PHD 3918L Geographic Information Systems Science (3 Credits)**

This introductory level elective course in Geographic Information Systems Science (GIS) introduces the science and skills required for the geographic exploration of public health data. Topics will include cartography, sources of GIS data, working with Census and other secondary data sources, geoprocessing, geocoding and basic spatial analysis, among others. Students will acquire skills through a combination of lecture, labs and hands-on assignments using ArcGIS and other software packages. Letter Graded

**PH 3920 Health Service Delivery and Performance (3 Credits)**

This course explores the key dimensions of quality in the U.S. healthcare system. Students are introduced to definitions, concepts, and methods used in health services research and policy analysis, and given an opportunity to use them to evaluate important problems and efforts to reform the healthcare system. Each section of the course is taught by a different faculty member with expertise related to one area of health services research and/or policy analysis. Each year, there is a thematic focus for the course that is addressed from the various perspectives and is the subject of a policy analysis exercise at the end of the semester. Pass/Fail, F not in GPA

**PHM 3922 Economic and Social Determinants of Health (3 Credits)**

This course introduces the concept of population health and analyzes the reason for differences in health outcomes between countries as well as economic, social, and demographic groups within countries. It takes an approach to health that identifies the social factors, such as differences in income and opportunities, and demographic disparities that influence the health of populations. The course examines population health by exploring economic, social, and cultural factors; identifying systematic variation in these factors leading to differences in health outcomes; exploring how economic, social, and cultural conditions affect individual risk factors, human behavior, and biology; and assessing economic and social policies. A social determinants of health-related term paper is required. For doctoral students: A longer and more in depth paper is required. Pass/Fail, F not in GPA

**PHD 3922 Economic and Social Determinants of Health (3 Credits)**

This course introduces the concept of population health and analyzes the reason for differences in health outcomes between countries as well as economic, social, and demographic groups within countries. It takes an approach to health that identifies the social factors, such as differences in income and opportunities, and demographic disparities that influence the health of populations. The course examines population health by exploring economic, social, and cultural factors; identifying systematic variation in these factors leading to differences in health outcomes; exploring how economic, social, and cultural conditions affect individual risk factors, human behavior, and biology; and assessing economic and social policies. A social determinants of health-related term paper is required. For doctoral students: A longer and more in depth paper is required. Pass/Fail, F not in GPA

**PHD 3926L Health Survey Research Design (3 Credits)**

This course presents the methods for designing and conducting health surveys. Emphasis will be placed on problem conceptualization, measurements, and questionnaire design in the context of a total survey design framework. Examples of face-to-face, telephone, mail, and Internet surveys will be presented. Prerequisites: PHM 1690L & [PHM 2610 or PHM 2612L] or equivalents Letter Graded

**PHD 3930 Econometrics in Public Health (3 Credits)**

This course has two learning objectives: developing skills in quantitative methods for the analysis of complex data, and understanding and critically evaluating public health research using econometric methods. This course includes linear regression, non-linear regression, analyzing cost as dependent variable, panel data methods, random and fixed effect models, specification tests, endogeneity, instrumental variables, and selection models. Prerequisite: Consent of instructor Pass/Fail, F not in GPA

**PHD 3931 Advanced Econometrics (3 Credits)**

This course introduces advanced techniques in statistics and econometrics for conducting successful health outcomes and policy research. Students are expected to have an understanding of basic statistical concepts, such as discrete and continuous random variables, probability distributions, joint distributions, conditional distributions, independence, statistical inferences and estimations, properties of estimators, hypothesis testing, ordinary least square regression, logistic regression, one-way ANOVA, contingency tables, and chi-square analyses. Topics covered will include Causal Inference, Causal Graphs, Treatment Effect Identification, Models of Causal Exposure, Linear regression, Panel Data methods including Fixed and Random Effects estimation, Limited Dependent Variable Models like - Logistic regression, Probit, Tobit, Heckman, 2-Part and 2-Step models, Interpreting Marginal Effects and Interactions for Limited Dependent Variable models, Modeling cost data especially using log transforms, Simultaneous Equations and Instrumental Variable Analysis, and Use of Specification Tests like Hausman, Breusch-Pagan, White, Park, Glejser and Box-Cox. The course will emphasize practical applications of statistical methods to real world problems of public health and health outcomes research. Prerequisite: PHD 3930 or equivalent. Pass/Fail, F not in GPA

**PHD 3935 Advanced Health Economics (3 Credits)**

This doctoral seminar-style course focuses on the application of microeconomic analysis to questions dealing with the production of health, the demand for health services, the production and supply of health services, market equilibrium, social health insurance, and government regulation of health sector activities. Prerequisites: [PHD 3910 or equivalent] & consent of instructor Pass/Fail, F not in GPA

**PH 3940 Health Care Outcomes and Quality Research (3 Credits)**

This course introduces students to measurement and evaluation issues associated with patient-centered outcomes and quality of care studies, an increasingly important component of present-day health services research. The focus will be on the application, rather than development, of measurements. Topics that will be covered include development of the outcomes framework, outcomes measures, risk adjustment of health outcomes, technical and practical issues with measurement and estimation, and empirical examples of healthcare outcomes research. Outcome and quality measures that will be covered include generic and condition-specific health status measures, satisfaction, patient trust, and patient adherence. Pass/Fail, F not in GPA

**PH 3941 Claims Data in Healthcare Research (3 Credits)**

This course provides an overview of the elements of administrative claims data. This information will be crucial to any student interested in utilizing claims data for research purposes. The course will focus on the various data fields in enrollment, and medical claims, and pharmacy claims. Strategies for effectively querying claims datasets will be provided. Multiple data sets include commercial claims, Medicare claims, and Medicaid claims. Prerequisites: Familiarity with SAS or Stata Pass/Fail, F not in GPA

**PHD 3945 Adv Hlth Services Research Methods (3 Credits)**

This course introduces students to the application of quantitative methods in health services research. The major elements of designing and conducting an empirical study will be covered, with emphasis on specification of research questions and design, measures, use of primary and secondary data sources, and issues in bivariate and multivariate analysis. Examples of the use of different methods in the literature will be reviewed. Pass/Fail, F not in GPA

**PHD 3946L Strategy, Governance and Leadership (3 Credits)**

This course provides students with an overview of the basic concepts and principles of strategic planning within the broader context of governance, management, and leadership. The emphasis on this broader context is important because it is in the arena of strategy development that governance and management overlap and the need for clear leadership arises. While the institutional focus is primarily on healthcare organizations, the organizational dynamics and strategic management principles apply across industries. Letter Graded

**PHD 3950 Applied Leadership Studies in Public Health (3 Credits)**

This course is designed for doctoral students in all disciplines who have had previous leadership courses or leadership training. It focuses on synthesizing, applying, and evaluating leadership theories, concepts, and emerging perspectives; analyzing personal, professional, organizational, and system leadership dynamics in a rapidly changing and complex world; and discerning the implications of leadership research on the practice of leadership in public health research and practice settings. Three themes of reflection, critical thinking, and communication support the examination of leadership dilemmas, patterns, behaviors, and outcomes. Other topics to be addressed include leadership studies research; complex adaptive systems and sustainability; culture and change; ethics; power influence and politics; and creating and sharing a vision. Pass/Fail, F not in GPA

**PHD 3970 Doctoral Dissertation Proposal Development in Management, Policy and Community Health (3 Credits)**

This course focuses on the development and critique of a dissertation research proposal for students pursuing a DrPH or PhD in MPACH. Prerequisites: Enrolled in a doctoral program (DrPH or PhD) in MPACH & completed an acceptable dissertation topic synopsis & identified dissertation chair" Pass/Fail, F not in GPA

**PHM 3996L Capstone for MPACH Students (3 Credits)**

This integrative learning experience is designed to demonstrate synthesis of major themes from the MPH core and major-specific courses. Students produce at least one high-quality written product. Prerequisites: Students must be an MPH MPCH major or a MPH Customized major with advanced public health coursework meeting major-specific competency requirements & completed the MPH Core courses & completed at least 30 semester credit hours the semester before enrolling in capstone. Letter Graded

**PH 3998 Special Topics in Management, Policy and Community Health (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of management, policy and community health. Pass/Fail, F not in GPA

**PH 3998L Special Topics in Management, Policy and Community Health (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of management, policy and community health. Letter Graded

**PH 3999 IS: Management, Policy and Community Health (1-9 Credits)**

An independent study allows students to explore a specific public health topic and gain knowledge and skills that are not available through preexisting courses, under the guidance of a faculty advisor. This self-directed course enables students to design and complete a personalized learning experience aligned with their academic and professional interests. Students must complete an Independent Study form before enrollment. Pass/Fail, F not in GPA

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## Interdepartmental Course Descriptions

**PHM 5015L Introduction to Qualitative Research in Public Health (2 Credits)**

This course will provide an overview of qualitative research in public health. Students will be introduced to qualitative research methods and analysis. This introductory course will help students understand the core ideas, processes, and activities underpinning qualitative research. Students will be able to develop interview guides, focus group guides, and codebooks and have the opportunity to practice qualitative methodological and analytical techniques. This knowledge will allow the student to use qualitative research in public health practice and provides preparation for further study of qualitative research methods and analysis. Letter Graded

**PH 5030 Diabetes Seminar (1 Credit)**

This seminar will offer comprehensive course content during an intensive timeframe format. Topic areas include standards and practice recommendations, pregnancy, and diabetes, acute and chronic complications of diabetes, diabetes education, and medications. Treatment algorithms, protocols, and guidelines for weight loss, exercise, nutrition, glycemic control, and insulin administration will be discussed. This course is also open to medical students, nursing students, etc. and to RDs/ interns in the community for CEU credits. Pass/Fail, F not in GPA

**PH 5031 Garden for Health (2 Credits)**

In the Holistic Garden of the School of Public Health, students will gain knowledge of how to use the garden as a tool to improve health and quality of life. Common fruits, vegetables and herbs that are produced during the warmer and cooler months of the year along with information that pertains to their successful cultivation and their unique roles in our diet and health will be discussed. Course Fee: \$75.00 Pass/Fail, F not in GPA Course fee: \$75

**PH 5032 Culinary Medicine (2 Credits)**

Through innovative nutrition curriculum and hands-on training in the culinary arts, the Culinary Medicine course will teach medical, nursing, and dietetic intern students about food: how to cook, what to eat, and how to help their patients improve their diet - and thereby, their health. Course Fee: \$75.00 Pass/Fail, F not in GPA Course fee: \$75

**PH 5040L Nutrition Research Methods (1 Credit)**

This course teaches basic epidemiologic research skills applied to nutrition. Students complete training for UHealth Houston School of Public Health online library databases and the Academy of Nutrition and Dietetics (AND) Evidence Analyses Process (EAP). Students learn to create and score evidence tables using the EAP. Students develop a brief nutrition research proposal with an objective, literature review, and methods section. Students learn techniques for effective presentations and deliver an oral presentation of their individual project. Letter Graded

**PH 5098 Special Topics in Interdivisional Courses (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of public health. Pass/Fail, F not in GPA

**PH 5098L Special Topics in Interdivisional Courses (1-4 Credits)**

Special topics courses cover emerging or specialized public health issues, with topics and credit hours varying each term. These courses offer students the opportunity to explore current challenges and trends in the field of public health. Letter Graded

**PHM 5096 Capstone for Customized Students (3 Credits)**

This integrative learning experience is designed to demonstrate synthesis of major themes from the MPH core and major-specific courses. Students produce at least one high-quality written product. Prerequisites: Completed the MPH Core courses; and completed at least 30 semester credit hours the semester before enrolling in capstone. Other prerequisites vary by campus and course offering. Pass/Fail, F not in GPA

**PH 5102 Health Disparities Core Seminar (1 Credit)**

This seminar is a venue for students to familiarize themselves with health disparities literature and to discuss current health disparities issues in a supportive environment of peers and faculty. Pass/Fail, F not in GPA

**PH 5200 Foundations of Leadership in Public Health (3 Credits)**

This is an introductory course in public health leadership for students in all academic programs. This course introduces students to the theories and principles of effective leadership, presents leadership challenges, and discovers personal attributes of leadership in public health practice and research. Students will begin to develop life-long learning skills through self-development, experiential learning, and discussion of leadership approaches. Content areas will include complexity theory, change management, ethics, collaboration, effective communication, team-building, dialogue, decision-making, conflict management, leadership evaluation, and strategic planning. Pass/Fail, F not in GPA

**PHM 5210 Selected Readings in Leadership Studies (1 Credit)**

These seminars are designed to assess how public health professionals become leaders. Students are introduced to concepts of adaptive leadership, evaluation and analysis of leadership readings, application of concepts to public health and management challenges, and discussion and examination of leadership issues, using experience and examples from the field. Pass/Fail, F not in GPA

**PHD 5210 Selected Readings in Leadership Studies (2 Credits)**

These seminars are designed to assess how public health professionals become leaders. Students are introduced to concepts of adaptive leadership, evaluation and analysis of leadership readings, application of concepts to public health and management challenges, and discussion and examination of leadership issues, using experience and examples from the field. Pass/Fail, F not in GPA

**PH 5220 Gender and Leadership (3 Credits)**

This course focuses on the topic of women and leadership. Using a seminar approach anchored in selected readings, students will consider prevailing theories of leadership and discuss the variable of gender. Readings will focus on a variety of specific issues such as the "glass ceiling," derailing behaviors, and conflict style differences in women and men. Pass/Fail

**PH 5301 Maternal and Child Health Core Training Seminar I (3 Credits)**

The Maternal and Child Health Core Training Seminar sessions will provide an opportunity for instruction and discussion of topics specific to Maternal and Child Health. The scope of the MCH Core Training Seminar curriculum is centered on life span development, from perinatal/infant health to child/adolescent and women's health. Students will receive instruction on utilizing data sources specific to maternal and child health, such as vital records and other routine data sources as well as hands-on experience in extracting data, analyzing data, and interpreting results. Students will also have the opportunity to meet and learn from community organizations in the MCH field. Students will learn MCH content as well as HRSA-defined leadership competencies. Pass/Fail, F not in GPA

**PH 5311 Maternal and Child Health Core Training Seminar II (3 Credits)**

The Maternal and Child Health Core Training Seminar sessions will provide an opportunity for instruction and discussion of topics specific to Maternal and Child Health. The scope of the MCH Core Training Seminar curriculum is centered on life span development, from perinatal/infant health to child/adolescent and women's health. Students will receive instruction on utilizing data sources specific to maternal and child health, such as vital records and other routine data sources as well as hands-on experience in extracting data, analyzing data, and interpreting results. Students will also have the opportunity to meet and learn from community organizations in the MCH field. Students will learn MCH content as well as HRSA-defined leadership competencies. Pass/Fail, F not in GPA

**PH 5400 Physical Activity Assessment & Surveillance (3 Credits)**

This course provides students with an in-depth understanding of the various methods used to measure physical activity and related constructs (e.g., energy expenditure and physical fitness) in individuals and populations. This understanding will be achieved through a review of the current research literature related to measurement methods and hands-on practice experiences with various physical activity measurement methods (i.e., data collection to interpretation). Behavioral, environmental, and policy-related correlates and determinants of physical activity will also be discussed. Pass/Fail, F not in GPA

**PH 5401L Physical Activity & Public Health Practice (3 Credits)**

This course focuses on physical activity promotion in practice. The course covers key topic areas such as the physical activity guideline recommendations, health behavior theories and physical activity interventions, the National Physical Activity Plan, and the Guide to Community Preventive Services Recommendations for physical Activity. The course will also build important skills for reviewing the physical activity promotion literature, identifying priority areas for physical activity promotion, using a systems approach for physical activity promotion, and synthesizing physical activity research to inform practice. Letter Graded

**PHD 5500 Principles of Adult and Community Education for Public Health (2 Credits)**

This is a required course for students seeking a DrPH and an elective for students seeking a PhD. The course provides an overview of principals of adult and community education, how to design and facilitate a course, and how to evaluate students' learning. Prerequisites: To be successful in this course, students should understand research design, methods of data analyses, their discipline, the learning needs of their community, and their health topic. Pass/Fail, F not in GPA

**PHD 5502 Preparing to Teach: Mentoring Future Community Health Educators and Public Health Faculty (1 Credit)**

This is an elective course for doctoral students seeking a mentored, collaborative teaching experience with an accomplished community or university-based instructor. Prerequisites: PHD 5500 Pass/Fail, F not in GPA

**PH 5610 Global Health Overview (3 Credits)**

This course presents an overview of the issues affecting the living conditions and the health status of low-income country residents, and the local and global responses to these problems. Throughout the semester, students will develop an understanding of global and international health through the discussion of sub-themes, including the different meanings of globalization; population and demographics; assessment, health indicators, and epidemiology; immunizations; communicable and emerging diseases; war, conflict, refugees, migration, and displacement; health systems; cultural differentiation; maternal and child health; food security and nutrition; trade agreements, agriculture, and pharmaceuticals; environmental health and pollution; urban health and the development of mega-cities; and economic development. Pass/Fail, F not in GPA

**PH 5612 Global Health Seminar (1 Credit)**

This weekly seminar is presented by faculty, students, and visiting professors, and varies in subject matter, depending on current events as well as the special expertise and experience of presenters. Pass/Fail, F not in GPA

**PH 5613 Critical Cinema for Public Health (2 Credits)**

This course presents a series of documentaries and Big Screen movies revolving around public health topics. The range of topics will include health disparities; health systems; culture, behavior, and health; environmental health themes; globalization; addictions; mental health; food production; research ethics and methods; violence; and surveillance and control of epidemics. All movie presentations will be followed by a class discussion. Pass/Fail, F not in GPA

**PH 9997 Practicum (1 Credit)**

A practicum offers students a unique opportunity to apply the knowledge and skills gained throughout their coursework in a professional public health setting. This hands-on experience is designed to align with the student's specific interests and career goals, allowing them to gain practical experience while contributing to real-world public health initiatives. Pass/Fail, F not in GPA

**PH 9997 Practicum (2 Credits)**

A practicum offers students a unique opportunity to apply the knowledge and skills gained throughout their coursework in a professional public health setting. This hands-on experience is designed to align with the student's specific interests and career goals, allowing them to gain practical experience while contributing to real-world public health initiatives. Pass/Fail, F not in GPA

**PH 9997 Practicum (3 Credits)**

A practicum offers students a unique opportunity to apply the knowledge and skills gained throughout their coursework in a professional public health setting. This hands-on experience is designed to align with the student's specific interests and career goals, allowing them to gain practical experience while contributing to real-world public health initiatives. Pass/Fail, F not in GPA

**PH 9997 Practicum (1-9 Credits)**

A practicum offers students a unique opportunity to apply the knowledge and skills gained throughout their coursework in a professional public health setting. This hands-on experience is designed to align with the student's specific interests and career goals, allowing them to gain practical experience while contributing to real-world public health initiatives. Pass/Fail, F not in GPA

**PH 9997M Practicum Occupational Medicine Residents (1-9 Credits)**

A practicum offers students a unique opportunity to apply the knowledge and skills gained throughout their coursework in a professional public health setting. This hands-on experience is designed to align with the student's specific interests and career goals, allowing them to gain practical experience while contributing to real-world public health initiatives. Pass/Fail, F not in GPA

**PHM 9998 Integrative Learning Experience/Thesis Research (1-9 Credits)**

The Integrative Learning Experience (ILE) is an experience that allows students to demonstrate the synthesis of competencies learned throughout their public health program. In line with Council on Education for Public Health (CEPH) accreditation standards, this experience involves applying these competencies to real-world public health challenges, addressing specific public health needs. Students will produce a high-quality written product that reflects their ability to integrate knowledge and skills in a way that supports their educational and professional goals. Pass/Fail, F not in GPA

**PHD 9999 Dissertation Research (1-9 Credits)**

Dissertation research is for students pursuing a doctoral degree that are required to complete a written research dissertation that makes a substantial contribution to knowledge in the public health sciences. Students should consult their degree requirements for maximum credits that can be applied to their degree. More information about dissertation research can be found online on the UTHealth School of Public Health website. Pass/Fail, F not in GPA