

**DEPARTMENT OF PUBLIC HEALTH SCIENCES COURSES
OFFERED BY QUARTER**

Autumn 2024

Epidemiology and Population Health

PBHS 30910

COURSE INSTRUCTOR: Diane Lauderdale

DAY & TIME: T/Th 3:30-4:50pm

PQ: STAT 22000 or other introductory statistics highly desirable.

CROSS-LIST ID: BIOS 27810; STAT 22810; ENST 27400; HLTH 20910; PPHA 36410

Epidemiology is the basic science of public health. It is the study of how diseases are distributed across populations and how one designs population-based studies to learn about disease causes, with the object of identifying preventive strategies. Epidemiology is a quantitative field and draws on biostatistical methods. Historically, epidemiology's roots were in the investigation of infectious disease outbreaks and epidemics. Since the mid-twentieth century, the scope of epidemiologic investigations has expanded to a fuller range non-infectious diseases and health problems. This course will introduce classic studies, study designs and analytic methods, with a focus on global health problems.

Social Inequalities in Health: Race/Ethnicity & Class

PBHS 31450

COURSE INSTRUCTOR: Aresha Martinez-Cardoso

DAY & TIME: M/W 1:30-2:50pm

PQ: PBHS 32100 or STAT 22000 or introductory statistics course.

CROSS-LIST ID: CRES 27450, HLTH 27450

This course examines how social stratification and social inequality shape racial/ethnic and socioeconomic inequalities in health. In particular, we will explore the production of race and class inequality in the US and draw on the extant theoretical and empirical literature to understand how these social factors influence health behaviors and health outcomes. Finally, we will review both the classic and emerging methodological approaches used by public health and social scientists to measure and test how these features of society get "under the skin" to shape a variety of health outcomes.

Climate Change and Human Health

PBHS 31720

COURSE INSTRUCTOR: Kate Burrows

DAY & TIME: T/Th 2-3:20pm

PQ: PBHS 32100 or STAT 22000 or introductory statistics course

CROSS-LIST ID: CEGU 21720, CEGU 31720, HLTH 21720

Climate change is one of the greatest global health threats facing the world in the 21st century. Through this course, students will gain foundational knowledge in the health effects of climate change. We will begin with several lectures on climate science as it related to the patterns of weather extremes experienced by populations. We will then identify the varying health outcomes linked to different climate-related exposures, emphasizing the specific impacts in vulnerable and high-risk populations. Specific topics include the effects of air pollution, extreme heat and heat waves, droughts, tropical cyclones, changes in vector habitats, and sea-level rise. Finally, we will discuss strategies for public health practitioners to aid communities in preventing or alleviating these adverse effects.

Introduction to Biostatistics

PBHS 32100

COURSE INSTRUCTOR: John Cursio

DAY & TIME: T//Th 11a-12:20p

PQ: 2 quarters of pre-calculus

CROSS-LIST ID:

This course will provide an introduction to the basic concepts of statistics as applied to the bio-medical and public health sciences. Emphasis is on the use and interpretation of statistical tools for data analysis. Topics include (i) descriptive statistics; (ii) probability and sampling; (iii) the methods of statistical inference; and (iv) an introduction to linear and logistics regression.

****In addition to the course, there is a statistical computing workshop held on Wednesdays from 11:30am-12:20pm.***

Introduction to Clinical Trials

PBHS 32901

COURSE INSTRUCTOR: Mei Polley

DAY & TIME: T/TH 2-3:20pm

PQ: PBHS 32100 or STAT 22000 or Introductory Biostatistics course (or equivalent) **AND** PBHS 32400 or PBHS 32410 (or equivalent); or consent of instructor

CROSS-LIST ID: STAT 35201

This course will review major components of clinical trial conduct, including ethical and regulatory issues in human subject research, the formulation of clinical hypotheses and study endpoints, research protocol structure, various design elements, phase I-III trial designs, sample size methods, fundamentals of survival analysis, trial progress monitoring, and the analysis and reporting of clinical trial results. Additional topics may include roles of biomarkers in clinical trials and the broader impact of clinical trials on public health.

Statistical Applications

PBHS 33500

COURSE INSTRUCTOR: Robert Gibbons

DAY & TIME: M/W 1:30-2:50pm

PQ: PBHS 32400 or PBHS 32410 or equivalent, and PBHS 32600/STAT 22600, or PBHS 32700/STAT 22700 or equivalent; or consent of instructor. Knowledge of STATA and/or R highly recommended

CROSS-LIST ID: STAT 35800; CHDV 32702

This course provides a transition between statistical theory and practice. The course will cover statistical applications in medicine, mental health, environmental science, analytical chemistry, and public policy.

Lectures are oriented around specific examples from a variety of content areas. Opportunities for the class to work on interesting applied problems presented by U of C faculty will be provided. Although an overview of relevant statistical theory will be presented, emphasis is on the development of statistical solutions to interesting applied problems.

Sexual Health: Identity, Behavior, and Outcomes

PBHS 33700

COURSE INSTRUCTOR: David Moskowitz

DAY & TIME: T/Th 11a-12:20p

PQ:

CROSS-LIST ID: PBHS 23700; GNSE 23702; GNSE 33702; HLTH 23700

Sexual health is a growing component of public health outreach. The goal of this course is to provide students with a foundational understanding of sexual health from a public health perspective. Through participation in this course, students will increase their knowledge about the history of sexual health promotion in the public health sphere. They will delve into sexual and gender identity construction and explore identity-behavioral expressions. They will critically examine and discuss common sexual health issues addressed by public health practitioners, their epidemiology, and their underlying social determinants; a global health lens will be applied to such examinations. Additionally, recognition of the key methodological considerations in the measurement of sexual behavior and sexual health outcomes will be elucidated (including strengths and limitations of various methodological approaches –quantitative, qualitative, clinical, and biomedical). By the completion of the course, students should be able to demonstrate knowledge and application of key theoretical foundations of sexual health promotion and sexual health behavior change and be able to promote sexual health messages through marketing and dissemination. From a policy perspective, student can expect an increased knowledge about issues related to social and legislative policy analyses, their applications, and implications.

Global Maternal and Child Health

PBHS 33800

COURSE INSTRUCTOR: Erick Amick

DAY & TIME: M/W 4:30-5:50pm

PQ:

CROSS-LIST: HLTH 23810; GNSE 23180; GNSE 33800

This course provides a foundation in global perspectives on maternal and child health research, practice, and policy. The course will cover a range of maternal and child health topics to examine critical challenges facing women, children, providers, and policymakers in some of the world's most vulnerable communities. Students in this course will: 1) understand the status of maternal and child health in a variety of communities and contexts, using key health and development indicators; 2) critically analyze past and present public health programs and policies utilized to address maternal and child health needs in diverse communities; 3) assess the economic, political, social, and cultural factors that affect maternal and child health programs and outcomes.

Foundations of Public Health

PBHS 34100

COURSE INSTRUCTOR: Seleeke Flingai

DAY & TIME: T/Th 2-3:20pm

PQ: MPH students only; or consent of instructor

This course provides an overview and introduction to the role, theories, and methods of health promotion and health behavioral science in addressing the public health needs of the 21st Century. The course will cover a wide range of topics including: the history of public health, the basic institutional and organizational structures created to monitor public health; socio-cultural factors in disease etiology and the role of social conditions and social policy in addressing critical public health problems; individual, group, and community strategies for health behavior change; and current issues (e.g., eHealth) in behavioral science for health promotion. The course provides students with the opportunity to critically analyze current literature and gain an understanding of health promotion, its evolution, underlying theories, applications, and effectiveness in promoting health and preventing illness.

GIS and Spatial Analysis for Public Health

PBHS 34900

COURSE INSTRUCTOR: Seleeke Flingai

DAY & TIME: M/W 3-4:20p

PQ:

CROSS-LIST: HLTH 24900

This course serves as an introduction to the core concepts and tools for applying spatial analytic methods to public health questions. Using a combination of lectures, case studies, and hands-on in-class trainings, students will learn fundamental spatial concepts, as well as how to make sense of and prepare spatial health data for mapping and statistical analyses (including georeferencing, geocoding, merging data sources, and describing and analyzing spatial health patterns and relationships). Throughout the course, we will draw from writings and examples in public health, urban planning, sociology, and critical geography studies to gain an understanding not only of the use of mapping in understanding the spatial nature of health and disease, but also the power dynamics of map-making as a practice. By the end of the course, students will become familiar with a breadth of foundational concepts, technical skills, and critical perspectives to produce and interpret maps and spatial health analyses at an introductory level.

Introduction to U.S. Health Policy and Politics

PBHS 35500

COURSE INSTRUCTOR: Loren Saulsberry

DAY & TIME: T/Th 12:30-1:50pm

PQ: N/A

CROSS-LIST ID: HLTH 25500; PBPL 25500; SSAD 45011; PPHA 37720;

The purpose of this course is to introduce students to the concepts needed to critically evaluate U.S. health policy issues. The course will 1) provide an overview of the U.S. health system including its institutions, stakeholders, and financing mechanisms, 2) describe the politics of health and illuminate how the structure of our political system shapes health policy outcomes, and 3) offer a framework for assessing the critical features central to health policy debates. Building upon this knowledge, the course will conclude with a discussion of strategies for influencing the health policy process and how they might be employed in future leadership roles within the health sector.

Money, Medicine, and Markets: The Financialization of the US Health System

PBHS 35600

COURSE INSTRUCTOR: Joseph Bruch

DAY & TIME: T/Th, 3:30-4:50pm

PQ: Knowledge of US health care, such as through an introduction course

CROSS-LIST: HLTH 25600; SSAD 45601, PPHA 38340

This class tracks the complex ways finance influences health and health care delivery in the United States. The course is divided into three parts. In Part 1, we review how macro changes in the financial sector have influenced the organization of the economy and the management of health care corporations. In Part 2, we investigate different financialized health care settings where tensions between profit maximization, health care quality, and health equity exist. These settings include nonprofit hospitals, the pharmaceutical industry, private equity investors, medical debt collectors, management consultants, the physician workforce, and women's health startups. In Part 3, we grapple with the link between capitalism and population health using concepts from political economy and public health. This exploration includes discussions on financial lending, macroeconomic conditions, economic inequality, and the commercial determinants of health. Throughout the course, students will be introduced to cutting-edge scholarship across various fields, including policy analysis, epidemiology, and health economics. The course will be of interest to students pursuing careers or research in

health care management, health care finance, health policy and advocacy, health economics, social entrepreneurship, nonprofit management, and public health.

Decision Modeling for Health Economic Evaluation

PBHS 38120

COURSE INSTRUCTOR: David Kim

DAY & TIME: T/Th 9:30-10:20am

PQ:

CROSS-LIST: CCTS 42006 (PARENT)

This course introduces decision science and economic evaluation that has been increasingly used to inform public health and health care decisions. With a specific focus on the development and application of decision-analytic models, students will learn the state of the current practice of economic evaluation, new tools, and methodologies to conduct decision modeling, and emerging areas of research, including the value of information analysis. The course will provide hands-on computer-based learning using the R programming language for data analysis and modeling. A prior experience in R is welcomed, but not required. Applying the concepts and techniques learned in the course, students will undertake a course project of their choice to conduct economic evaluation using decision-analytic models. By the end of this course, students will gain knowledge and practical skills in economic evaluation and decision modeling to help make informed decisions.

DEPARTMENT OF PUBLIC HEALTH SCIENCES COURSES

Winter 2025

Epidemiologic Methods

PBHS 31001

COURSE INSTRUCTOR: Brian Chiu

DAY & TIME: T/Th 12:30-1:50pm

PQ: PBHS 30910 **and** PBHS 32400/STAT 22400 **or** PBHS 32410 (taken concurrently) **or** applied statistics courses through multivariate regression.

CROSS-LIST ID: STAT 35700

This course provides students with an in-depth understanding of epidemiologic concepts and methods. It is the second course in the epidemiology series. The focus of this course will be in practical and theoretical considerations of observational research methods; statistical methods and applications in epidemiologic studies; in-depth evaluation of bias, confounding, and interaction; and communicating epidemiologic findings. Students will also learn how to perform data analysis using classic methods.

Regression Analysis for Health and Social Research

PBHS 32410

COURSE INSTRUCTOR: Jim Dignam

DAY & TIME: T/Th 11am-12:20pm

PQ: PBHS 32100 or STAT 22000 or equivalent

Students can take either PBHS 32400/STAT 22400 or PBHS 32410/STAT 22401, but not both.

CROSS-LIST ID: STAT 22401

This course is an introduction to the methods and applications of fitting and interpreting multiple regression models. The main emphasis is on the method of least squares. Topics include the examination of residuals, the transformation of data, strategies and criteria for the selection of a regression equation, the use of dummy variables, tests of fit. Stata computer package will be used extensively, but previous familiarity with Stata is not assumed. The techniques discussed will be illustrated by real examples involving health and social science data.

Applied Longitudinal Data Analysis

PBHS 33300

COURSE INSTRUCTOR: Don Hedeker

DAY & TIME: T/TH 9:30-10:50am

PQ: PBHS 32400 or PBHS 32410 or equivalent, and PBHS 32600/STAT 22600, or PBHS 32700/STAT 22700 or equivalent; or consent of instructor.

CROSS-LIST ID: STAT 36900; CHDV 32501

Longitudinal data consist of multiple measures over time on a sample of individuals. This type of data occurs extensively in both observational and experimental biomedical and public health sciences, as well as in studies in sociology and applied economics. This course will provide an introduction to the principles and methods for the analysis of longitudinal data. Whereas some supporting statistical theory will be given, emphasis will be on data analysis and interpretation of models for longitudinal data. Problems will be motivated by applications in epidemiology, clinical medicine, health services research, and disease natural history studies.

Foundations of Public Health

PBHS 34100

COURSE INSTRUCTOR: Seleeke Flingai

DAY & TIME: T/Th 11a-12:20p

PQ: MPH students only; or consent of instructor

This course provides an overview and introduction to the role, theories, and methods of health promotion and health behavioral science in addressing the public health needs of the 21st Century. The course will cover a wide range of topics including: the history of public health, the basic institutional and organizational structures created to monitor public health; socio-cultural factors in disease etiology and the role of social conditions and social policy in addressing critical public health problems; individual, group, and community strategies for health behavior change; and current issues (e.g., eHealth) in behavioral science for health promotion. The course provides students with the opportunity to critically analyze current literature and gain an understanding of health promotion, its evolution, underlying theories, applications, and effectiveness in promoting health and preventing illness.

Health Behavior Theory & Health Communication

PBHS 34200

COURSE INSTRUCTOR: Marcia Tan and David Moskowitz

Day/Time: T/Th 2-3:20pm

PQ: MPH Student Only; or Consent of Instructor

This course addresses the psychological, social, and environmental determinants of a wide range of health and health-related behavior. Theoretical models from the behavioral and social sciences will be used to explain health behavior at the individual, interpersonal, and community levels. The course emphasizes the acquisition of theoretical understandings, but also is intended to improve actions or activities undertaken for the purpose of promoting, preserving, or restoring wellness. Towards that end, students in this course will learn how to use peer-reviewed research and key social marketing principles to develop a comprehensive and effective social marketing campaign; learn how to target health communication efforts towards specific audiences and via varied channels of distribution; understand the role of social media and technology in facilitating/influencing behavior changes; study current examples of successful social marketing initiatives; and discuss the ethics surrounding health communication and social marketing efforts.

Computer Programming for Public Health

PBHS 34400

COURSE INSTRUCTOR: Jason Edelstein

Day/Time: T 5-7:50pm

PQ:

This course will provide an introductory and intermediate level overview of computer science and programming skills. Students will learn concepts in computer programming and how programming language works, as well as theories behind information system design and management. Specific topics include: Python and R programming language, data structures and management, algorithm design, data visualizations, and basic project management for reproducible research.

Mixed Method Research in Community Settings

PBHS 34600

COURSE INSTRUCTOR: David Moskowitz

DAY & TIME: T/Th 9:30-10:50am

PQ:

This course is designed to train students in mixed methods research design and evaluation. Mixed methods are the use of quantitative AND qualitative methods to explore health problems, engage communities, and evaluate solutions. It includes an in-depth discussion of the rationales for specific techniques and the role of theory in guiding and informing a health research project. Students will learn design considerations that are best suited for qualitative over quantitative methods (and vice versa) or both methods. Specifically, the course focuses on training, through lecture, group work and hands-on experiences, across five data collection methods commonly used in mixed methods research: survey design and implementation, observation, interview, focus group, and use of existing quantitative data. Students will undertake a pilot research study as a means of practicing their mixed methods approaches and data collection skills. Multiple data analyses techniques (e.g., content analysis, narrative analysis, multivariable model construction, qual-quant triangulation) will be conceptually explained. Students will leave the course with practical skills to conduct research through public health practice.

Community Health Promotion

PBHS 34700

COURSE INSTRUCTOR: Jasmin Tiro

DAY & TIME: T/Th 3:30-4:50pm

PQ: PBHS 34100 recommended

A person's health depends not only their genes or behavior, but also where they live, learn, work, play, and age. This course examines how social and community structures and policies influence health and can produce health disparities. Structural issues (e.g., economic stability, housing, food security, health care access and quality, broadband access, health and digital literacy, violence, discrimination) are key social determinants of health. This course will describe and apply: 1) frameworks for understanding health determinants acting at multiple levels, and 2) community and structural intervention approaches to promote health. Students will learn how to prioritize among health determinants and select among intervention approaches to solve public health problems and improve public health practice.

Economic Analysis of Health Policies

PBHS 38010

COURSE INSTRUCTOR: Betsy Cliff

DAY & TIME: M/W 1:30-2:50pm

PQ: Microeconomics course recommended; Consent of instructor for undergrads.

CROSS-LIST ID: HLTH 28010; PPHA 38290

This course covers the foundations of the economics of health care as applied to current issues of health care policy. Content includes demand for health, medical care, and insurance; supply of medical care and behavior of health care practitioners; and economic perspectives on measurement in health care research. Using a combination of lectures, readings, problem sets, and discussion of newspaper and journal articles, the goal is for students to acquire a basic understanding of economic knowledge and thinking and to be able to apply that knowledge in analyzing policies. The course is open to graduate students and a limited number of undergraduates. A prior course in microeconomics is recommended; for those students without this preparation, the beginning of the course will include a short primer on key concepts in microeconomics.

Advanced Topics in Health Economics

PBHS 38400

COURSE INSTRUCTOR: Tamara Konetzka

OFFERED: T/Th 12:30-1:50pm

PQ: Graduate courses in microeconomics and econometrics or statistics, including the use of linear and nonlinear regression methods.

The purpose of this course is to provide substantial exposure to the state of the evidence and the major theoretical and empirical approaches used to study salient issues in health economics. Selected topics may vary from year to year; examples include health capital, health insurance, health behaviors, health care market structure and competition, not-for-profit ownership, payment incentives, and the effects of information on provider behavior (e.g. public reporting and value-based purchasing) and consumer behavior (e.g., advertising and medical decision making). The course is aimed at students who wish to pursue a career in, or related to, health economics. Students will be expected to read each paper in depth, participate in discussions about them, and present and discuss several papers during the quarter. The instructors will assume that students have had prior graduate courses in microeconomics and econometrics or statistics, including the use of linear and nonlinear regression methods.

Applied Bayesian Modeling and Inference

PBHS 43010

COURSE INSTRUCTOR: Yuan Ji

DAY & TIME: M/W 10:30-11:50

PQ: STAT 24400 and STAT 24500 or master level training in statistics.

CROSS-LIST ID: STAT 35920

Course begins with basic probability and distribution theory and covers a wide range of topics related to Bayesian modeling, computation, and inference. Significant amount of effort will be directed to teaching students on how to build and apply hierarchical models and perform posterior inference. The first half of the course will be focused on basic theory, modeling, and computation using Markov chain Monte Carlo methods, and the second half of the course will be about advanced models and applications. Computation and application will be emphasized so that students will be able to solve real-world problems with Bayesian techniques.

DEPARTMENT OF PUBLIC HEALTH SCIENCES COURSES

Spring 2025

Introduction to Mathematical Modeling in Public Health

PBHS 31100

COURSE INSTRUCTOR: Olga Morozova

DAY & TIME: T/Th 11am-12:20pm

PQ:

CROSS-LIST ID: BIOS 26311

Modeling is a simplified representation of reality that aims to capture essential features of a real-life object or process. Mathematical modeling in public health encompasses a wide array of methodologies offering a powerful toolkit to approach questions that would otherwise be extremely difficult or impossible to answer. This course will introduce students to the conceptual framework of mechanistic modeling and cover the basics of the most widely used mathematical modeling approaches in public health. The course will combine lectures and interactive computer sessions to help students develop practical skills of using basic quantitative techniques.

Introduction to Infectious Disease Epidemiology

PBHS 31300

COURSE INSTRUCTOR:

DAY & TIME: W 5:30-8:30pm

PQ: PBHS 30910 (STAT 22810/ENST 27400/HLTH 20910/PPHA 36410) or introductory epidemiology course

CROSS-LIST ID: BIOS 25419

This intermediate-level course will build off basic epidemiology foundations to understand principles of infectious disease epidemiology as well as focus on specific diseases & their public health significance. We will examine disease transmission and the interactions between pathogens, hosts, and environment. This course introduces key pathogens, diagnostics, and immune responses. In addition, we will explore the roles of climate change, globalization, and social determinants of health on infectious diseases. Students will learn about research and public health responses to infectious diseases, including study design, modeling, molecular epidemiology, surveillance, outbreak investigation, and prevention

Social Inequalities in Health: Race/Ethnicity & Class

PBHS 31450

COURSE INSTRUCTOR: Seleeke Flingai

DAY & TIME:

PQ: PBHS 32100 or STAT 22000 or introductory statistics course.

CROSS-LIST ID: CRES 27450, HLTH 27450

This course examines how social stratification and social inequality shape racial/ethnic and socioeconomic inequalities in health. In particular, we will explore the production of race and class inequality in the US and draw on the extant theoretical and empirical literature to understand how these social factors influence health behaviors and health outcomes. Finally, we will review both the classic and emerging methodological approaches used by public health and social scientists to measure and test how these features of society get “under the skin” to shape a variety of health outcomes.

Global Health Metrics

PBHS 31900

COURSE INSTRUCTOR: Kavi Bhalla

DAY & TIME: T/Th 11am-12:20pm

PQ: PBHS 30910; Consent of instructor for undergrads (limited to 3rd & 4th yr undergrads)

CROSS-LIST ID: HLTH 27905; PBPL 27905

This course provides an overview of the causes of illness and injury in populations across the world and the most important risk factors. We will discuss how population health is measured using summary indicators that combine mortality and non-fatal health outcomes. We will use these indicators to compare and contrast the health of populations across global regions and in time. Sound measurement of the global burden of disease is essential for prioritizing prevention strategies. Therefore, there will be a strong emphasis on understanding how data sources in information-poor settings are used to generate estimates of population health.

Biostatistical Methods

PBHS 32700

COURSE INSTRUCTOR: Lin Chen

DAY & TIME: T/Th 12:30-1:50pm

PQ: PBHS 32400, PBHS 32410 or STAT 24500; or equivalent; or consent of instructor

CROSS-LIST ID: STAT 22700

This course is designed to provide students with tools for analyzing categorical, count and time-to-event data frequently encountered in medicine, public health and related biological and social sciences. The course will emphasize application of the methodology rather than statistical theory, including recognition of the appropriate methods, interpretation and presentation of results. Methods covered include: contingency table analysis, Kaplan-Meier survival analysis, Cox proportional-hazards survival analysis, logistic regression, Poisson regression.

Introduction to Urban Health

PBHS 33900

COURSE INSTRUCTOR: Seleeke Flingai

DAY & TIME:

PQ:

CROSS-LIST: HLTH

Public Health Programs: Planning, Implementation & Evaluation

PBHS 34300

COURSE INSTRUCTOR: David Moskowitz

DAY & TIME: M/W 10:30-11:50am

PQ: MPH Students Only; or Consent of Instructor

The course is designed to provide students with an overview of how to develop public health programs and interventions. Students will learn the best ways to help solve the critical health issues affecting our communities at local, national, and international levels. Students will learn the start-to-finish processes of public health programming including understanding the problem using existent data, needs assessments/surveillance, using goals/objectives, basic design, message construction, planning, implementation, and creating an evaluation system that links back to goals/objectives. The course will also include an overview of effective evidence-based public health interventions that span multiple health domains and delivery modalities. Students will have the opportunity to create their own health programs through the quarter.

Machine Learning for Public Health

PBHS 34500

COURSE INSTRUCTOR: Eric Polley

DAY & TIME: T/Th 2-3:20pm

PQ: PBHS 32400/STAT 22400 or PBHS 32410 or equivalent AND PBHS 34400 or equivalent programming course.

Limited to MPH Students; Consent of Instructor for PBHS Graduate and Doctoral Students

This course provides an introduction to machine learning in the context of public health and medical applications. Key concepts in the design and evaluation of machine learning algorithms will be presented. A variety of algorithms will be covered (e.g. random forests, splines, boosting, neural networks, and ensembles) and include hands-on experience with programming in R.

Management of Community Health Organizations

PBHS 34800

COURSE INSTRUCTOR: Brandon Hill

DAY & TIME: T 3:30-6:20pm

PQ:

This course encompasses an in-depth exploration of the healthcare environment and its associated organizational implications. It provides students with a comprehensive framework for understanding and effectively managing health services and healthcare sector organizations. The curriculum further delves into the application of managerial leadership skills, highlighting their influence on both individuals and institutions within the dynamic healthcare sector. Additionally, it addresses the intricacies of resource management within a framework that considers principles, personnel, processes, and organizational design. Strategic and organizational management, management tools for performance improvement, and the various roles and functions in healthcare management are covered in detail. Furthermore, the course explores organizational behavior perspectives and theories that serve as the foundation for critically examining management in healthcare. It emphasizes the interpersonal skills and knowledge necessary for managers in this ever-evolving field, allowing students to develop a holistic approach to understanding the complexity of health sector organizations. The curriculum underscores the importance of applying current theories to practical situations, covering areas such as

management, employee motivation, group dynamics, team development, power dynamics, conflict resolution, and negotiation skills.

Health Services Research Methods

PBHS 35100

COURSE INSTRUCTOR: Prachi Sanghavi

DAY & TIME: M/W 1:30-2:50pm

PQ: At least one course in linear regression and basic familiarity with STATA; or consent of instructor.

CROSS-LIST ID: HLTH 29100; PPHA 38010; SSAD 46300;

The purpose of this course is to better acquaint students with the methodological issues of research design and data analysis widely used in empirical health services research. To deal with these methods, the course will use a combination of readings, lectures, problem sets (using STATA), and discussion of applications. The course assumes that students have had a prior course in statistics, including the use of linear regression methods.

Policy Analysis and Priority Setting in Health and Medicine

PBHS 38310

COURSE INSTRUCTOR: David Kim

DAY & TIME: T/Th 9:30-10:50am???

PQ:

CROSS-LIST ID: PPHA 3XXXX (PARENT)

This course introduces evidence-based priority-setting in health and medicine and its key quantitative methods, with particular attention to economic evaluation for health policy assessment. The course assesses the state of current practice in national and global priority settings, describes new tools and methodologies to establish health policy priorities, and tackles important ethical and distributional issues that decision-makers must consider in allocating limited health resources. The course, involving didactic instruction, student-led discussion, policy debate, and a course project, helps students better understand priority-setting processes and research methodology.

Advanced Epidemiologic Methods

PBHS 40500

COURSE INSTRUCTOR: Dezheng Huo

DAY & TIME: M/W 10:30-11:50am

PQ: PBHS 31001 and PBHS 32410/STAT 22401

This course examines some features of study design but is primarily focused on analytic issues encountered in epidemiologic research. The objective of this course is to enable students to conduct thoughtful analysis of epidemiologic and other population research data. Concepts and methods that will be covered include: matching, sampling, conditional logistic regression, survival analysis, ordinal and polytomous logistic regressions, multiple imputation, and screening and diagnostic test evaluation. The course follows in sequence the material presented in "Epidemiologic Methods."

**DEPARTMENT OF PUBLIC HEALTH SCIENCES
COMPLETE LIST OF COURSES**

Epidemiology and Population Health

PBHS 30910

COURSE INSTRUCTOR: Diane Lauderdale

OFFERED: Autumn

PQ: STAT 22000 or other introductory statistics highly desirable.

CROSS-LIST ID: ENST 27400; HLTH 20910; STAT 22810; PPHA 36410

Epidemiology is the basic science of public health. It is the study of how diseases are distributed across populations and how one designs population-based studies to learn about disease causes, with the object of identifying preventive strategies. Epidemiology is a quantitative field and draws on biostatistical methods. Historically, epidemiology's roots were in the investigation of infectious disease outbreaks and epidemics. Since the mid-twentieth century, the scope of epidemiologic investigations has expanded to a fuller range non-infectious diseases and health problems. This course will introduce classic studies, study designs and analytic methods, with a focus on global health problems.

Epidemiologic Methods

PBHS 31001

COURSE INSTRUCTOR: Brian Chiu or Dezheng Huo

OFFERED: Winter

PQ: PBHS 30910 **and** PBHS 32400/STAT 22400 **or** PBHS 32410 (taken concurrently) **or** applied statistics courses through multivariate regression.

CROSS-LIST ID: STAT 35700

This course provides students with an in-depth understanding of epidemiologic concepts and methods. It is the second course in the epidemiology series. The focus of this course will be in practical and theoretical considerations of observational research methods; statistical methods and applications in epidemiologic studies; in-depth evaluation of bias, confounding, and interaction; and communicating epidemiologic findings. Students will also learn how to perform data analysis using classic methods.

Introduction to Mathematical Modeling in Public Health

PBHS 31100

COURSE INSTRUCTOR: Olga Morozova

OFFERED: Spring

PQ:

CROSS-LIST ID: BIOS 26311

Modeling is a simplified representation of reality that aims to capture essential features of a real-life object or process. Mathematical modeling in public health encompasses a wide array of methodologies offering a powerful toolkit to approach questions that would otherwise be extremely difficult or impossible to answer. This course will introduce students to the conceptual framework of mechanistic modeling and cover the basics of the most widely used mathematical modeling approaches in public health. The course will combine lectures and interactive computer sessions to help students develop practical skills of using basic quantitative techniques.

Introduction to Infectious Disease Epidemiology

PBHS 31300

COURSE INSTRUCTOR: Maria Pyra

OFFERED: Spring

PQ: PBHS 30910 or Introductory Epidemiology or consent of instructor

CROSS-LIST ID: BIOS 25419

This intermediate-level course will build off basic epidemiology foundations to understand principles of infectious disease epidemiology as well as focus on specific diseases & their public health significance. We will examine disease transmission and the interactions between pathogens, hosts, and environment. This course introduces key pathogens, diagnostics, and immune responses. In addition, we will explore the roles of climate change, globalization, and social determinants of health on infectious diseases. Students will learn about research and public health responses to infectious diseases, including study design, modeling, molecular epidemiology, surveillance, outbreak investigation, and prevention

Social Inequalities in Health: Race/Ethnicity & Class

PBHS 31450

COURSE INSTRUCTOR: Aresha Martinez-Cardoso (Autumn); Seleeke Flingai (Spring)

OFFERED: Autumn and Spring

PQ: Introductory statistics course.

CROSS-LIST ID: CRES 27450, HLTH 27450

This course examines how social stratification and social inequality shape racial/ethnic and socioeconomic inequalities in health. In particular, we will explore the production of race and class inequality in the US and draw on the extant theoretical and empirical literature to understand how these social factors influence health behaviors and health outcomes. Finally, we will review both the classic and emerging methodological approaches used by public health and social scientists to measure and test how these features of society get “under the skin” to shape a variety of health outcomes.

Climate Change and Human Health

PBHS 31720

COURSE INSTRUCTOR: Kate Burrows

OFFERED: Autumn

PQ: PBHS 32100 or STAT 22000 or introductory statistics course

CROSS-LIST ID: CEGU 21720, CEGU 31720, HLTH 21720

Climate change is one of the greatest global health threats facing the world in the 21st century. Through this course, students will gain foundational knowledge in the health effects of climate change. We will begin with several lectures on climate science as it related to the patterns of weather extremes experienced by populations. We will then identify the varying health outcomes linked to different climate-related exposures, emphasizing the specific impacts in vulnerable and high-risk populations. Specific topics include the effects of air pollution, extreme heat and heat waves, droughts, tropical cyclones, changes in vector habitats, and sea-level rise. Finally, we will discuss strategies for public health practitioners to aid communities in preventing or alleviating these adverse effects.

Genetic & Molecular Epidemiology

PBHS 31831

COURSE INSTRUCTOR: Brandon Pierce

OFFERED: Spring (Course not offered every year)

PQ: PBHS 30910 (or introductory epidemiology) AND HGEN 47000.

This course is designed for students with research interests related to identifying and characterizing the role of genetic and molecular factors in human disease risk and prognosis. Students will be introduced to the key concepts and methodological issues encountered in epidemiological studies that utilize genetic and molecular data. This course will train students on the theoretical and practical aspects of study design and data generation, and also provide the relevant hands-on training for quality control, management, and analysis of large-scale genomic/molecular data. Students are expected to have taken prior coursework in genetics as well as introductory statistics and/or epidemiology.

Global Health Metrics

PBHS 31900

COURSE INSTRUCTOR: Kavi Bhalla

OFFERED: Spring

PQ: PBHS 30910; Consent of Instructor; limited to 3rd & 4th yr undergrads

CROSS-LIST ID: PBPL 27905; HLTH 27905

This course provides an overview of the causes of illness and injury in populations across the world and the most important risk factors. We will discuss how population health is measured using summary indicators that combine mortality and non-fatal health outcomes. We will use these indicators to compare and contrast the health of populations across global regions and in time. Sound measurement of the global burden of disease is essential for prioritizing prevention strategies. Therefore, there will be a strong emphasis on understanding how data sources in information-poor settings are used to generate estimates of population health.

Introduction to Biostatistics

PBHS 32100

COURSE INSTRUCTOR: John Cursio

OFFERED: Autumn

PQ: 2 quarters of pre-calculus

CROSS-LIST ID:

This course will provide an introduction to the basic concepts of statistics as applied to the bio-medical and public health sciences. Emphasis is on the use and interpretation of statistical tools for data analysis. Topics include (i) descriptive statistics; (ii) probability and sampling; (iii) the methods of statistical inference; and (iv) an introduction to linear and logistics regression.

***In addition to the course, there is a statistical computing workshop held on Wednesdays from 10-11:30am in BSLC 018.**

Regression Analysis for Health and Social Research

PBHS 32410

COURSE INSTRUCTOR: Jim Dignam

OFFERED: Winter

PQ: PBHS 32100 or STAT 22000 or equivalent

Students can take either PBHS 32400/STAT 22400 or PBHS 32410/STAT 22401

CROSS-LIST ID: STAT 22401

This course is an introduction to the methods and applications of fitting and interpreting multiple regression models. The main emphasis is on the method of least squares. Topics include the examination of residuals, the transformation of data, strategies and criteria for the selection of a regression equation, the use of dummy variables, tests of fit. Stata computer package will be used extensively, but previous familiarity with Stata is not assumed. The techniques discussed will be illustrated by real examples involving health and social science data.

Biostatistical Methods

PBHS 32700

COURSE INSTRUCTOR: Lin Chen

OFFERED: Spring

PQ: PBHS 32400, PBHS 32410 or STAT 24500; or equivalent; or consent of instructor

CROSS-LIST ID: STAT 22700

This course is designed to provide students with tools for analyzing categorical, count and time-to-event data frequently encountered in medicine, public health and related biological and social sciences. The course will emphasize application of the methodology rather than statistical theory, including recognition of the appropriate methods, interpretation and presentation of results. Methods covered include: contingency table analysis, Kaplan-Meier survival analysis, Cox proportional-hazards survival analysis, logistic regression, Poisson regression.

Introduction to Clinical Trials

PBHS 32901

COURSE INSTRUCTOR: Mei Polley

OFFERED: Autumn

PQ: PBHS 32100 or STAT 22000 or Introductory Biostatistics course (or equivalent) **AND** PBHS 32400 or PBHS 32410 (or equivalent); or consent of instructor

CROSS-LIST ID: STAT 35201

This course will review major components of clinical trial conduct, including ethical and regulatory issues in human subject research, the formulation of clinical hypotheses and study endpoints, research protocol structure, various design elements, phase I-III trial designs, sample size methods, fundamentals of survival analysis, trial progress monitoring, and the analysis and reporting of clinical trial results. Additional topics may include roles of biomarkers in clinical trials and the broader impact of clinical trials on public health.

Applied Longitudinal Data Analysis

PBHS 33300

COURSE INSTRUCTOR: Don Hedeker

OFFERED: Winter

PQ: PBHS 32400, PBHS 32410 or equivalent, and PBHS 32600/STAT 22600 or PBHS 32700/STAT 22700 or equivalent; or consent of instructor.

CROSS-LIST ID: STAT 36900; CHDV 32501

Longitudinal data consist of multiple measures over time on a sample of individuals. This type of data occurs extensively in both observational and experimental biomedical and public health sciences, as well as in studies in sociology and applied economics. This course will provide an introduction to the principles and methods for the analysis of longitudinal data. Whereas some supporting statistical theory will be given, emphasis will be on data analysis and interpretation of models for longitudinal data. Problems will be motivated by applications in epidemiology, clinical medicine, health services research, and disease natural history studies.

Multilevel Modeling

PBHS 33400

COURSE INSTRUCTOR: Don Hedeker

OFFERED: Autumn (Course not offered every year)

PQ: PBHS 32400 or PBHS 32410 and PBHS 32700 or consent of instructor.

CROSS-LIST ID: CHDV 32401

This course will focus on the analysis of multilevel data in which subjects are nested within clusters (e.g., health care providers, hospitals). The focus will be on clustered data, and several extensions to the basic two-level multilevel model will be considered including three-level, cross-classified, multiple membership, and multivariate models. In addition to models for continuous outcomes, methods for non-normal outcomes will be covered, including multilevel models for dichotomous, ordinal, nominal, time-to-event, and count outcomes. Some statistical theory will be given, but the focus will be on application and interpretation of the statistical analyses.

Statistical Applications

PBHS 33500

COURSE INSTRUCTOR: Robert Gibbons

OFFERED: Fall

PQ: PBHS 32400, PBHS 32410 or equivalent, and PBHS 32600/STAT 22600 or PBHS 32700/STAT 22700 or equivalent; or consent of instructor. Knowledge of STATA and/or R highly recommended.

CROSS-LIST ID: STAT 35800; CHDV 32702

This course provides a transition between statistical theory and practice. The course will cover statistical applications in medicine, mental health, environmental science, analytical chemistry, and public policy. Lectures are oriented around specific examples from a variety of content areas. Opportunities for the class to work on interesting applied problems presented by U of C faculty will be provided. Although an overview of relevant statistical theory will be presented, emphasis is on the development of statistical solutions to interesting applied problems.

Sexual Health: Identity, Behavior, and Outcomes

PBHS 33700

COURSE INSTRUCTOR: David Moskowitz

OFFERED: Spring

PQ:

CROSS-LIST ID: PBHS 23700; GNSE 23702, GNSE 33702; HLTH 23700

Sexual health is a growing component of public health outreach. The goal of this course is to provide students with a foundational understanding of sexual health from a public health perspective. Through participation in this course, students will increase their knowledge about the history of sexual health promotion in the public health sphere. They will delve into sexual and gender identity construction and explore identity-behavioral expressions. They will critically examine and discuss common sexual health issues addressed by public health practitioners, their epidemiology, and their underlying social determinants; a global health lens will be applied to such examinations. Additionally, recognition of the key methodological considerations in the measurement of sexual behavior and sexual health outcomes will be elucidated (including strengths and limitations of various methodological approaches –quantitative, qualitative, clinical, and biomedical). By the completion of the course, students should be able to demonstrate knowledge and application of key theoretical foundations of sexual health promotion and sexual health behavior change and be able to promote sexual health messages through marketing and dissemination. From a policy perspective, student can expect an increased knowledge about issues related to social and legislative policy analyses, their applications, and implications.

Global Maternal and Child Health

PBHS 33800

COURSE INSTRUCTOR: Erick Amick

OFFERED: Autumn

PQ:

CROSS-LIST: HLTH 23810; GNSE 23180; GNSE 33800

This course provides a foundation in global perspectives on maternal and child health research, practice, and policy. The course will cover a range of maternal and child health topics to examine critical challenges facing women, children, providers, and policymakers in some of the world's most vulnerable communities. Students in this course will: 1) understand the status of maternal and child health in a variety of communities and contexts, using key health and development indicators; 2) critically analyze past and present public health programs and policies utilized to address maternal and child health needs in diverse communities; 3) assess the economic, political, social, and cultural factors that affect maternal and child health programs and outcomes.

Introduction to Urban Health

PBHS 33900

COURSE INSTRUCTOR: Seleeke Flingai

OFFERED: Spring

PQ:

CROSS-LIST: HLTH

Foundations of Public Health

PBHS 34100

COURSE INSTRUCTOR: Seleeke Flingai

OFFERED: Autumn, Winter

PQ: MPH Student Only; or Consent of Instructor

This course provides an overview and introduction to the role, theories, and methods of health promotion and health behavioral science in addressing the public health needs of the 21st Century. The course will cover a wide range of topics including: the history of public health, the basic institutional and organizational structures created to monitor public health; socio-cultural factors in disease etiology and the role of social conditions and social policy in addressing critical public health problems; individual, group, and community strategies for health behavior change; and current issues (e.g., eHealth) in behavioral science for health promotion. The course provides students with the opportunity to critically analyze current literature and gain an understanding of health promotion, its evolution, underlying theories, applications, and effectiveness in promoting health and preventing illness.

Health Behavior Theory & Health Communication

PBHS 34200

COURSE INSTRUCTOR: Marcia Tan and David Moskowitz

OFFERED: Winter

PQ: MPH Student Only; or Consent of Instructor

This course addresses the psychological, social, and environmental determinants of a wide range of health and health-related behavior. Theoretical models from the behavioral and social sciences will be used to explain health behavior at the individual, interpersonal, and community levels. The course emphasizes the acquisition of theoretical understandings, but also is intended to improve actions or activities undertaken for the purpose of promoting, preserving, or restoring wellness. Towards that end, students in this course will learn how to use peer-reviewed research and key social marketing principles to develop a comprehensive and effective social marketing campaign; learn how to target health communication efforts towards specific audiences and via varied channels of distribution; understand the role of social media and technology in facilitating/influencing behavior changes; study current examples of successful social marketing initiatives; and discuss the ethics surrounding health communication and social marketing efforts.

Public Health Programs: Planning, Implementation & Evaluation

PBHS 34300

COURSE INSTRUCTOR: David Moskowitz

OFFERED: Spring

PQ: MPH Student Only; or Consent of Instructor

The course is designed to provide students with an overview of how to develop public health programs and interventions. Students will learn the best ways to help solve the critical health issues affecting our communities at local, national, and international levels. Students will learn the start-to-finish processes of public health programming including understanding the problem using existent data, needs assessments/surveillance, using goals/objectives, basic design, message construction, planning, implementation, and creating an evaluation system that links back to goals/objectives. The course will also include an overview of effective evidence-based public health interventions that span multiple health domains and delivery modalities. Students will have the opportunity to create their own health programs through the quarter.

Computer Programming for Public Health

PBHS 34400

COURSE INSTRUCTOR: Jason Edelstein

OFFERED: Winter

PQ:

This course will provide an introductory and intermediate level overview of computer science and programming skills. Students will learn concepts in computer programming and how programming language works, as well as theories behind information system design and management. Specific topics include: Python and R programming language, data structures and management, algorithm design, data visualizations, and basic project management for reproducible research.

Machine Learning for Public Health

PBHS 34500

COURSE INSTRUCTOR: Eric Polley

OFFERED: Spring

PQ: PBHS 32400/STAT 22400 or PBHS 32410 or equivalent AND PBHS 34400 or equivalent programming course.

Limited to MPH Students; Consent of Instructor for PBHS Graduate and Doctoral Students

This course provides an introduction to machine learning in the context of public health and medical applications. Key concepts in the design and evaluation of machine learning algorithms will be presented. A variety of algorithms will be covered (e.g. random forests, splines, boosting, neural networks, and ensembles) and include hands-on experience with programming in R.

Mixed Method Research in Community Settings

PBHS 34600

COURSE INSTRUCTOR: David Moskowitz

OFFERED: Winter

PQ:

This course is designed to train students in mixed methods research design and evaluation. Mixed methods are the use of quantitative AND qualitative methods to explore health problems, engage communities, and evaluate solutions. It includes an in-depth discussion of the rationales for specific techniques and the role of theory in guiding and informing a health research project. Students will learn design considerations that are best suited for qualitative over quantitative methods (and vice versa) or both methods. Specifically, the course focuses on training, through lecture, group work and hands-on experiences, across five data collection methods commonly used in mixed methods research: survey design and implementation, observation, interview, focus group, and use of existing quantitative data. Students will undertake a pilot research study as a means of practicing their mixed methods approaches and data collection skills. Multiple data analyses techniques (e.g., content analysis, narrative analysis, multivariable model construction, qual-quant triangulation) will be conceptually explained. Students will leave the course with practical skills to conduct research through public health practice.

Community Health Promotion

PBHS 34700

COURSE INSTRUCTOR: Jasmin Tiro

OFFERED: Winter

PQ: PBHS 34100 recommended.

A person's health depends not only their genes or behavior, but also where they live, learn, work, play, and age. This course examines how social and community structures and policies influence health and can produce health disparities. Structural issues (e.g., economic stability, housing, food security, health care access and quality, broadband access, health and digital literacy, violence, discrimination) are key social determinants of health. This course will describe and apply: 1) frameworks for understanding health determinants acting at multiple levels, and 2) community and structural intervention approaches to promote health. Students will learn how to prioritize among health determinants and select among intervention approaches to solve public health problems and improve public health practice.

Management of Community Health Organizations

PBHS 34800

COURSE INSTRUCTOR: Brandon Hill

OFFERED: Spring

PQ:

CROSS-LIST: HLTH 24800

This course encompasses an in-depth exploration of the healthcare environment and its associated organizational implications. It provides students with a comprehensive framework for understanding and effectively managing health services and healthcare sector organizations. The curriculum further delves into the application of managerial leadership skills, highlighting their influence on both individuals and institutions within the dynamic healthcare sector. Additionally, it addresses the intricacies of resource management within a framework that considers principles, personnel, processes, and organizational design. Strategic and organizational management, management tools for performance improvement, and the various roles and functions in healthcare management are covered in detail. Furthermore, the course explores organizational behavior perspectives and theories that serve as the foundation for critically examining management in healthcare. It emphasizes the interpersonal skills and knowledge necessary for managers in this ever-evolving field, allowing students to develop a holistic approach to understanding the complexity of health sector organizations. The curriculum underscores the importance of applying current theories to practical situations, covering areas such as management, employee motivation, group dynamics, team development, power dynamics, conflict resolution, and negotiation skills.

GIS and Spatial Analysis for Public Health

PBHS 34900

COURSE INSTRUCTOR: Seleeke Flingai

OFFERED: Autumn

CROSS-LIST: HLTH 24900

This course serves as an introduction to the core concepts and tools for applying spatial analytic methods to public health questions. Using a combination of lectures, case studies, and hands-on in-class trainings, students will learn fundamental spatial concepts, as well as how to make sense of and prepare spatial health data for mapping and statistical analyses (including georeferencing, geocoding, merging data sources, and describing and analyzing spatial health patterns and relationships). Throughout the course, we will draw from writings and examples in public health, urban planning, sociology, and critical geography studies to gain an understanding not only of the use of mapping in understanding the spatial nature of health and disease, but also the power dynamics of map-making as a practice. By the end of the course, students will become familiar with a breadth of foundational concepts, technical skills, and critical perspectives to produce and interpret maps and spatial health analyses at an introductory level.

Health Services Research Methods

PBHS 35100

COURSE INSTRUCTOR: Prachi Sanghavi

OFFERED: Spring

PQ: At least one course in linear regression and basic familiarity with STATA; or consent of instructor.

CROSS-LIST ID: HLTH 29100; PPHA 38010; SSAD 46300;

The purpose of this course is to better acquaint students with the methodological issues of research design and data analysis widely used in empirical health services research. To deal with these methods, the course will use a combination of readings, lectures, problem sets (using STATA), and discussion of applications. The course assumes that students have had a prior course in statistics, including the use of linear regression methods.

Introduction to U.S. Health Policy and Politics

PBHS 35500

COURSE INSTRUCTOR: Loren Saulsberry

OFFERED: Autumn

PQ:

CROSS-LIST ID: HLTH 25500; PBPL 25500; SSAD 45011; PPHA 37720;

The purpose of this course is to introduce students to the concepts needed to critically evaluate U.S. health policy issues. The course will 1) provide an overview of the U.S. health system including its institutions, stakeholders, and financing mechanisms, 2) describe the politics of health and illuminate how the structure of our political system shapes health policy outcomes, and 3) offer a framework for assessing the critical features central to health policy debates. Building upon this knowledge, the course will conclude with a discussion of strategies for influencing the health policy process and how they might be employed in future leadership roles within the health sector.

Money, Medicine, and Markets: The Financialization of the US Health System

PBHS 35600

COURSE INSTRUCTOR: Joseph Bruch

OFFERED: Autumn

PQ: Health policy course

CROSS-LIST ID: HLTH 25600; SSAD 45601, PPHA 38340

This class tracks the complex ways finance influences health and health care delivery in the United States. The course is divided into three parts. In Part 1, we review how macro changes in the financial sector have influenced the organization of the economy and the management of health care corporations. In Part 2, we investigate different financialized health care settings where tensions between profit maximization, health care quality, and health equity exist. These settings include nonprofit hospitals, the pharmaceutical industry, private equity investors, medical debt collectors, management consultants, the physician workforce, and women's health startups. In Part 3, we grapple with the link between capitalism and population health using concepts from political economy and public health. This exploration includes discussions on financial lending, macroeconomic conditions, economic inequality, and the commercial determinants of health. Throughout the course, students will be introduced to cutting-edge scholarship across various fields, including policy analysis, epidemiology, and health economics. The course will be of interest to students pursuing careers or research in health care management, health care finance, health policy and advocacy, health economics, social entrepreneurship, nonprofit management, and public health.

Economic Analysis of Health Policies

PBHS 38010

COURSE INSTRUCTOR: Betsy Cliff

OFFERED: Winter

PQ: Microeconomics course; Consent of instructor for undergrads.

CROSS-LIST ID: HLTH 28010; PPHA 38290;

This course covers the foundations of the economics of health care as applied to current issues of health care policy. Content includes demand for health, medical care, and insurance; supply of medical care and behavior of health care practitioners; and economic perspectives on measurement in health care research. Using a combination of lectures, readings, problem sets, and discussion of newspaper and journal articles, the goal is for students to acquire a basic understanding of economic knowledge and thinking and to be able to apply that knowledge in analyzing policies. The course is open to graduate students and a limited number of undergraduates. A prior course in microeconomics is recommended; for those students without this preparation, the beginning of the course will include a short primer on key concepts in microeconomics.

Decision Modeling for Health Economic Evaluation

PBHS 38120

COURSE INSTRUCTOR: David Kim

OFFERED: Autumn

PQ:

CROSS-LIST: CCTS 42006 (PARENT)

This course introduces decision science and economic evaluation that has been increasingly used to inform public health and health care decisions. With a specific focus on the development and application of decision-analytic models, students will learn the state of the current practice of economic evaluation, new tools, and methodologies to conduct decision modeling, and emerging areas of research, including the value of information analysis. The course will provide hands-on computer-based learning using the R programming language for data analysis and modeling. A prior experience in R is welcomed, but not required. Applying the concepts and techniques learned in the course, students will undertake a course project of their choice to conduct economic evaluation using decision-analytic models. By the end of this course, students will gain knowledge and practical skills in economic evaluation and decision modeling to help make informed decisions.

Policy Analysis and Priority Setting in Health and Medicine

PBHS 38310

COURSE INSTRUCTOR: David Kim

OFFERED: Spring

PQ:

CROSS-LIST ID: PPHA 3XXXX (PARENT)

This course introduces evidence-based priority-setting in health and medicine and its key quantitative methods, with particular attention to economic evaluation for health policy assessment. The course assesses the state of current practice in national and global priority settings, describes new tools and methodologies to establish health policy priorities, and tackles important ethical and distributional issues that decision-makers must consider in allocating limited health resources. The course, involving didactic instruction, student-led discussion, policy debate, and a course project, helps students better understand priority-setting processes and research methodology.

Advanced Topics in Health Economics

PBHS 38400

COURSE INSTRUCTOR: Tamara Konetzka

OFFERED: Winter

PQ: Graduate courses in microeconomics and econometrics or statistics, including the use of linear and nonlinear regression methods.

The purpose of this course is to provide substantial exposure to the state of the evidence and the major theoretical and empirical approaches used to study salient issues in health economics. Selected topics may vary from year to year; examples include health capital, health insurance, health behaviors, health care market structure and competition, not-for-profit ownership, payment incentives, and the effects of information on provider behavior (e.g. public reporting and value-based purchasing) and consumer behavior (e.g., advertising and medical decision making). The course is aimed at students who wish to pursue a career in, or related to, health economics. Students will be expected to read each paper in depth, participate in discussions about them, and present and discuss several papers during the quarter. The instructors will assume that students have had prior graduate courses in microeconomics and econometrics or statistics, including the use of linear and nonlinear regression methods.

Master's Readings in Public Health Sciences

PBHS 39000

COURSE INSTRUCTOR: *Varies*

Arrange course content and meeting times with instructor.

Master's Research in Public Health Sciences

PBHS 39100

COURSE INSTRUCTOR: *Varies**Arrange course content and meeting times with instructor.***Public Health in Practice**

PBHS 39200

COURSE INSTRUCTOR: Seleeke Flingai

OFFERED: Summer/T 6-8pm

MPH Reading/Research

PBHS 39210

COURSE INSTRUCTOR

*Arrange course content and meeting times with instructor.***MPH Capstone**

PBHS 39300

COURSE INSTRUCTOR:

OFFERED: Autumn, Winter, Spring

Advanced Epidemiologic Methods

PBHS 40500

COURSE INSTRUCTOR: Dezheng Huo

OFFERED: Spring

PQ: PBHS 31001

This course examines some features of study design, but is primarily focused on analytic issues encountered in epidemiologic research. The objective of this course is to enable students to conduct thoughtful analysis of epidemiologic and other population research data. Concepts and methods that will be covered include: matching, sampling, conditional logistic regression, survival analysis, ordinal and polytomous logistic regressions, multiple imputation, and screening and diagnostic test evaluation. The course follows in sequence the material presented in "Epidemiologic Methods."

Applied Bayesian Modeling and Inference

PBHS 43010

COURSE INSTRUCTOR: Yuan Ji

OFFERED: Winter

PQ: STAT 24400 and STAT 24500 or master level training in statistics.

CROSS-LIST ID: STAT 35920

Course begins with basic probability and distribution theory, and covers a wide range of topics related to Bayesian modeling, computation, and inference. Significant amount of effort will be directed to teaching students on how to build and apply hierarchical models and perform posterior inference. The first half of the course will be focused on basic theory, modeling, and computation using Markov chain Monte Carlo methods, and the second half of the course will be about advanced models and applications. Computation and application will be emphasized so that students will be able to solve real-world problems with Bayesian techniques.

Introduction to Causal Inference

PBHS 43201

COURSE INSTRUCTOR: Guanglei Hong

OFFERED: Winter

PQ: Intermediate statistics or equivalent such as PBHS 32400, PBHS 32410, PPHA 31301, BUS 41100 or SOCI 30005.

CROSS-LIST ID: CHDV 30102 (Primary)

This course is designed for graduate students and advanced undergraduate students from social sciences, education, public policy, public health sciences, social service administration, and statistics who are involved in quantitative research and are interested in studying causality. The course begins by introducing the notion of counterfactual outcomes and various causal inference techniques that are comparatively new to most social scientists. A major emphasis will be placed on conceptualizing causal questions, comparing alternative research designs, and identifying the assumptions under which a causal effect can be estimated from non-experimental data. In addition to studying experimental, quasi-experimental, and non-experimental designs, students will become familiar with causal inference techniques suitable for evaluating binary treatments, concurrent multi-valued treatments, time-varying treatments, as well as moderated and mediated treatment effects in non-experimental data

Ph.D. Readings in Public Health Sciences

PBHS 49000

COURSE INSTRUCTOR: *Varies*

Arrange course content and meeting times with instructor.

Ph.D. Research in Public Health Sciences

PBHS 49100

COURSE INSTRUCTOR: *Varies*

Arrange course content and meeting times with instructor.