

# BLOOMBERG SCHOOL OF PUBLIC HEALTH

The Johns Hopkins Bloomberg School of Public Health (<http://www.jhsph.edu>) has a big vision: Protecting Health, Saving Lives—*Millions at a Time*.

Since its founding in 1916, the Bloomberg School has advanced research, education and practice to create solutions to public health problems around the world.

Faculty, staff and students have helped eradicate smallpox, made water safe to drink, improved child survival, reduced the spread of HIV and uncovered the dangers of tobacco smoke.

Researchers and scientists are now discovering ways to eliminate malaria, increase healthy behavior, reduce the toll of chronic disease, improve the health of mothers and infants, and change the biology of aging.

Every day, the Bloomberg School works to keep millions around the world safe from illness and injury by pioneering new research, deploying knowledge in the field and educating tomorrow's public health leaders. Learn more through the Bloomberg School's strategic plan (<https://www.jhsph.edu/about/strategic-plan/>).

## Faculty (<https://www.jhsph.edu/faculty/directory/list/>)

### Departments

- Biochemistry and Molecular Biology (<https://e-catalogue.jhu.edu/public-health/departments/biochemistry-molecular-biology/>)
- Biostatistics (<https://e-catalogue.jhu.edu/public-health/departments/biostatistics/>)
- Environmental Health and Engineering (<https://e-catalogue.jhu.edu/public-health/departments/environmental-health-engineering/>)
- Epidemiology (<https://e-catalogue.jhu.edu/public-health/departments/epidemiology/>)
- Health, Behavior and Society (<https://e-catalogue.jhu.edu/public-health/departments/health-behavior-society/>)
- Health Policy and Management (<https://e-catalogue.jhu.edu/public-health/departments/health-policy-management/>)
- International Health (<https://e-catalogue.jhu.edu/public-health/departments/international-health/>)
- Mental Health (<https://e-catalogue.jhu.edu/public-health/departments/mental-health/>)
- Molecular Microbiology and Immunology (<https://e-catalogue.jhu.edu/public-health/departments/molecular-microbiology-immunology/>)
- Population Family and Reproductive Health (<https://e-catalogue.jhu.edu/public-health/departments/population-family-reproductive-health/>)

### Accreditation

Every seven years, the Johns Hopkins Bloomberg School of Public Health is evaluated by the Council on Education for Public Health (CEPH), the independent accrediting agency for U.S. Schools of Public Health.

As part of this evaluation, the school constructs a self-study that comprehensively describes the school's organization, governance, resources, faculty, students, curriculum, research, and services. The self-study is reviewed by an external committee who visits the school and meets with a variety of stakeholders including faculty, students, staff, alumni, and external community representatives. This committee makes a recommendation to the CEPH Board on whether the school should continue to be accredited.

In 2015, the CEPH Board voted to renew the accreditation of the School for another seven year term, ending in 2022. This has since been extended to December 2023. The School will conduct a self-study in 2022 and a CEPH accreditation site visit will be conducted before December 2023.

Our thanks are extended to Stephen Gange, James Yager, Karen Charron and Yelizaveta Kalashnikova-Luby for their dedication and hard work during the 2015 re-accreditation process.

The final self-study and accreditation reports are available upon request by email at [academicaffairs@jhu.edu](mailto:academicaffairs@jhu.edu).

## Doctoral Programs

- Biochemistry and Molecular Biology, PhD (<https://e-catalogue.jhu.edu/public-health/departments/biochemistry-molecular-biology/biochemistry-molecular-biology-phd/>)
- Biostatistics, PhD (<https://e-catalogue.jhu.edu/public-health/departments/biostatistics/biostatistics-phd/>)
- Doctor of Public Health (DrPH) (<https://e-catalogue.jhu.edu/public-health/departments/doctor-public-health/>)
- Environmental Health, PhD (<https://e-catalogue.jhu.edu/public-health/departments/environmental-health-engineering/environmental-health-phd/>)
- Epidemiology, PhD (<https://e-catalogue.jhu.edu/public-health/departments/epidemiology/epidemiology-phd/>)
- Graduate Training Programs in Clinical Investigation, PhD (<https://e-catalogue.jhu.edu/public-health/departments/graduate-training-clinical-investigation/graduate-training-clinical-investigation-phd/>)
- Health, Behavior and Society, PhD (<https://e-catalogue.jhu.edu/public-health/departments/health-behavior-society/health-behavior-society-phd/>)
- Health Policy and Management, PhD (<https://e-catalogue.jhu.edu/public-health/departments/health-policy-management/health-policy-management-phd/>)
- International Health, PhD (<https://e-catalogue.jhu.edu/public-health/departments/international-health/international-health-phd/>)
- Mental Health, PhD (<https://e-catalogue.jhu.edu/public-health/departments/mental-health/mental-health-phd/>)
- Molecular Microbiology & Immunology, PhD (<https://e-catalogue.jhu.edu/public-health/departments/molecular-microbiology-immunology/molecular-microbiology-immunology-phd/>)
- Population, Family and Reproductive Health, PhD (<https://e-catalogue.jhu.edu/public-health/departments/population-family-reproductive-health/population-family-reproductive-health-phd/>)

## Master's Programs

- Biochemistry and Molecular Biology, MHS (<https://e-catalogue.jhu.edu/public-health/departments/biochemistry-molecular-biology/biochemistry-molecular-biology-mhs/>)

- Biochemistry and Molecular Biology, ScM (<https://e-catalogue.jhu.edu/public-health/departments/biochemistry-molecular-biology/biochemistry-molecular-biology-scm/>)
- Biostatistics, MHS (<https://e-catalogue.jhu.edu/public-health/departments/biostatistics/biostatistics-mhs/>)
- Biostatistics, ScM (<https://e-catalogue.jhu.edu/public-health/departments/biostatistics/biostatistics-scm/>)
- Environmental Health, MHS (<https://e-catalogue.jhu.edu/public-health/departments/environmental-health-engineering/environmental-health-mhs/>)
- Environmental Health, SCM (<https://e-catalogue.jhu.edu/public-health/departments/environmental-health-engineering/environmental-health-scm/>)
- Epidemiology, MHS (<https://e-catalogue.jhu.edu/public-health/departments/epidemiology/epidemiology-mhs/>)
- Epidemiology, ScM (<https://e-catalogue.jhu.edu/public-health/departments/epidemiology/epidemiology-scm/>)
- Genetic Counseling, ScM (<https://e-catalogue.jhu.edu/public-health/departments/health-behavior-society/genetic-counseling-scm/>)
- Global Health Economics, MHS (<https://e-catalogue.jhu.edu/public-health/departments/international-health/global-health-economics-mhs/>)
- Graduate Training Programs in Clinical Investigation, MHS (<https://e-catalogue.jhu.edu/public-health/departments/graduate-training-clinical-investigation/graduate-training-clinical-investigation-mhs/>)
- Graduate Training Programs in Clinical Investigation, ScM (<https://e-catalogue.jhu.edu/public-health/departments/graduate-training-clinical-investigation/graduate-training-programs-clinical-investigation-scm/>)
- Health Administration, (MHA) (<https://e-catalogue.jhu.edu/public-health/departments/health-policy-management/mha/>)
- Health Economics and Outcomes Research, MHS (<https://e-catalogue.jhu.edu/public-health/departments/health-policy-management/health-economics-outcomes-research-mhs/>)
- Health Education and Health Communication, MSPH (<https://e-catalogue.jhu.edu/public-health/departments/health-behavior-society/health-education-communication-msph/>)
- Health Finance and Management, MHS (<https://e-catalogue.jhu.edu/public-health/departments/health-policy-management/health-finance-management-mhs/>)
- Health Policy, MSPH (<https://e-catalogue.jhu.edu/public-health/departments/health-policy-management/health-policy-msph/>)
- International Health, MSPH (<https://e-catalogue.jhu.edu/public-health/departments/international-health/international-health-msph/>)
- International Health, MSPH, Human Nutrition - Dietitian (<https://e-catalogue.jhu.edu/public-health/departments/international-health/international-health-msph-human-nutrition-dietitian/>)
- Master of Applied Science in Community-Based Primary Health Care Programs in Global Health, MAS (<https://e-catalogue.jhu.edu/public-health/departments/opal/community-based-primary-health-care-programs-global-master-applied-science/>)
- Master of Applied Science in Global Health Planning and Management, MAS (<https://e-catalogue.jhu.edu/public-health/departments/opal/global-health-planning-management-master-applied-science/>)
- Master of Applied Science in Humanitarian Health, MAS (<https://e-catalogue.jhu.edu/public-health/departments/opal/humanitarian-health-master-applied-science/>)
- Master of Applied Science in Patient Safety and Healthcare Quality, MAS (<https://e-catalogue.jhu.edu/public-health/departments/opal/patient-safety-healthcare-quality-master-applied-science/>)
- Master of Applied Science in Population Health Management, MAS (<https://e-catalogue.jhu.edu/public-health/departments/opal/population-health-management-master-applied-science/>)
- Master of Applied Science in Spatial Analysis for Public Health, MAS (<https://e-catalogue.jhu.edu/public-health/departments/opal/spatial-analysis-public-health-master-applied-science/>)
- Master of Arts in Public Health Biology, MA (<https://e-catalogue.jhu.edu/public-health/departments/ma-public-health-biology/>)
- Master of Bioethics (MBE) (<https://e-catalogue.jhu.edu/public-health/departments/master-bioethics/>)
- Master of Public Health Program (MPH) (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/>)
- Mental Health, MHS (<https://e-catalogue.jhu.edu/public-health/departments/mental-health/mental-health-mhs/>)
- Molecular Microbiology & Immunology, MHS (<https://e-catalogue.jhu.edu/public-health/departments/molecular-microbiology-immunology/molecular-microbiology-immunology-mhs/>)
- Molecular Microbiology & Immunology, ScM (<https://e-catalogue.jhu.edu/public-health/departments/molecular-microbiology-immunology/molecular-microbiology-immunology-scm/>)
- Population, Family and Reproductive Health, MHS (<https://e-catalogue.jhu.edu/public-health/departments/population-family-reproductive-health/population-family-reproductive-health-mhs/>)
- Population, Family and Reproductive Health, MHS Online (<https://e-catalogue.jhu.edu/public-health/departments/population-family-reproductive-health/population-family-reproductive-health-mhs-online/>)
- Population, Family and Reproductive Health, MSPH (<https://e-catalogue.jhu.edu/public-health/departments/population-family-reproductive-health/population-family-reproductive-health-msph/>)
- Social Factors in Health, MHS (<https://e-catalogue.jhu.edu/public-health/departments/health-behavior-society/social-factors-health-mhs/>)
- Toxicology for Human Risk Assessment, MS (<https://e-catalogue.jhu.edu/public-health/departments/environmental-health-engineering/toxicology-human-risk-ms/>)

## Dual Degrees

- Bachelor's/Master's Degrees (<https://e-catalogue.jhu.edu/public-health/ba-master/>)
- DNP/MPH (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/dnp-mph/>)
- DVM/MPH (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/dvm-mph/>)
- International Health, MA/MSPH (<https://e-catalogue.jhu.edu/public-health/departments/international-health/international-health-ma-msph/>)
- JD/MPH (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/jd-mph/>)
- LLM/MPH (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/llm-mph/>)

- MBA/MPH with China Europe International Business School (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/mph-mba-ceibs/>)
- MD/MPH (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/md-mph/>)
- MD/PhD (<https://e-catalogue.jhu.edu/public-health/md-phd/>)
- MPH/MBA (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/mph-mba/>)
- MSW/MPH (<https://e-catalogue.jhu.edu/public-health/departments/master-public-health/msw-mph/>)

## Certificate Programs

- Adolescent Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/adolescent-health/>)
- Bioethics, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/bioethics/>)
- Climate and Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/climate-change-and-ph/>)
- Clinical Trials, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/clinical-trials/>)
- Community-Based Public Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/community-based-public-health/>)
- Demographic Methods, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/demographic-methods/>)
- Environmental and Occupational Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/environmental-and-occ-health/>)
- Epidemiology for Public Health Professionals, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/epi-for-ph-professionals/>)
- Evaluation: International Health Programs, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/evaluation-ih-progms/>)
- Food Systems, the Environment & Public Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/food-systems-environment-and-ph/>)
- Gender and Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/genderandhealth/>)
- Gerontology, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/gerontology/>)
- Global Digital Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/global-digital-health/>)
- Global Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/global-health/>)
- Global Health Practice, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/global-health-practice/>)
- Global Tobacco Control, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/global-tobacco-control/>)
- Health and Human Rights, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/health-and-human-rights/>)
- Health Communication, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/health-communication/>)
- Health Disparities and Health Inequality, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/health-disparities-and-health-inequality/>)
- Health Education, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/health-education/>)
- Health Finance and Management, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/health-finance-and-management/>)
- Healthcare Epidemiology and Infection Prevention and Control, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/healthcare-epi-infection-prevention-control/>)
- Humane Sciences and Toxicology Policy, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/humane-sciences-and-tox-policy/>)
- Humanitarian Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/humanitarian-health/>)
- Implementation Science and Research Practice, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/implementation-science-research-practice/>)
- Injury and Violence Prevention, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/injury-and-violence-prevention/>)
- International Healthcare Management and Leadership, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/international-healthcare-management-leadership/>)
- Leadership for Public Health and Healthcare, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/leadership-public-health-healthcare/>)
- Lesbian, Gay, Bisexual, Transgender, and Queer (LGBTQ) Public Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/lgbtq-public-health/>)
- Maternal and Child Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/maternal-and-child-health/>)
- Mental Health Policy, Economics and Services, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/mental-health-policy-econ-and-services/>)
- Pharmacoepidemiology and Drug Safety, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/pharmacoepi-and-drug-safety/>)
- Population and Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/population-and-health/>)
- Population Health Management, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/pop-health-management/>)
- Product Stewardship for Sustainability, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/product-stewardship-sustainability-certificate/>)
- Public Health Advocacy, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/public-health-advocacy/>)
- Public Health Economics, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/public-health-econ/>)
- Public Health Informatics, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/public-health-informatics/>)
- Public Health Practice, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/ph-practice/>)
- Public Health Preparedness, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/public-health-preparedness/>)
- Public Health Training Certificate for American Indian Health Professionals (<https://e-catalogue.jhu.edu/public-health/certificates/ph-training-for-american-indian-health-professionals/>)
- Public Mental Health Research, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/public-mental-health-research/>)

- Quality, Patient Safety and Outcomes Research, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/quality-patient-safety-outcomes-research/>)
- Quantitative Methods in Public Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/quant-methods-in-ph/>)
- Rigor, Reproducibility and Responsibility in Scientific Practice, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/rigorreproducibilityandresponsibilityinscientificpractice/>)
- Risk Sciences and Public Policy, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/risk-sciences-and-public-policy/>)
- Spatial Analysis for Public Health, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/spatial-analysis-for-ph/>)
- Training Certificate in Public Health (<https://e-catalogue.jhu.edu/public-health/certificates/training-in-public-health/>)
- Tropical Medicine, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/tropical-medicine/>)
- Vaccine Science and Policy, Certificate (<https://e-catalogue.jhu.edu/public-health/certificates/vaccine-science-and-policy/>)

## Courses

### PH.700.600. Basics of Bioethics. 2 Credits.

Offers an introduction to fundamental issues and approaches in bioethics, provides an overview of the history of the field, and highlights the events that led to the birth and growth of bioethics. Introduces theoretical approaches to bioethics, public health policy, research ethics, ethics of genetics and science, and clinical ethics. Provides students with opportunities to gain from the experience of some of the most respected scholars in the field of bioethics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

### PH.700.601. Foundations of Bioethics. 3 Credits.

Offers an introduction to central approaches and issues in bioethics. Includes a discussion of the history of the field and the issues that led to its birth and growth internationally. Introduces philosophical, empirical and non-empirical approaches to bioethics and core ethical issues in clinical care, public health, science and research. Provides a foundation for future study in bioethics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

### PH.700.602. Hot Topics in Bioethics. 3 Credits.

Offers a continuation of the exploration of ethical theory and its use in bioethics begun in "Introduction to Ethical Theory". Utilizes the conceptual and methodological tools from "Ethical Theory" in analyzing topics and cases currently being discussed in bioethics. Although topics will change from year to year, common themes include: discussion of legal changes concerning end of life; the ethics of new reproductive technologies; ethical challenges concerning genome-editing technologies; and global ethical challenges such as climate change and resource allocation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

### PH.700.603. Introduction to Ethical Theory. 3 Credits.

Explores the relationship between philosophical ethical theory and the practical world of bioethics. In particular, examines the classical accounts of moral obligation and virtue in the context of a variety of contemporary bioethical problems. Further presents the distinction between individual bioethics and collective bioethics, with the goal of determining how the theoretical grounding for these fields differ. The motivating questions are both methodological and substantive: First, how does theory contribute to bioethical investigations? And second, does reflection on ethical theory tell us what to do concerning particular, bioethical problems?

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

### PH.700.604. Methods in Bioethics. 3 Credits.

This course introduces some of the main methods used in bioethics research, scholarship and practice, including philosophical, legal, historical, religious, qualitative, and quantitative research methods. The strengths and weaknesses of each method in addressing bioethical questions or problems will be described. Each method will be illustrated with contemporary topical examples. In addition, one cross-cutting example of an issue addressed by all methods will be discussed.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

### PH.700.605. Critical Reasoning for Bioethics. 2 Credits.

Introduces critical thinking skills that are widely used in bioethics research and practice. Introduces argument mapping techniques and gives students practice extracting arguments from texts and mapping those arguments. Introduces students to common strengths and weaknesses of arguments and gives students practice in evaluating arguments.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

### PH.700.606. Critical Reasoning for Bioethics II. 2 Credits.

This course builds on Critical Thinking in Bioethics Scholarship 1. It builds on student training in argument mapping, identifying common strengths and weaknesses of arguments and evaluating arguments, formulating good arguments and expressing them in text, and writing critical essays.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

### PH.700.621. Ethics in Clinical Practice: Fundamentals, Problems and Approaches. 3 Credits.

Offers students a) a theoretical and practical foundation for identifying and analyzing ethical issues arising in clinical medicine and b) a survey of important current issues and problems in clinical ethics with c) a focus on case analysis and application of principles to problems. Includes interactive content and case-based materials.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.622. Bioethics, Human Rights, and Global Health. 3 Credits.**

Explores the theoretical justifications of human rights and their relationship to the contemporary human rights movement based in positive law and how human rights are operationalized. Reviews theories of human rights, evolution of human rights as law, and common ground and tensions between bioethics and legal approaches to human rights. Illustrates how bioethics and human rights concepts apply to key public health issues of our time, particularly as they relate to problems of inequality and inequity. Discuss issues including access to essential medicines, women's health, disease surveillance and response to pandemics, and health claims of immigrants, refugees and prisoners. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.625. Bioethics and the Law. 3 Credits.**

This course introduces students to the U.S. legal system and analyzes the relationship between law and bioethics. During the course, students will: (1) develop an understanding of the relevance of law for bioethics as a scholarly field and as a profession; (2) become familiar with legal structures, mechanisms, institutions, functions, and sources of law; (3) develop a critical appreciation of the complexity, flexibility, and evolution of law; and (4) develop a set of core legal skills applicable to bioethics scholarship and practice. Specific topic areas include legal duties of health care providers, end-of-life decisionmaking, ownership in body parts and informed consent, health inequities, assisted reproduction, and public health. No background in law is required to take this course. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.630. Food Ethics. 3 Credits.**

Introduces students to the primary ethical challenges in the global food system and explores ethical issues in the United States food system. Provides students with the opportunity to think critically about a variety of conflicting views about the ethics of animal agriculture, healthy eating efforts and decision-making about food. Uses theories and tools from practical ethics, political philosophy, and theories of justice to shed light on these issues. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.632. Ethics, Policy, and Emerging Biomedical Technologies. 3 Credits.**

Examines the ethics and policy issues raised by emerging biomedical technologies, including stem cell science, genetics/genomics, neuroscience, and synthetic biology. Integrates primers on the relevant science with discussion of the ethics and policy issues raised by the design, conduct and integration of the science into research, clinical care and commerce. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.641. Germs, Genes, Patients, and Populations. 3 Credits.**

Explores past, present, and future ethical, legal, social and policy issues at the intersection of infectious disease and genomics. Due to the social nature of contagion, infectious disease challenges individualistic assumptions in bioethical models with public health dilemmas requiring attention to the relationships and interactions between hosts, vectors, pathogens, and environments. Focuses on the potential ethical, legal, and social implications of emerging genomic science and technology for infectious disease control. Each class focuses on a specific type of infectious disease highlighting different notions of disease causation and mode of transmission. Explores in three related contexts: research, clinical practice and public health. Addresses the enduring bioethical concerns about social responsibility, stigma, and the challenge of balancing individual interests and protections against risks of harms to others and to public health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.642. Vulnerability in Childhood -- from Ethics to Advocacy. 3 Credits.**

Introduces students to the concept of vulnerability from an interdisciplinary lens of ethics, philosophy, medicine, and public health. Discusses how special protections for vulnerable populations can impact research and clinical care at the individual and population level. Presents examples of vulnerable populations of children (eg. children with medical complexity, children in foster care, transgender youth) in order to illustrate relevant ethical challenges faced by vulnerable populations. Introduces students to written media (eg. op-ed, letter to the editor) as a tool to advocate for vulnerable children.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.643. Understanding Addiction: Philosophy, Science, Ethics. 3 Credits.**

Employs an inter-disciplinary approach to understand the nature of addiction, drawing on philosophy, psychological science, and the perspectives of people who struggle with addiction. Provides an overview of competing models of addiction and evaluates their theoretical foundations and supporting evidence. Explores the heterogeneity of individual-level decision-making in addiction. Distinguishes different ideas of responsibility and how they intersect with addiction research and individual and societal responses to addiction, including drug criminalization. Provides students with the opportunity for in-depth reflection on conceptual and ethical issues surrounding addiction, developing analytic and argumentative skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.644. Justice Theory and Health. 3 Credits.**

Explores how to make the world a better and more just place from the standpoint of human rights & justice theory. Topics include the distinctive role of justice and structural justice in moral thought, theoretical foundations for human rights, the relationship between human rights & justice, & the related concepts of fairness, power and disadvantage. Explores these topics in the particular context of the pandemic. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.645. Fogarty Bioethics Fellows Seminar. 1 Credit.**

Provides a small, interactive setting for discussion of research ethics, ethics committees, and ethics concepts among the trainees and between trainees and affiliated faculty. Divides sessions among the following activities: reviewing and critiquing journal articles related to research ethics; trainees' individual presentations on practicum research progress; guest speakers related to research ethics cases and/or concepts; and development and presentation of original case studies by each trainee. Includes topics standard of care, justice, inducements, research ethics committees, informed consent, and gender roles in research decisions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.663. Global Food Ethics and Policy. 2 Credits.**

Examines global food systems and the policies that impact global food security, and broader aspects of sustainable development including public health, the environment and economies. Presents and critiques different food system policies that determine the availability, affordability, and nutritional quality of the food supply and influence the amount and combination of foods that people are willing and able to consume. Encourages use of critical thinking skills and debate to understand how policy and science interact with regard to food systems. Presents data, case studies and real-time challenges related to global food systems with an emphasis on the development of practical skills to analyze systems approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.665. Introduction to Ethics of U.S. and International Human Subject Research. 2 Credits.**

Provides an introduction to the ethics of human subject research and allows participants to apply what they learn to case examples from the U.S. and international settings. Presents ethical principles and a framework for analysis. Reviews key U.S. and international regulations that guide the ethical conduct of research. Through lectures and moderated discussions, addresses a variety of issues including: informed consent for research participation; ethical aspects of study design; just selection of research subjects and duties of justice when working in resource poor settings; and the role and function of institutional review boards/ethics review committees. Uses case discussions to explore research in both domestic and international settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.667. Catastrophe Ethics: How to Respond to Public Health Disasters. 2 Credits.**

Explores the ethics of responding to large, structural, public health disasters, or 'catastrophe ethics'. Investigates catastrophes with the following property: they are so large that no individual action or person can solve them; rather, they require coordination of large collectives. Focuses on climate change, the Covid-19 pandemic, and structural racism over the course of the week, asking two, overarching questions about each: what are we obligated to do in the face of such crises; and regardless of what we as a society do, what are we obligated to do in our private lives? Investigates the relationship between the structural and the individual answers.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.668. Nutrition & Food Equity and Ethics. 2 Credits.**

Introduces and explores the equity and ethical issues of the nutritional sciences field in both policy and practice. Provides students with the opportunity to think critically about a variety of conflicting views of who is marginalized and hence, nutritionally vulnerable, what is considered a healthy diet, where are the inequities in accessing a nutritious diet, and what are the implications of policies in achieving nutrition security. Borrows tools from practical ethics, political philosophy, and theories of justice to shed light on these issues that determine our common future and the way we personally and socially relate to the food we eat.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.801. Bioethics Program Thesis Seminar. 3 Credits.**

Provides students with the basic research and organizational skills needed for successful completion of the MBE thesis. Addresses skills needed to conduct a literature review, choose an appropriate topic, and construct a rigorous argument.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.820. Bioethics Program Thesis Research. 1 - 6 Credits.**

Provides an opportunity for students to actively conduct research in bioethics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.830. Postdoctoral Research Berman Institute. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.840. Bioethics Program Independent Study. 2 Credits.**

Provides students with a one-on-one independent study experience in which they independently review papers from the current literature and meet weekly with a departmental faculty member to discuss them. Offers opportunities for complementary activities which may include participating in related course discussions, seminars, conferences, etc. Culminates with the completion of a written document, typically a substantial paper.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.895. Bioethics Program Practicum. 3 Credits.**

The MBE Practicum is a mentored, bioethics experience, which involves either field work with a practicing bioethicist, or applying one's bioethical training to a real-world environment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.896. Clinical Ethics Practicum I. 1 Credit.**

Introduces common ethical challenges in patient care that arise in different clinical settings, and the systems in place to address them. Explores the perspectives of patients, families, trainees and practicing clinicians on complex ethical dilemmas in clinical care. Presents different methods of analyzing ethical dilemmas in the care of patients, and different styles of communicating about them with patients.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.700.897. Clinical Ethics Practicum II. 2 Credits.**

Builds on the foundation offered in Clinical Practicum. Pairs students with faculty and affiliated mentors who have clinical ethics supervisory responsibility in their respective institutions. Exposes students to real-time ethical dilemmas and how they are addressed and resolved with an emphasis on the development of practical skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.600. Biochemistry I: Protein Structure and Enzyme Catalysis. 3 Credits.**

Covers the physical and chemical properties of the amino acids, the various elements of protein structure, and the cooperative behavior of multimeric proteins. Explore the kinetics of enzyme-catalyzed reactions, and the active site mechanisms of representative classes of enzymes. Describes the molecular basis of action for selected enzyme inhibitor-based drugs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.601. Biochemistry II: Major Metabolic Pathways. 5 Credits.**

Examines the major metabolic pathways that are central to eukaryotic cell growth and maintenance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.602. Concepts of Molecular Biology. 4 Credits.**

Discusses synthesis of macromolecules, the genetic code, regulation of gene expression and gene function, and recent advances in biotechnology.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.603. Molecular Biology of Pandemic Influenza. 3 Credits.**

Explores how molecular biology is used to understand how specific respiratory viruses create pandemics. Begins with an analysis of the virus that caused the great public health catastrophe, the 1918 Spanish Influenza Pandemic and then examines more recent pandemic viruses, including SARS-CoV-2. Focuses on the use of molecular techniques in defining why specific mutations increase the virulence and pandemic potential of a virus, the pathological response of a host's immune system to a virulent virus and pathological interactions between two different respiratory pathogens. Emphasizes how molecular, pathophysiological and immunological studies may be used to predict a virus' pandemic potential. Reviews how governmental responses affect the spread of a disease with pandemic potential, including the response to SARS-CoV-2. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.604. Introduction to Molecular Biology. 3 Credits.**

Molecular biology deals with how nucleic acids and proteins interact within the cell to promote proper growth, division, and development. This course will provide an overview of these processes, including DNA replication, repair, transcription, splicing, protein synthesis, and gene regulation in different organisms. We will also explore many biological tools that have been developed from molecular biology processes, such as DNA sequencing and gene editing (CRISPR-Cas9).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.605. Genome Integrity. 3 Credits.**

Provides students with a broad base in fundamental principles of genome integrity. Examines connections between genome integrity, organism fitness, and human diseases and disorders. Addresses 1) Homologous recombination, (2) Non-homologous end joining, (3) Mismatch repair, (4) Transposable elements, (5) Topoisomerases, (6) Structural maintenance of chromosomes and (7) Chromosome segregation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.606. Cellular Stress in Physiology and Disease. 3 Credits.**

Discuss molecular mechanisms through which eukaryotes maintain cellular homeostasis in response to stress. Stress response pathways are examined at the DNA, RNA, and protein levels; topics include stress and transcription, RNA processing, and protein quality control. Organelle-specific stress response, such as ER stress and mitochondrion stress responses, are also discussed. Additionally, molecular mechanisms of cellular responses to environmental stimuli, such as heat, hypoxic, oxidative, and starvation stressors, are examined.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.607. Premedical Seminars: Planning and Preparing for Medical School Application. 1 Credit.**

Helps students prepare to apply to medical school. Covers specific topics to address the complex premedical journey, including planning the months/years leading up to the application, reviewing the application process, addressing the medical schools' expectations, medical school selection, writing the personal statement, requesting letters of evaluation, interviewing and more.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.608. Gene Editing, Therapy and Manipulation. 3 Credits.**

Introduces genes and genetics, and their role in the genetic basis of human health and disease. Explores the current status of gene editing and gene therapy technologies both in the context of therapeutics and as tools in the life sciences. A large focus of the class centers on the impact of CRISPR on these technologies. Discuss the ethical implications of these technologies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.609. Aspiring Physicians Enacting Change through Community Engagement: Introduction. 1 Credit.**

Offers a unique opportunity to immerse yourself in an environment with multiple opportunities to promote health, science, and education in Baltimore. Covers a wide range of topics through seminars in close collaboration with Baltimore community organizations. Supports students in honing their core competencies that medical schools are looking for, including the following categories: (1) interpersonal, (2) intrapersonal, (3) thinking and reasoning, and (4) science. Supports premedical students but is designed for any student interested in promoting health, science, and education. Includes a seminar and an optional practicum component.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.610. Biochemistry I: Protein Structure and Enzyme Catalysis. 3 Credits.**

Covers the physical and chemical properties of the amino acids, the various elements of protein structure, and the cooperative behavior of multimeric proteins. Explore the kinetics of enzyme-catalyzed reactions, and the active site mechanisms of representative classes of enzymes. Describes the molecular basis of action for selected enzyme inhibitor-based drugs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.611. Aspiring Physicians Enacting Change through Community Engagement. 1 Credit.**

Offers a unique opportunity to immerse yourself in an environment with multiple opportunities to promote health, science, and education in Baltimore. Covers a wide range of topics through seminars in close collaboration with Baltimore community organizations. Supports students in honing their core competencies that medical schools are looking for, including the following categories: (1) interpersonal, (2) intrapersonal, (3) thinking and reasoning, and (4) science. Supports premedical students but is designed for any student interested in promoting health, science, and education. Includes a seminar and an optional practicum component.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.613. Nucleic Acid Chemistry. 3 Credits.**

Discusses nucleic acid structure, and also describes techniques for manipulating and analyzing nucleic acids, including gel electrophoresis, PCR, and DNA sequencing. Reviews methods used to synthesize nucleosides, nucleotides and oligonucleotides, and chemical reactions that lead to modifications of nucleic acids. Covers topics including DNA-drug interactions, antisense and antigene oligonucleotides, ribozymes and deoxyribozymes, DNA cages, DNA origami, DNA nanostructures, and DNA nanodevices.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.616. Advanced Concepts in Biochemistry, Cell and Molecular Biology. 1 Credit.**

Provides a platform for students, postdoctoral fellows and faculty to present and discuss scientific papers from the current literature that deal with mechanisms underlying disease along with accompanying methods. Explores additional aspects that are relevant to conducting and conveying laboratory research, including study design and statistical analysis, manuscript and grant review, policy and practice, and risk assessment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.620. Fundamentals of Reproductive Biology. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.622. Molecular and Cellular Mechanisms of Reproduction. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.624. Cancer Biology. 3 Credits.**

Explores some of the key molecular and cellular aspects of the biology of cancer. Includes topics: cancer genetics, DNA damage, and cell signaling pathways including RAS and Epidermal Growth Factor Receptors. Covers a select set of current research areas that aim to further the understanding and treatment of cancer. Emphasizes how these molecular mechanisms are regulated, contribute to oncogenesis, and can be targeted therapeutically.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.625. Introduction to Cancer Biology. 3 Credits.**

This Cancer Biology course will educate students on the principles of cancer biology, including the various genetic and molecular changes normal cells undergo during transformation into malignant cancer cells. To this end, this course will help students to gain an understanding of cellular and molecular mechanisms that go awry, thereby providing optimal conditions for cancer. We will explore the role of mutations in cancer cells, and how they lead to the dysregulation of essential biological properties like programmed cell death, cell proliferation and differentiation. We will also focus on the interface of cancer and medicine. Classical treatment methods will be compared with newer treatment strategies like targeted therapies. We will also explore the challenges associated with diagnosing cancers, as well as ways in which to prevent cancer.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.626. Principles of Cell Biology. 3 Credits.**

Provides students with a basic understanding of the structure and functions of eukaryotic cells. Introduces students to new facts and vocabulary pertinent to cell biology, as well as experimental methods used by scientists to define and understand cell structure and functions. Highlights relationships between defects in basic cell functions and human diseases. Classroom time is divided into 8 formal lecture sessions, 3 less formal review/discussion/problem solving sessions, and 3 closed-book, in-class exams.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.627. Stem Cells and the Biology of Aging and Disease. 3 Credits.**

Exposes students to cutting-edge topics in stem cell biology through a combination of lectures and discussions based on primary literature. Topics include basic stem cell biology in an invertebrate and vertebrate systems, including germline, neural, and epithelial stem cells; the regulation of stem cells by physiology and aging; the connection between stem cells, telomerase, and cancer; and ethical issues pertaining to potential therapeutic applications of stem cells.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.630. Fellowship Grant Writing for Students and Postdoctoral Fellows in Biomedical Research. 2 Credits.**

Provides students and postdoc trainees with an overview of the entire fellowship application process, including how to write an effective research proposal and specific aims, how to prepare a NIH style biosketch and how to formulate an effective personal biography. Discusses the peer review process, how fellowship applications are judged and scored. The students and postdocs will gather to form an in-class study section where trainees have the opportunity to review grants in the style of NIH study sections.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.120.644. BMB SCM Laboratory Rotations. 4 - 8 Credits.**

All departmental ScM students spend one to three terms, respectively, participating in the research activities of departmental faculty's laboratories. Students select appropriate rotations in consultation with their academic advisor and the ScM Program Director. The objective is to provide the opportunity for interaction with several faculty members, so that a thesis laboratory may be identified. The course aims to broaden a student's knowledge of laboratory techniques and skills, expose the student to a variety of research areas and to develop the ability to carry out a research project.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.820. Thesis Research Biochemistry. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.821. BMB MHS Laboratory Research. 3 - 8 Credits.**

Acquaints MHS students with basic research in the biomedical sciences through work under the guidance of a faculty member in the Department of Biochemistry and Molecular Biology, and provides an introduction to hands-on experience in laboratory research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.822. Seminars in Research in Biochemistry and Molecular Biology. 1 Credit.**

Integrates academic training with current research in biochemistry and molecular biology and the implications of this research in addressing major public health concerns. Weekly presentations are held by researchers from JHU and other biomedical research institutions on the results of state of the art investigations conducted in their laboratories, emphasizing experimental design and methodology.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.825. Advanced MHS Student Research. 5 Credits.**

Builds upon existing basic research skills in biomedical sciences and emphasizes more independent hands-on research working under the guidance of a faculty member in the Department of Biochemistry and Molecular Biology or affiliated principle investigator. Provides further experience for future research pursuits at JHU and beyond.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.829. Summer Thesis Research. 12 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.830. Postdoctoral Research Biochemistry. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.840. Special Studies and Research Biochemistry. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.850. Biochemical Techniques. 6 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.852. Core Research Literature. 1 - 2 Credits.**

Provides a complement to the BCMB core curriculum. Student reads research papers relating to a core lecture topic. Discussions are led by a student while a faculty member from Biochemistry or MMI act as facilitator. Helps students to develop skills in reading the primary literature and provides an introduction to the experimental paradigms underlying the concepts presented in the core course.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.853. Summer Biochemical Techniques. 6 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.860. Thesis Preparation. 2 Credits.**

Students engage in one-on-one independent study with a departmental faculty member who will be the student's thesis supervisor. Prepares students for completing the MHS using independent reading of papers from current literature, combined with meetings with the thesis supervisor to discuss the reading and how to recognize this research to develop the MHS thesis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.861. Special Topics in Biochemistry: X-Ray Crystallography-A Hands on Workshop. 3 Credits.**

Enables students to carry out all key steps to successfully solve and refine a protein crystal structure. Theoretical aspects are followed by application to various problem sets. Topics include tricks for data collection, data processing and collection. Touches upon all standard techniques such as molecular replacement, SAD phasing and MAD phasing, both in theory and then applied in practical context with previously collected data. Identification of unknown ligand densities and model refinement lead to the last part of preparing publication quality figures using PyMol.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.870. Thesis in Biochemistry and Molecular Biology. 5 Credits.**

In consultation with a faculty mentor from the Department of Biochemistry and Molecular Biology, students prepare a critical, scholarly paper on an assigned subject.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.120.872. Special Studies-Current Topics in BMB. 1 Credit.**

Introduces students to the faculty and to current research being conducted in their respective laboratories within the Department of Biochemistry and Molecular Biology and by other training faculty of the Cancer Biology Training Program. Informs doctoral students about research opportunities in each laboratory and allows them to make informed decisions about their choices for laboratory rotations during their first year. Similarly, informs current MHS students who are considering the ScM Program during the second year about potential research opportunities in laboratories of BMB faculty. Provides time for faculty presentation, student questions and further discussion.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.604. Introduction to R for Public Health Researchers. 2 Credits.**

Provides “hands-on” training for analyzing data in the R statistical software package, a popular open-source solution for data analysis and visualization. Covers data input/output, data management and manipulation, and constructing useful and informative graphics. Geared towards individuals who have never used R or have a little familiarity. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.605. Introduction to the SAS Statistical Package. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.606. Survival Analysis. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.607. Multilevel Models. 2 Credits.**

Gives an overview of “multilevel statistical models” and their application in public health and biomedical research. Multilevel models are regression models in which the predictor and outcome variables can occur at multiple levels of aggregation: for example, at the personal, family, neighborhood, community and regional levels. They are used to ask questions about the influence of factors at different levels and about their interactions. Multilevel models also account for clustering of outcomes and measurement error in the predictor variables. Students focus on the main ideas and on examples of multi-level models from public health research. Students learn to formulate their substantive questions in terms of a multilevel model, to fit multilevel models using Stata during laboratory sessions and to interpret the results.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.608. Analysis of Longitudinal Data. 2 Credits.**

Covers statistical models for drawing scientific inferences from longitudinal data. Topics include longitudinal study design; exploring longitudinal data; linear and generalized linear regression models for correlated data, including marginal, random effects, and transition models; and handling missing data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.609. Improving Precision and Power in Randomized Trials by Leveraging Baseline Variables. 0.5 Credits.**

Explains what covariate adjustment is, how it works, when it may be useful to apply, and how to implement it (in a preplanned way that is robust to model misspecification) for a variety of scenarios. Demonstrates the impact of covariate adjustment using trial data sets in multiple disease areas. Provides step-by-step, clear documentation of how to apply the software in each setting. Applies the software tools on the different datasets in small groups.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.611. Statistical Reasoning in Public Health I. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.612. Statistical Reasoning in Public Health II. 3 Credits.**

Provides a broad overview of biostatistical methods and concepts used in the public health sciences, emphasizing interpretation and concepts rather than calculations or mathematical details. Develops ability to read the scientific literature to critically evaluate study designs and methods of data analysis. Introduces basic concepts of statistical inference, including hypothesis testing, p-values, and confidence intervals. Includes topics: comparisons of means and proportions; the normal distribution; regression and correlation; confounding; concepts of study design, including randomization, sample size, and power considerations; logistic regression; and an overview of some methods in survival analysis. Draws examples of the use and abuse of statistical methods from the current biomedical literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.613. Data Analysis Workshop I. 2 Credits.**

Emphasizes concepts and illustration of concepts applying a variety of analytic techniques to public health datasets in a computer laboratory using Stata statistical software. Learns basic methods of data organization/management and simple methods for data exploration, data editing, and graphical and tabular displays. Includes additional topics: comparison of means and proportions, simple linear regression and correlation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.614. Data Analysis Workshop II. 2 Credits.**

Emphasizes concepts and illustration of concepts applying a variety of analytic techniques to public health datasets in a computer laboratory using Stata statistical software. Masters advanced methods of data analysis including analysis of variance, analysis of covariance, nonparametric methods for comparing groups, multiple linear regression, logistic regression, log-linear regression, and survival analysis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.615. Statistics for Laboratory Scientists I. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.616. Statistics for Laboratory Scientists II. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.620. Advanced Data Analysis Workshop. 2 Credits.**

Covers methods for the organization, management, exploration, and statistical inference from data derived from multivariable regression models, including linear, logistic, Poisson and Cox regression models. Students apply these concepts to two or three public health data sets in a computer laboratory setting using STATA statistical software. Topics covered include generalized linear models, product-limit (Kaplan-Meier) estimation, Cox proportional hazards model.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.621. Statistical Methods in Public Health I. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.622. Statistical Methods in Public Health II. 4 Credits.**

Presents use of confidence intervals and hypothesis tests to draw scientific statistical inferences from public health data. Introduces generalized linear models, including linear regression and logistic regression models. Develops unadjusted analyses and analyses adjusted for possible confounders. Outlines methods for model building, fitting and checking assumptions. Focuses on the accurate statement of the scientific question, appropriate choice of generalized linear model, and correct interpretation of the estimated regression coefficients and confidence intervals to address the question.

**Corequisite(s):** Must also register for lab, PH.140.922.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.623. Statistical Methods in Public Health III. 4 Credits.**

**Corequisite(s):** Must also enroll for PH.140.923

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.624. Statistical Methods in Public Health IV. 4 Credits.**

Builds on the concepts, methods, and computing (Stata, R) covered in Statistical Methods 1,2, and 3. Focuses on investigating scientific questions via data analysis and clearly communicating the methodology and results. Uses examples from the contemporary and public health literature and allows students the opportunity to work with their own data over the duration of the class.

**Corequisite(s):** Must also enrol for a lab, PH.140.924.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.628. Data Science for Public Health I. 4 Credits.**

Presents the basics of data science using the R programming language. Teaches basic unix, version control, graphing and plotting techniques, creating interactive graphics, web app development, reproducible research tools and practices, resampling based statistics and artificial intelligence via deep learning, focusing on practical implementation specifically tied to computational tools and core fundamentals necessary for practical implementation. Culminates with a web app development project chosen by student (who will come out of this course sequence well-equipped to tackle many of the data science problems that they will see in their research).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.629. Data Science for Public Health II. 4 Credits.**

Presents the basics of data science using the R programming language. Teaches basic unix, version control, graphing and plotting techniques, creating interactive graphics, web app development, reproducible research tools and practices, resampling based statistics and artificial intelligence via deep learning, focusing on practical implementation specifically tied to computational tools and core fundamentals necessary for practical implementation. Culminates with a web app development project chosen by student (who will come out of this course sequence well-equipped to tackle many of the data science problems that they will see in their research).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.630. Introduction to Data Management. 3 Credits.**

Introduces students to the principles and skills required to collect and manage research data in a public health setting. Focuses on tools for collecting data that range from spreadsheets to web-based systems, database fundamentals, data collection form design, data entry screen design, proper coding of data, strategies for quality control and data cleaning, protection and sharing of data, and integrating data from external sources. Includes practical and hands-on exercises that require some entry-level computer programming.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.631. The SAS Statistical Package: A Survey for Statisticians. 3 Credits.**

Introduces students to the SAS statistical package using the SAS Studio interface. Using examples of public health data students learn to write programs to summarize data and to perform statistical analyses. Using the interactive matrix language introduces computation within a matrix environment and the development of modular programming techniques. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.632. Introduction to the SAS Statistical Package. 3 Credits.**

Introduces students with no experience with SAS. Familiarizes them with the skills needed for effective data management and data analysis. Covers performing exploratory analysis on data including the creation of tables and graphs. Proceeds next to creating new datasets and altering old datasets. Covers building regression models (linear, logistic, and Poisson), interpreting results and criticizing such models, and attempting to improve them.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.633. Biostatistics in Medical Product Regulation. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.634. Non-Inferiority and Equivalence Clinical Trials. 2 Credits.**

Presents the important differences between superiority trials and those intended to show either equivalent effect, or to show that one therapy is no worse than another (but might be better). Explores the problems of setting equivalence margins, preservation of some proportion of active control effect, and emphasizes the use of confidence intervals to interpret the results of studies. Discusses special issues of quality of the trial conduct, assay sensitivity, historical evidence of treatment effects and assumptions of constancy of treatment effects over time. Compares sample size requirements between superiority trials, equivalence trials and non-inferiority trials. Discusses the use of different analysis populations (ITT and per-protocol) and issues of changing conclusions between non-inferiority and superiority. Discusses the regulatory aspects of trial design and interpretation, and reviews existing regulatory guidance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.636. Scalable Computational Bioinformatics. 4 Credits.**

Introduces the computational hardware and programming model upon which analysis tools and languages are based. Introduces and uses three main languages (Python, Perl, SQL) and their underlying rationale to develop computer science concepts such as data structures, algorithms, computational complexity, regular expressions, and knowledge representation. Draws examples and exercises from high-throughput sequence analysis, proteomics and modeling of biological systems. Reinforces key concepts through lectures with live computer demonstrations, weekly readings, and programming exercises. Has students working with a High Performance Compute Cluster and the Amazon cloud.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.638. Analysis of Biological Sequences. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.640. Statistical Methods for Sample Surveys. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.641. Survival Analysis. 3 Credits.**

Introduces fundamental concepts, theory and methods in survival analysis. Emphasizes statistical tools and model interpretations which are useful in medical follow-up studies and in general time-to-event studies. Includes hazard function, survival function, different types of censoring, Kaplan-Meier estimate, log-rank test and its generalization. For parametric inference, includes likelihood estimation and the exponential, Weibull, log-logistic and other relevant distributions. Discusses in detail statistical methods and theory for the proportional hazard models (Cox model), with extensions to time-dependent covariates. Includes clinical and epidemiological examples (through class presentations). Introduces basic concepts and methods for competing risks data, including the cause-specific hazard models and other models based of cumulative incidence function (CIF). Illustrates various statistical procedures (through homework assignments).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.642. Design of Clinical Experiments. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.643. Practice of Statistical Consulting. 3 Credits.**

Emphasizes the understanding of, and practical experience in, the spectrum of non-technical aspects of statistical consulting, the art and science of applying statistics to real-world problems. Discusses the elements of a consultation, from defining the research problem to providing final products to the client, interpersonal communication, reproducible work, ethics and consulting in different environments. Develops students' consulting skills via lectures, role-play opportunities, consulting sessions, and actual research projects. Acquaints students with practical consulting experience through shadowing and leading the Biostatistics Center's clinics on Friday mornings. Provides opportunities to work directly with Johns Hopkins researchers to elicit information about the research question, and to provide a presentation and final report to researchers.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.644. Statistical Machine Learning: Methods, Theory, and Applications. 4 Credits.**

Introduces popular Machine Learning methods and emphasizes their practical usage for data analysis. Acquaints students with methods to evaluate statistical machine learning models defined in terms of algorithms or function approximations using basic coverage of their statistical and computational theoretical underpinnings. Topics covered include: regression and prediction, tree-based methods, overview of supervised learning theory, support vector machines, kernel methods, ensemble methods, clustering, visualization of large datasets and graphical models. Examples of method applications covered include cancer prognosis from microarray data, visualization and analysis of social network data, and graphical models for clinical decision-making. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.646. Essentials of Probability and Statistical Inference I: Probability. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.647. Essentials of Probability and Statistical Inference II: Statistical Inference. 4 Credits.**

Introduces students to the theory of statistical inference. Includes the frequentist, Bayesian and likelihood approaches to statistical inference including estimation, testing hypotheses and interval estimation. Emphasizes rigorous analysis (including proofs), as well as interpretation of results and simulation for illustration.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.648. Essentials of Probability and Statistical Inference III: Theory of Modern Statistical Methods. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.649. Essentials of Probability and Statistical Inference IV. 4 Credits.**

Builds on the concepts discussed in 140.646, 140.647, 140.648 to provide the theory for modern statistical methods such as linear models, generalized linear models, random effects models, and marginal regression models. Also discusses the theory of causal inference. De-emphasizes proofs and replaces them with extended discussion of interpretation of results and simulation for illustration.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.651. Methods in Biostatistics I. 4 Credits.**

Presents fundamental concepts in applied probability, exploratory data analysis, and statistical inference, focusing on probability and analysis of one and two samples. Includes topics discrete and continuous probability models; expectation and variance; central limit theorem; inference, including hypothesis testing and confidence interval for means, proportions, and counts; maximum likelihood estimation; sample size determinations; elementary non-parametric methods; graphical displays; and data transformations. Introduces R and concepts are presented both from a theoretical, practical and computational perspective.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.652. Methods in Biostatistics II. 4 Credits.**

Presents fundamental concepts in applied probability, exploratory data analysis, and statistical inference, focusing on probability and analysis of one and two samples. Includes discrete and continuous probability models; expectation and variance; central limit theorem; inference, including hypothesis testing and confidence for means, proportions, and counts; maximum likelihood estimation; sample size determinations; elementary non-parametric methods; graphical displays; and data transformations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.653. Methods in Biostatistics III. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.654. Methods in Biostatistics IV. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.655. Analysis of Multilevel and Longitudinal Data. 4 Credits.**

Explores statistical models for drawing scientific inferences from multilevel and longitudinal public health data. Includes topics: multilevel causes in public health, longitudinal as a leading example of multilevel data, study design, exploring multilevel and longitudinal data; linear and generalized linear regression models for correlated data including marginal, random effects, and transition models; and handling missing data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.656. Multilevel and Longitudinal Models - Data Analysis Workshop. 4 Credits.**

Explores conceptual and formal approaches to the design, analysis, and interpretation of studies with a "multilevel" or "hierarchical" (clustered) data structure (e.g., individuals in families in communities). Develops skills to implement and interpret random effects, variance component models that reflect the multi-level structure for both predictor and outcome variables. Includes topics: building hierarchies; interpretation of population-average and level-specific summaries; estimation and inference based on variance components; shrinkage estimation; discussion of special topics including centering, use of contextual variables, ecological bias, sample size and missing data within multilevel models. Supports STATA and R software.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.658. Statistics for Psychosocial Research: Structural Models. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.664. Causal Inference in Medicine and Public Health I. 4 Credits.**

Presents an overview of methods for estimating causal effects: how to answer the question of "What is the effect of A on B?" Includes discussion of randomized designs, but with more emphasis on alternative designs for when randomization is infeasible: matching methods, propensity scores, regression discontinuity, and instrumental variables. Methods are motivated by examples from the health sciences, particularly mental health and community or school-level interventions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.665. Causal Inference in Medicine and Public Health II. 3 Credits.**

Presents principles, methods, and applications in drawing cause-effect inferences with a focus on the health sciences. Building on the basis of 140.664, emphasizes statistical theory and design and addresses complications and extensions, aiming at cultivating students' research skills in this area. Includes: detailed role of design for causal inference; role of models and likelihood perspective for ignorable treatment assignment; estimation of noncollapsible causal effects; statistical theory of propensity scores; use of propensity scores for estimating effect modification and for comparing multiple treatments while addressing regression to the mean; theory and methods of evaluating longitudinal treatments, including the role of sequentially ignorable designs and propensity scores; likelihood theory for instrumental variables and principal stratification designs and methods to deal with treatment noncompliance, direct and indirect effects, and censoring by death.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.673. INTRODUCTION TO STATISTICAL THEORY I. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.686. Advanced Methods for Statistical Genetics and Genomics. 3 Credits.**

Covers statistical methods and theory underlying advanced analysis of genetic and genomic data to address mechanistic hypotheses and to build models for prediction. Topics include methods for complex association testing, inference on genetic architecture using mixed model techniques, methods for understanding causal mechanisms using Mendelian randomization, and integrative genomic analysis and strategies for clinical translation using risk prediction models. Requires making presentations and critiquing published studies that have used advanced statistical methods to make new scientific observations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.688. Statistics For Genomics. 3 Credits.**

Covers the basics of R software and the key capabilities of the Bioconductor project (a widely used open source and open development software project for the analysis and comprehension of data arising from high-throughput experimentation in genomics and molecular biology and rooted in the open source statistical computing environment R), including importation and preprocessing of high-throughput data from microarrays and other platforms. Also introduces statistical concepts and tools necessary to interpret and critically evaluate the bioinformatics and computational biology literature. Includes an overview of preprocessing and normalization, statistical inference, multiple comparison corrections, Bayesian Inference in the context of multiple comparisons, clustering, and classification/machine learning.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.689. Adaptive Enrichment Designs for Confirmatory Randomized Trials: Methods and Software. 1 Credit.**

Provides an overview of the strengths and limitations of randomized trial designs that adaptively change enrollment criteria during a trial (adaptive enrichment designs) and have the potential to provide improved information about which subpopulations benefit from new treatments. Explains recent advances in statistical methods for these designs, and presents adaptive design software planning tools. Discusses FDA guidance documents on adaptive designs. Examines methods for improving precision of estimators of the average treatment effect, by leveraging information in baseline variables; these methods can be used in adaptive designs as well as standard (non-adaptive) trial designs. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.698. Spatial Analysis III: Spatial Statistics. 4 Credits.**

Introduces statistical techniques used to model, analyze, and interpret public health related spatial data. Analysis of spatially dependent data is cast into a general framework based on regression methodology. Topics covered include the geostatistical techniques of kriging and variogram analysis and point process methods for spatial case control and area-level analysis. Although the focus is on statistical modeling, students will also cover topics related to clustering and cluster detection of disease events. Although helpful, knowledge of specific GIS software is not required. Instruction in the public domain statistical package R/RStudio, (to be used for analysis), is provided. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.699. Spatial Analysis IV: Spatial Design and Application. 3 Credits.**

Expands students' abilities to design, conduct and report the results of a complete public health related spatial analysis. Focuses on further developing and integrating components of the spatial science paradigm, Spatial Data, GIS and Spatial Statistics. Introduces relevant topics in GIS, spatial data technologies and spatial statistics not previously covered in Spatial Analysis I-III. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.711. Advanced Data Science I. 3 Credits.**

In this course, we will focus on hands-on data analyses with a main objective of solving real-world problems. We will teach the necessary skills to gather, manage and analyze data using the R programming language. We will cover an introduction to data wrangling, exploratory data analysis, statistical inference and modeling, machine learning, and high-dimensional data analysis. We will also learn the necessary skills to develop data products including reproducible reports that can be used to effectively communicate results from data analyses. Students will train to become data scientists capable of both applied data analysis and critical evaluation of the next generation next generation of statistical methods. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.712. Advanced Data Science II. 3 Credits.**

Builds on Advanced Data Science I by introducing the idea of data products and encouraging students to build products based on their data analyses. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.721. Probability Theory I. 3 Credits.**

Presents the first part of the classical results of probability theory: measure spaces, LP spaces, probability measures, distributions, random variables, integration, and convergence theorems. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.722. Probability Theory II. 3 Credits.**

Presents the first part of the classical results of probability theory: independence, types of convergence, laws of large numbers, Borel-Cantelli lemmas, Kolmogorov's zero-one law, random series and rates of convergence. Also discusses characteristic functions and weak convergence. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.723. Probability Theory III. 3 Credits.**

Presents the second part of the classical results of probability theory: central limit theorems, Poisson convergence, coupling, Stein-Chen method, densities, derivatives and conditional expectations. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.724. Probability Theory IV. 3 Credits.**

Covers basic stochastic processes including martingales and Markov chains, followed by consideration of Markov Chain Monte Carlo (MCMC) methods. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.731. Statistical Theory I. 4 Credits.**

Introduces probability and inference, including random variables; probability distributions; transformations and sums of random variables; expectations, variances, and moments; properties of random samples; and hypothesis testing. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.732. Statistical Theory II. 4 Credits.**

Introduces modern statistical theory; sets principles of inference based on decision theory and likelihood (evidence) theory; derives the likelihood function based on design and model assumptions; derives the complete class theorem between Bayes and admissible estimators; derives minimal sufficient statistics as a necessary and sufficient reduction of data for accurate inference in parametric models; derives the minimal sufficient statistics in exponential families; introduces maximum likelihood and unbiased estimators; defines information and derives the Cramer-Rao variance bounds in parametric models; introduces empirical Bayes (shrinkage) estimators and compares to maximum likelihood in small-sample problems. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.733. Statistical Theory III. 4 Credits.**

Derives the large sample distribution of the maximum likelihood estimator under standard regularity conditions; develops the delta method and the large sample distribution of functions of consistent estimators, including moment estimators; introduces the theory of estimation in semiparametric regression models based on increasing approximation of parametric models; develops likelihood intervals and confidence intervals with exact or approximate properties; develops hypothesis tests through decision theory. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.734. Statistical Theory IV. 4 Credits.**

Focuses on the asymptotic behavior of estimators, tests, and confidence interval procedures. Specific topics include: M-estimators; consistency and asymptotic normality of estimators; influence functions; large-sample tests and confidence regions; nonparametric bootstrap. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.741. Advanced Survival Analysis. 3 Credits.**

Introduces statistical models and methods useful for analyzing univariate and multivariate failure time data. Extends Survival Analysis I to topics on length-bias and prevalent samplings, martingale theory, multivariate survival data, time-dependent ROC analysis, and recurrent event processes. Emphasizes nonparametric and semiparametric approaches for modeling, estimation and inferential results. Clinical and epidemiological examples included in class presentation illustrate statistical procedures.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.742. Risk Prediction and Precision Medicine. 3 Credits.**

Covers various topics for evaluating the performance of biomarkers to predict risk of clinical or disease outcome, specifically including: a. relative, absolute and competing risks for binary and time-to-disease outcomes; b. ROC/AUC biomarker inference with binary outcome; c. ROC/AUC biomarker inference with time-to-event outcome, with censoring and truncation; d. statistical methods and inference for case-control study designs; e. a few topics on precision medicine.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.751. Advanced Methods in Biostatistics I. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.752. Advanced Methods in Biostatistics II. 4 Credits.**

Surveys basic statistical inference, estimates, tests and confidence intervals, and exploratory data analysis. Reviews probability distributions and likelihoods, independence and exchangeability, and modes of inference and inferential goals including minimizing MSE. Reviews linear algebra, develops the least squares approach to linear models through projections, and discusses connections with maximum likelihood. Covers linear, least squares regression, transforms, diagnostics, residual analysis, leverage and influence, model selection for estimation and predictive goals, departures from assumptions, efficiency and robustness, large sample theory, linear estimability, the Gauss Markov theorem, distribution theory under normality assumptions, and testing a linear hypothesis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.753. Advanced Methods in Biostatistics III. 4 Credits.**

Introduces generalized linear model (GLM). Foundational topics include: contingency tables, logistic regression for binary and binomial data, models for polytomous data, Poisson log-linear model for count data, and GLM for exponential family. Introduces methods for model fitting, diagnosis, interpretation and inference and expands on those topics with techniques for handling overdispersion, quasi-likelihood and conditional likelihood. Introduces the role of quantitative methods and sciences in public health, including how to use them to describe and assess population health, and the critical importance of evidence in advancing public health knowledge.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.754. Advanced Methods in Biostatistics IV. 4 Credits.**

Extends topics in 140.753 to encompass generalized linear mixed effects models. Introduces expectation-maximization and Markov Chain Monte Carlo. Introduces functional data analysis. Foundational topics include: linear mixed model, generalized linear mixed model, EM, MCMC, models for longitudinal data, and functional data analysis. Emphasizes both rigorous methodological development and practical data analytic strategies. Discusses the role of quantitative methods and sciences in public health, including how to use them to describe and assess population health, and the critical importance of evidence in advancing public health knowledge.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.762. Bayesian Methods I. 3 Credits.**

Illustrates current approaches to Bayesian modeling and computation in statistics. Describes simple familiar models, such as those based on normal and binomial distributions, to illustrate concepts such as conjugate and noninformative prior distributions. Discusses aspects of modern Bayesian computational methods, including Markov Chain Monte Carlo methods (Gibbs' sampler) and their implementation and monitoring. Bayesian Methods I is the first term of a two term sequence. The second term offering, Bayesian Methods II (140.763), develops models of increasing complexity, including linear regression, generalized linear mixed effects, and hierarchical models.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.763. Bayesian Methods II. 3 Credits.**

Builds upon the foundation laid in Bayesian Methods I (140.762). Discusses further current approaches to Bayesian modeling and computation in statistics. Describes and develops models of increasing complexity, including linear regression, generalized linear mixed effects, and hierarchical models. Acquaints students to advanced tools for fitting Bayesian models, including non-conjugate prior models. Includes examples of real statistical analyses.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.772. Advanced Statistical Theory. 4 Credits.**

Examines statistics as a discipline along the path towards making decisions. First examines the justification of statistics from axioms on informed preferences and its close connection to Bayesian theory, and then examines the role of standardizing intermediate steps, through various additional restrictions on estimation, and studies the properties of the resulting methods.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.773. Foundations of Statistical Inference. 4 Credits.**

Investigates the foundations of statistics as applied to assessing the evidence provided by an observed set of data. Topics include: law of likelihood, the likelihood principle, evidence and the likelihood paradigm for statistical inference; failure of the Neyman-Pearson and Fisherian theories to evaluate evidence; marginal, conditional, profile and other likelihoods; and applications to common problems of inference.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.774. Foundations of Statistics II. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.776. Statistical Computing. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.777. Statistical Programming Paradigms and Workflows. 3 Credits.**

Covers the basics of statistical programming and other workflow skills required for the research and application of statistical methods. Includes programming with unix and the command line, git/github, working with Python, SQL, APIs, HTMLs, and interactive dashboard. Includes topics in statistical data analysis provide working examples.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.778. Statistical Computing, Algorithm, and Software Development. 3 Credits.**

Teaches students common algorithms and essential skill sets for statistical computing and software development through hands-on experiences. Takes a large-scale logistic regression as an example and has students work toward implementing a high-performance `hiperLogit` R package for fitting this model. Presents progressively advanced algorithms and computing techniques. Trains students in various best practices for developing statistical software, including how to start with a basic version of the package and progressively integrate more advanced features. Prepares students for further training in statistical computing techniques and algorithms as covered in Advanced Statistical Computing (140.779).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.779. Advanced Statistical Computing. 3 Credits.**

Covers the theory and application of common algorithms used in statistical computing. Includes topics: root finding, optimization, numerical integration, Monte Carlo, Markov chain Monte Carlo, stochastic optimization, and bootstrapping. Discusses specific algorithms: Newton-Raphson, EM, Metropolis-Hastings algorithm, Gibbs sampling, simulated annealing, Gaussian quadrature, Romberg integration, etc. Discusses applications of these algorithms to real research problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.800. MPH Capstone Biostatistics. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.801. Baltimore Community Data Science. 1.5 Credits.**

Works in teams with a community-based organization (CBO) to: develop data science products (such as a dashboard, data analysis, series of visualizations, etc.), develop training material for CBO users to use and implement the products, develop sustainability/maintenance plans for CBOs to continue with the data science product in the future and how they can continue to use more data science methods more generally. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.802. Baltimore Community Data Science II. 1.5 Credits.**

Works in teams with a community-based organization (CBO) to: develop data science products (such as a dashboard, data analysis, series of visualizations, etc.), develop training material for CBO users to use and implement the products, develop sustainability/maintenance plans for CBOs to continue with the data science product in the future and how they can continue to use more data science methods more generally. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.820. Thesis Research Biostatistics. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.830. Postdoctoral Research Biostatistics. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.840. Special Studies and Research Biostatistics. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.850. Advanced Special Topics in Biostatistics. 1 - 22 Credits.**

Exposes Biostatistics PhD students to advanced special topics that are not covered in the core courses. Comprises two- and four-week modules, with revolving instructors and topics. Possible topics include: theory underlying analysis for correlated data; latent variable modeling; advanced survival analysis; image analysis; time series; and likelihood inference.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.860. Current Topics in Biostatistics Research. 1 Credit.**

Features presentations by Biostatistics faculty, postdocs and senior students on their research, with a focus on the public health and scientific questions driving the work, why the research makes a difference for the subject area and how to translate the research into practice. Offers an opportunity for discussion and clarification of key Biostatistical concepts being taught in the core courses and how they apply to problems in public health and science. Provides an opportunity for students and faculty to come together and discuss novel research questions and the role that Biostatisticians have in helping to support, enrich and promote solutions to these novel research questions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.895. MPH Practicum: Biostatistics. 1 - 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.921. Biostats Lab for 140.621.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.922. Lab for Biostats 140.622.**

**Corequisite(s):** Lab for PH.140.622

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.923. Lab for Biostats PH.140.623.**

**Corequisite(s):** Must also enroll for PH.140.623

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.924. Lab for Biostatistics 140.624.**

**Corequisite(s):** Must also enrol for PH.140.624

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.140.936. Lab - Scalable Computational Bioinformatics.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.941. Biostats Lab for 140.641.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.955. Lab for Biostat 140.655.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.958. Biostats Lab for 140.658.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.140.998. Lab for PH.140.698.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.631. Principles of Drug Development. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.673. Ethical and Regulatory Issues in Clinical Research. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.675. Outcomes and Effectiveness Research. 3 Credits.**

Provides an overview of outcomes and effectiveness research. Emphasizes conceptual, design, and analytical aspects of research including policy implications. Covers both experimental (randomized) and observational designs. Addresses spectrum of outcomes and effectiveness research. Includes topics: qualitative research, cost-effectiveness and adaptive trial design.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.677. Database Design and Implementation in Clinical Research. 2 Credits.**

Presents basic concepts of relational database design for clinical and basic research. Includes development of data collection forms, building databases for both "classic" and "longitudinal" projects using REDCap, data quality control, and data security.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.678. Introduction to Quality Improvement & Knowledge Translation Research. 3 Credits.**

Introduces basic principles of quality improvement/knowledge translation (QI/KT) research. Focuses on efforts aimed at increasing the extent to which patients receive evidence-based therapies. Discusses the concepts, methods, and applications of QI/KT theory and explores real-world QI/KT projects. Outlines the development of a research proposal for a specific QI/KT topic. Critically appraises a published guideline. Systematically reviews literature around a QI/KT topic.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.703. Presentation Skills. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.710. Biomedical Writing I. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.711. Biomedical Writing II. 2 Credits.**

Introduces the process of writing peer-reviewed research papers and provides a brief overview of grant proposal writing. Emphasizes a logical organization, clear writing, and an understanding of readers' and reviewers' expectations. Prepares selected sections of a first draft of a research paper based on their own research, and they receive feedback on their drafts through in-class discussion and written comments from the instructor.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.721. Principles of Grant Writing I. 2 Credits.**

Considers the principles of successful clinical research strategies and the requirements of funding agencies. Identifies a defined research project together with a suitable team of mentors and collaborators. Develops a written research proposal in the format of a grant application which integrates the scientific principles of the GTPCI curriculum.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.722. Principles of Grant Writing II. 4 Credits.**

Considers the principles of successful clinical research strategies and the requirements of funding agencies. Identifies a defined research project together with a suitable team of mentors and collaborators. Develops a written research proposal in the format of a grant application which integrates the scientific principles of the GTPCI curriculum.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.750. Introduction to Clinical Research. 2 Credits.**

Provides an intensive introduction to clinical research methods, emphasizing epidemiological & biostatistical methods.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.751. Seminars in Clinical Investigation. 2 Credits.**

Explores topics related to clinical investigation presented by faculty experts from within and outside of Johns Hopkins. Addresses issues related to biomeasurement, the design of randomized clinical trials, challenges with observational cohort studies, studies focusing on special populations (pediatric age group, pregnant subjects, international studies), and research fraud.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.752. Seminars in Clinical Investigation II. 2 Credits.**

Explores in two terms, topics related to the science of clinical investigation presented by faculty experts from within and outside of Johns Hopkins. Addresses issues related to approaches/methods in clinical investigation (the design of clinical trials, challenges with cohort studies, translational studies, overview of artificial intelligence and machine learning, approaches to health services research, biomeasurement; systematic reviews), clinical investigation in special populations (pediatric age group, pregnant subjects, international studies); research fraud; the design of a conceptual framework for a research question and the development of the aims of a research proposal.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.801. Professional Goals and Objectives. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.820. Thesis Research in Clinical Investigation. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.840. Special Studies and Research in Clinical Investigation. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.390.855. Research Forum. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**EN.570.108. Introduction to Environmental Engineering and Design. 3 Credits.**

This course provides a broad overview of environmental engineering - what environmental engineering is and what environmental engineers do. Whenever possible, the topic areas listed herein will be presented in the context of real-world environmental problems. Specific topics include: Environmental engineering ethics and justice, professional engineering licensure, membership in professional societies and associations, environmental engineering design process and components, mass and energy balances, environmental chemistry, mathematics of growth and decay; risk assessment and management; water resources (quantity and quality), surface water pollutants, eutrophication; groundwater flow, contaminant transport, groundwater remediation; water quality control, municipal water and wastewater systems, drinking water standards; air pollution, national ambient air quality standards, toxic air pollutants, mobile and stationary source control technologies, indoor air quality; global atmospheric change, the greenhouse effect, global energy balance, carbon emissions, stratospheric ozone depletion, and issues pertaining to hazardous, solid, and medical waste management. Overviews of pertinent environmental laws and regulations will be presented where applicable. The course encompasses conceptual design projects for environmental systems and infrastructures.

Area: Engineering

**EN.570.110. Introduction to Engineering for Sustainable Development. 3 Credits.**

For engineering students who want to work on problems of poverty, and social and environmental dislocation, this course introduces major debates about development and explores cases of engineering interventions in developing countries to identify factors that shape success in achieving project goals and avoiding undesirable outcomes.

Area: Humanities, Social and Behavioral Sciences

**EN.570.201. Environmental Biology and Ecology. 3 Credits.**

This course will cover basic topics in environmental biology and ecology for environmental engineering majors. The course will begin by describing the basic building blocks of life, cells and cellular components, which are common to all living things. We will then investigate factors that promote multicellularity, plant and animal physiology, and ecological principles that determine the distribution and function of organisms in the ecosystem.

Area: Natural Sciences

**EN.570.222. Environment and Society. 3 Credits.**

Humans make their living in the environment. How we do that changes nature and changes us. This class explores human impacts on the environment, how we have thought about our relationship to nature over the millennia, and contemporary environmental discourses.

Area: Humanities, Social and Behavioral Sciences

**EN.570.239. Environmental Engineering Chemistry - Current and Emerging Topics. 3 Credits.**

Students will utilize their chemistry knowledge to understand contemporary environmental issues in various media. Lectures will discuss the chemical phenomena leading to and resulting from air and water pollution issues. Climate change impacts to air and water chemistry will also be covered.

Area: Engineering, Natural Sciences

**EN.570.303. Environmental Engineering Principles and Applications. 3 Credits.**

Fundamentals and applications of physical, chemical, and biological processes in the natural environment and engineered systems. The first part of this class will cover material balances, chemical equilibrium, chemical kinetics, vapor pressure, dissolution, sorption, acid-base reactions, transport phenomena, reactor design, and water quality. The second part of this class focuses on the principles and design of water and wastewater treatment processes, such as coagulation, sedimentation, filtration, biological treatment processes, and disinfection.

Area: Engineering, Natural Sciences

**EN.570.304. Environmental Engineering Laboratory. 4 Credits.**

Introduction to laboratory measurements relevant to water supply and wastewater discharge, including pH and alkalinity, inorganic and organic contaminants in water, reactor analysis, bench testing for water treatment, and measurement and control of disinfection by-products. Recommended Course Background: EN.570.210 or Instructor Permission. Prerequisite: EN.570.303.

**Prerequisite(s):** Students must have completed Lab Safety training prior to registering for this class. To access the tutorial, login to myLearning and enter 458083 in the Search box to locate the appropriate module.;EN.570.303

Area: Engineering, Natural Sciences

**EN.570.305. Environmental Health and Engineering Systems Design. 4 Credits.**

Techniques from systems analysis applied to environmental engineering design and management problems: reservoir management, power plant siting, nuclear waste management, air pollution control, and transportation planning. Design projects are required.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.320. Case Studies in Climate Change - A Field Course. 4 Credits.**

In this interdisciplinary seminar class, we will discuss past, present, and future climate change. We will do so through several case studies on California; Eastern California is a hub of research on past climate change, and arguably few states are being more heavily impacted by current climate change than California. Throughout the first half of the course, we will learn how climate has changed in the past, the magnitude of those changes, the possible causes, and the physical and ecological impacts of past climate change. In the second half of the course, we will contrast past climate change with the impacts and severity of contemporary climate change. We will explore how climate change is stressing water resources, air quality, and ecological resilience across California, and we will critically evaluate how the state's recent policy initiatives are ameliorating (or exacerbating) these stresses. The course will include a week-long spring break field trip to Eastern California where we will explore how climate change is stressing water resources, air quality, and ecological resilience across the state. Do not hesitate to email the instructor ([smill191@jhu.edu](mailto:smill191@jhu.edu)) for more information about the field trip.

**EN.570.321. Case Studies in Climate Change - A Field Course. 2 Credits.**

This is the 2 credit co-requisite course for EN.570.320 Case Studies in Climate Change offered in fall. In this course we will travel to Eastern California for a week-long field trip to explore how climate change is stressing water resources, air quality, and ecological resilience across California. We will critically evaluate how the state's recent policy initiatives are ameliorating (or exacerbating) these stresses. Please email the instructor if you are interested in this course (smill191@jhu.edu) for more details on the co-requisite.

**Prerequisite(s):** EN.570.320

**EN.570.334. Engineering Microeconomics. 3 Credits.**

The course introduces the principles of microeconomics and engineering economics, and applications of those principles to environmental engineering and public policy analysis. The financial and economic implications of engineering designs and control policies are critical to their success. We introduce principles of engineering economics and microeconomics (demand and production theory) and their uses in engineering decision making.

Area: Quantitative and Mathematical Sciences, Social and Behavioral Sciences

**EN.570.349. Water quality of rivers, lakes, and estuaries. 3 Credits.**

Sustainably managing aquatic environments for ecosystem and public health in a changing climate requires us to understand the combined effect of multiple physical, chemical, and biological processes. This class will equip students to apply their understanding of environmental engineering principles to real-world water quality issues using computer simulation models. Emphasis will be placed on gaining insight by understanding fundamental assumptions and equations, and application to classical problems of oxygen demand and eutrophication. Advanced topics including pathogen and toxin dynamics will also be introduced.

**Prerequisite(s):** EN.570.303

Area: Engineering, Natural Sciences

**EN.570.350. Environmental Hazards and Health Risks. 3 Credits.**

This course explores the concepts, assessment, and control of exposure to biological, physical and chemical hazards in the environment, the risk of adverse health outcomes resulting from such exposures, and the relationship between the exposures and health outcomes. These are placed in the context of the multi-disciplinary scientific field of environmental health as an essential component of the wider field of public health. The course is comprised of lectures, examples, group discussions, and group presentations. The proposed course will fill a gap in content and skill development in the issues and techniques relating to human health risk assessment. This course is targeted toward undergraduates who may not have had any exposure to environmental health science, and provides an introduction to environmental health using the framework of health risk assessment. The course first introduces the concepts of exposure to environmental hazards and biological dose, routes of exposure, statistical characterization of exposure variability in populations, and monitoring networks. The next set of concepts relate to hazard characterization, i.e., adverse health outcomes resulting from such exposures using a variety of types of data including in vitro and in vivo studies, and human epidemiological studies and their strengths and weaknesses. The next segment will deal with the quantitative characterization of the relationship between exposure/dose and the adverse health outcomes, i.e., the dose-response relationships, the metrics used for this, and quantitatively characterizing the health risks of a population. The course will introduce students to several tools including mathematical modeling of exposures and risk, and uncertainty analysis.

**Prerequisite(s):** (AS.171.101 ) AND (AS.030.101 AND AS.030.102) AND (AS.110.108 AND AS.110.109)

Area: Engineering, Natural Sciences

**EN.570.351. Introduction to Fluid Mechanics. 3 Credits.**

Introduction to the use of the principles of continuity, momentum, and energy to fluid motion. Topics include hydrostatics, ideal-fluid flow, laminar flow, turbulent flow. Recommended Course Background: Statics, Dynamics, and AS.110.302

**Prerequisite(s):** Students must have completed Lab Safety training prior to registering for this class. To access the tutorial, login to myLearning and enter 458083 in the Search box to locate the appropriate module.

Area: Engineering

**EN.570.353. Hydrology. 3 Credits.**

The occurrence, distribution, movement, and properties of the waters of the Earth. Topics include precipitation, infiltration, evaporation, transpiration, groundwater, and streamflow. Analyzes include the frequency of floods and droughts, time-series analyzes, flood routing, and hydrologic synthesis and simulation. Recommended Course Background: AS.110.302, EN.570.351

Area: Engineering

**EN.570.367. Sustainability Science and Policy: The Threat of Climate Change. 3 Credits.**

The challenge of sustainability is simultaneously promoting human well-being while protecting the environment. Advancing a transition toward sustainability hinges on applying what we know to what we should do, including undergirding public policies with knowledge—especially knowledge gleaned from science, technology, and engineering. This course examines sustainability science, communications, and public policy through the lens of climate—what is known about climate change and impacts, what motivates public understanding, and what actions through mitigation and adaptation make progress toward sustainability.

**EN.570.406. Environmental History. 3 Credits.**

Environmental history explores the interactions between social change and environmental transformation, or the ways in which societies modify landscapes and are themselves affected by geological, climatological and changing ecological conditions. Topics include the relationship between climate change and human evolution, the environmental impacts of market-based commodity production and regional economic specialization; the relationship between urbanization and environmental change; how warfare affects and is affected by environmental conditions. Area: Humanities, Social and Behavioral Sciences  
Writing Intensive

**EN.570.412. Landscape Hydrology and Watershed Analysis. 3 Credits.**

The purpose of this class is to understand the landscape-scale controls on the fluxes of water and waterborne materials through watersheds. This class differs from the Hydrology and Hydrologic Modeling classes in its focus on data analysis, and its embrace of the complexity of real landscapes. There will be significant quantitative components to the material taught, but emphasis will be on developing a greater sense of the way that landscapes "function", and how this function is related to real-world issues of water resources and pollution. Students will gain an understanding of how climate, geologic and ecologic setting, and human impacts control the partitioning of water between different fates, the flowpaths through the landscape and the storage and residence time of water. They will also learn conceptual and practical tools for analyzing hydrologic and other landscape data, and integrating this data in a holistic approach to watershed analysis. The class will be of interest for students intending to go into watershed or landscape management, and anyone wishing to pursue research in hydrology, geomorphology or ecology at landscape and watershed scales. The class will include at least one field trip to an instrumented watershed. GIS skills will be an advantage but are not required.

**EN.570.415. Current Trends in Environmental Microbiology. 3 Credits.**

This course will highlight recent discoveries and advances in environmental microbiology such as the identification of novel microbes, changing paradigms in nitrogen cycling, single-cell activity methods and novel methods in microbial community analysis. We will explore these topics by reading and discussing the current literature, supported by short lectures and in class activities related to the topics. Background in microbiology or microbial ecology is recommended. This course will meet with EN.570.615.

Area: Engineering, Natural Sciences

**EN.570.416. Data Analytics in Environmental Health and Engineering. 3 Credits.**

Data analytics is a field of study involving computational statistics, data mining and machine learning, to explore data sets, explain phenomena and build predictive models. The course begins with an overview of some traditional analysis approaches including ordinary least squares regression and related topics, notably diagnostic testing, detection of outliers and methods to impute missing data. More recent developments are presented, including ridge regression. Generalized linear models follow, emphasizing logistic regression and including models for polytomous data. Variable subsetting is addressed through stepwise procedures and the LASSO. Supervised machine learning topics include the basic concepts of boosting and bagging and several techniques: Decision Trees, Classification and Regression Trees, Random Forests, Conditional Random Forests, Adaptive Boosting, Support Vector Machines and Neural Networks. Unsupervised machine learning approaches are addressed through applications using k-means Clustering, Partitioning Around Medoids and Association Rule Mining. Methods for assessing model predictive performance are introduced including Confusion Matrices, k-fold Cross-Validation and Receiver Operating Characteristic Curves. Public health and environmental applications are emphasized, with modeling techniques and analysis tools implemented in R.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.419. Environmental Engineering Design I. 2 Credits.**

Through general lectures and case study examples, this course will expose students to some of the non-technical professional issues that they will face as professional engineers and in their second-semester senior design project.

Area: Engineering

**EN.570.420. Air Pollution. 3 Credits.**

The course consists of an introduction to the fundamental concepts of air pollution. Major topics of concern are aspects of atmospheric motion near the earth's surface; basic thermodynamics of the atmosphere; atmospheric stability and turbulence; equations of mean motion in turbulent flow, mean flow in the surface boundary layer; mean flow, turbulence in the friction layer; diffusion in the atmosphere; statistical theory of turbulence; plume rise. Emphasis is placed upon the role and utility of such topics in a systems analysis context, e.g., development of large and mesoscale air pollution abatement strategies. Comparisons of the fundamental concepts common to both air and water pollution are discussed. This course meets with EN.570.657, Air Pollution.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.421. Environmental Engineering Design II. 3 Credits.**

Engineering design process from problem definition to final design. Team projects include written/oral presentations. Students will form small teams that work with local companies or government agencies in executing the project. Recommended Course Background: EN.570.303, EN.570.352, and EN.570.419

**Prerequisite(s):** EN.570.419

Area: Engineering

**EN.570.422. Resilience of Ecological Systems. 3 Credits.**

The ability of ecosystems to recover from natural events and human actions is increasingly being threatened by climate change. This course is a study of ecosystems using mathematical models, with a particular focus on quantifying their resilience. We will model a number of ecosystems, including rainforests, lakes, temperate forests, savannas, and grasslands. We will analyze ecological phenomena that impact public health and commerce. These include lake eutrophication and anoxia, forest fires, and insect outbreaks. We will study whole-earth mathematical models, biodiversity, and models to study the spread and control of pandemics. New this semester will be game theory applications, urban ecosystems and environmental justice. In all cases, potential pro-active and reactive management and control approaches will be evaluated. Mathematical techniques will be introduced and developed in a context-sensitive manner. Undergraduate and graduate students are welcome to enroll. Recommended course background (i.e. potentially useful but not required): EN.553.291 or AS.110.302, or equivalent.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.423. Environmental Impacts of Climate Change. 3 Credits.**

This course will begin with a brief review of the climate system and climate change projections for the 21st Century. We will then focus on quantifying the impacts of climate change as predicted under different representative concentration pathways and learn the workflow of retrieving climate change projections from reliable databases and sources. Particular focus will be on impacts of rising temperatures and changing precipitation patterns on heat severity and droughts, agriculture, and air quality. We will study other impacts such as rising sea levels and growing intensities of storm surges and flooding. We will consider vulnerable cities and vulnerable populations, and discuss impacts of climate change on health, in terms of heat related illnesses, air quality related illnesses, and spread of vector-borne diseases. We will consider the impact of heat severity on the energy needs of the future. We will use GIS tools for spatial analysis of available impact projections, and study physics-based simple systems dynamics models to understand the processes underlying climate-change impacts. The course will also cover preparedness and potential solutions that aim to mitigate the impacts of climate change in the near term and in the long term. Students will employ the tools and skills learned in the course to conduct a project (possibly in groups) focused on first-order quantification of climate change impacts on a specific environmental or health issue at a specific location. Background recommended but not required: AS110.109 or equivalent; some background in Climate Studies desirable but not essential.

**EN.570.426. Groundwater, Porous Media, and Hydrogeology. 3 Credits.**

Fundamentals of groundwater flow and transport emphasizing groundwater as a major water resource, role of groundwater in the hydrologic cycle and as an agent of geologic processes, groundwater management, and groundwater contamination and its protection. Specific topics include the Darcy equation, storage of water in a porous medium, mass conservation and the groundwater flow equation, solutions to the groundwater flow equation, well hydraulics, unsaturated flow and vadose zone processes, contaminant transport, dispersion and adsorption. Assignments will include quantitative exercises requiring simple computer codes.

**Prerequisite(s):** EN.570.351 or Equivalent

**EN.570.428. Problems in Applied Economics. 3 Credits.**

This course focuses on a monetary approach to national income determination and the balance of payments. Money and banking, as well as commodity and financial markets, are dealt with under both central banking, as well as alternative monetary regimes. Particular emphasis is placed on currency board systems. Students learn how to properly conduct substantive economic research, utilizing primary data sources, statistical techniques and lessons from economic history. Findings are presented in the form of either memoranda or working papers of publishable quality. Exceptional work may be suitable for publication through the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise. Advanced excel programming skills are required and students are expected to be pre-screened for research at the Library of Congress in Washington, D.C.. Bloomberg certification is a pre-requisite.

**Prerequisite(s):** EN.660.203 AND AS.180.101 AND AS.180.102

Area: Social and Behavioral Sciences

Writing Intensive

**EN.570.429. Methods in Microbial Community Analysis. 3 Credits.**

This course will provide a practical knowledge of molecular methods used to identify microorganisms present with a sample and gain insight into their function and dynamics. It will provide theoretical background into how to identify microorganisms and infer functional capabilities from genetic material, practical knowledge of common molecular methods and computational skills needed to analyze the resulting sequence data. No background in molecular biology, computation or microbiology is necessary. Course objectives include (1) understanding key aspects of microbial community composition from literature reports; (2) recognizing major microbial taxonomic groups and understanding phylogenetic relationships; (3) developing molecular biology lab skills required to create gene amplicon libraries from an aquatic samples; (4) working knowledge of statistical methods used to associate taxonomic and functional gene information with specific environmental conditions. Recommended Course Background: Microeconomics, Introductory Statistics, Optimization. Open to undergraduates. Co-listed with EN.570.619

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.441. Environmental Inorganic Chemistry. 3 Credits.**

Advanced undergraduate/graduate course that explores the chemical transformations of elements of the periodic table. Thermodynamic, kinetic, and mechanistic tools needed to address the multiple chemical species and interfaces that are present in natural waters and water-based technological processes are emphasized. Ligand exchange, metal ion exchange, adsorption/desorption, precipitation/dissolution, electron and group transfer reactions, and other concepts from coordination chemistry will be covered. Applications include elemental sources and sinks in ocean waters, reactive transport in porous media, weathering and soil genesis, nutrient and toxic element uptake by organisms, water treatment chemistry, and rational design of synthetic chemicals. Co-listed with EN.570.641

Area: Natural Sciences

**EN.570.442. Environmental and Analytical Organic Chemistry. 3 Credits.**

This course examines the major physical and chemical attributes and processes affecting the behavior of organic compounds in the environment. Emphasis is on anthropogenic hydrophobic organic compounds (e.g. halogenated organic compounds) and less hydrophobic emerging contaminants of concern (e.g. pharmaceuticals, explosives, etc). The course will also address (bio)analytical and computational approaches that are used to detect organic compounds in the environment and assess their potential environmental and human health risks.

**Prerequisite(s):** EN.570.239 AND EN.570.303

Area: Engineering, Natural Sciences

**EN.570.443. Aquatic and Biofluid Chemistry. 3 Credits.**

Equilibrium speciation of natural waters, biofluids, and engineered systems. Topics include acids, bases, pH, and buffering; the precipitation and dissolution of solids; complexation and chelation; oxidation and reduction reactions; regulation and design. Intended for students from a variety of backgrounds. Recommended Course Background: One year of both Chemistry and Calculus. Meets with EN.570.643 (Aquatic and Biofluid Chemistry).

Area: Engineering, Natural Sciences

**EN.570.445. Physical and Chemical Processes I. 3 Credits.**

The application of basic physical and chemical concepts to the analysis of environmental engineering problems. Principles of chemical equilibrium and reaction, reaction engineering, interphase mass transfer, and adsorption are presented in the context of process design for unit operations in common use for water and wastewater treatment. Topics addressed include mass balances, hydraulic characteristics of reactors, reaction kinetics and reactor design, gas transfer processes (including both fundamentals of mass transfer and design analysis), and adsorption processes (including both fundamentals of adsorption and design analysis).

**Prerequisite(s):** EN.570.303 or permission of instructor.

Area: Engineering

**EN.570.448. Physical and Chemical Processes II. 3 Credits.**

Fundamentals and applications of physical and chemical processes used in water and wastewater treatment. This class will cover particle interactions, coagulation, flocculation, granular media filtration, membrane processes, and emerging water treatment processes.

Recommended Course Background: EN.570.445 or Permission Required.

Area: Engineering

**EN.570.449. Social Theory for Engineers. 3 Credits.**

Engineers work in a social context. This course addresses a number of questions about that social context. How should we understand how societies come about, how they evolve, and why the rules of the game are what they are? What is the relationship between the individual and society, what does it mean to be 'modern,' are there different forms of rationality? How might all this impinge on what it means to be an engineer?

Area: Humanities, Social and Behavioral Sciences

Writing Intensive

**EN.570.451. Environmental Dispersion and Transport. 3 Credits.**

The course will provide an overview of the basic foundations of transport and dispersion phenomena in the environment (surface water, groundwater, ocean and atmosphere). The emphasis will be on mathematical formulation of transport equations, analytical solutions, physical insights, methods of analysis of concentration data. The course will cover classical advection-diffusion concepts, shear dispersion phenomena, and transport in random velocity fields with applications to turbulent diffusion and macrodispersion in groundwater. Although numerical modeling is not the primary objective of the course, we will build a simple computational toolbox using random-walk particle tracking to visualize and quantify transport processes. Computation of analytical solutions will require MATLAB or python (or equivalent programming, although EXCEL may also suffice with macros). If time permits, we will touch upon reactive transport and non-Fickian transport formulations. Recommended course background in EN.553.291 Linear Algebra and Differential Equations and EN.570.351 Fluid Mechanics.

Area: Engineering, Natural Sciences

**EN.570.452. Experimental Methods in Environmental Engineering and Chemistry. 4 Credits.**

An advanced laboratory covering principles of modern analytical techniques and their applications to problems in environmental sciences. Topics include electrochemistry, spectrometry, gas and liquid chromatography. The course is directed to graduate students and advanced undergraduates in engineering and natural sciences. Co-listed with EN.570.652

**Prerequisite(s):** Students must have completed Lab Safety training prior to registering for this class. To access the tutorial, login to myLearning and enter 458083 in the Search box to locate the appropriate module.;EN.570.443

Area: Engineering, Natural Sciences

Writing Intensive

**EN.570.454. Geostatistics: Understanding Spatial Data. 3 Credits.**

Spatial and geographic datasets are becoming increasingly common with improvements in data collection technologies. For example, satellites are able to collect more and more types of earth/environmental data, and web technologies (e.g., social media and e-commerce) provide vast new datasets on social, economic, and public health phenomena. However, many common statistical tools are ill-suited to spatial datasets; these datasets often exhibit complex spatial (and temporal) dependencies that require a special set of tools. In this course, students will learn how to quantitatively analyze, model, and predict spatial and spatiotemporal phenomena. Topics will include quantifying the spatial and temporal properties of data, interpolation and prediction, multivariate models, modeling uncertainty, measurement design, and strategies for very large datasets. We will draw examples from a wide variety of academic disciplines, including environmental engineering, earth science, public health, and political science. Pre-requisites: An introductory course in statistics is recommended. Knowledge of a scientific programming language (e.g., Matlab, R, or Python) will also be helpful.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.470. Applied Economics & Finance. 3 Credits.**

This course focuses on company valuations, using a Probabilistic Discounted Cash Flow Model. Students use the model and primary data from financial statements filed with the Securities and Exchange Commission to calculate the value of publically-traded companies. Using Monte Carlo simulations, students also generate forecast scenarios, project likely share-price ranges and assess potential gains/losses. Stress is placed on using these simulations to diagnose the subjective market expectations contained in current objective market prices, and the robustness of these expectations. During the weekly seminar, students company valuations are reviewed and critiqued. A heavy emphasis is placed on research and writing. Exceptional work may be suitable for publication through the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise. Advanced excel programming skills are required and students are expected to be pre-screened for research at the Library of Congress in Washington, D.C.. Bloomberg certification is a pre-requisite.

**Prerequisite(s):** EN.660.203 AND (EN.570.428 OR AS.360.528)

Area: Quantitative and Mathematical Sciences, Social and Behavioral Sciences

Writing Intensive

**EN.570.490. Solid Waste Engineering and Management. 3 Credits.**

This course covers advanced engineering and scientific concepts and principles applied to the management of municipal solid waste (MSW) to protect human health and the environment and the conservation of limited resources through resource recovery and recycling of waste material.

Area: Engineering

**EN.570.491. Hazardous Waste Engineering and Management. 3 Credits.**

This course addresses traditional and innovative technologies, concepts, and principles applied to the management of hazardous waste and site remediation to protect human health and the environment. Co-listed with EN.570.691

Area: Engineering

**EN.570.492. Wolman Seminar - Undergraduates. 1 Credit.**

Undergraduates only with permission of instructor.

**EN.570.497. Risk and Decision Analysis. 3 Credits.**

This class introduces the decision analysis approach to making decisions under risk and uncertainty. Topics covered include decision trees, Bayes law, value of information analysis, elicitation of subjective probabilities, multiattribute utility, and their applications to environmental and energy problems. Textbook: R.T. Clemen, Making Hard Decisions, 2014. Recommended Course Background: introductory statistics and probability.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.498. Pursuing Sustainability Policy. 2 Credits.**

This seminar examines the pursuit of sustainability policy. Students will explore whether the complex systems approach to sustainability and sustainable development leads to different priorities, strategies, and methods compared to conventional approaches and analytical tools that are used in environmental policy. The seminar will draw from case studies related to energy and climate change, water sustainability, and land use change, as well as theoretical materials. Invited speakers will include technical experts and practitioners.

**EN.570.499. Pursuing Sustainability Policy: Knowledge to Action. 1 Credit.**

This seminar examines the pursuit of sustainability policy. Students will explore whether the complex systems approach to sustainability and sustainable development leads to different priorities, strategies, and methods compared to conventional approaches and analytical tools that are used in environmental policy. The seminar will draw from case studies related to energy and climate change, water sustainability, and land use change, as well as theoretical materials. Invited speakers will include technical experts and practitioners. This course is a continuation of EN.570.498, which is recommended but not required.

**EN.570.501. Undergraduate Research. 1 - 3 Credits.**

This course is open to EHE undergraduate majors only who are conducting an investigation of an environmental engineering problem under the supervision of the faculty instructor.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.570.502. Undergraduate Research. 1 - 3 Credits.**

This course is open to EHE undergraduate majors only who are conducting an investigation of an environmental engineering problem under the supervision of the faculty instructor.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.570.504. Financial Market Research. 3 Credits.**

This course investigates the workings of financial, foreign exchange, and commodity futures markets. Research is focused on price behavior, speculation, and hedging in these markets. Extensive research and writing of publishable quality are required. Exceptional work may be suitable for publication through the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise. An approved research proposal is a pre-requisite.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.570.505. Undergraduate Independent Study. 3 Credits.**

This course is open to EHE undergraduate majors only who are conducting an investigation of an environmental engineering problem and preparing a project deliverable under the supervision of the faculty instructor.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.570.511. Group Undergraduate Research. 3 Credits.**

This section has a weekly research group meeting that students are expected to attend.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.570.590. Internship - Summer. 1 Credit.**

This course is open only to EHE undergraduate majors who have prior approval to conduct an internship for credit.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.570.597. Undergraduate Research-Summer. 3 Credits.**

Investigation of an environmental engineering problem under faculty instructor supervision during summer session.

**Prerequisite(s):** You must request Independent Academic Work using the Independent Academic Work form found in Student Self-Service: Registration, Online Forms.

**EN.570.607. Energy Policy and Planning Models. 3 Credits.**

Methods for optimizing operation and design of energy systems and for analyzing market impacts of energy and environmental policies are reviewed, emphasizing both theory and solution of actual models. Review of linear and nonlinear programming and complementarity methods for market simulation. Recommended Course Background: EN.570.493 and EN.570.495 or equivalent.

**EN.570.615. Current Trends in Environmental Microbiology. 3 Credits.**

This course will highlight recent discoveries and advances in environmental microbiology such as the identification of novel microbes, changing paradigms in nitrogen cycling, single-cell activity methods and novel methods in microbial community analysis. We will explore these topics by reading and discussing the current literature, supported by short lectures and in class activities related to the topics. Background in microbiology or microbial ecology is recommended. This course will meet with EN.570.415

Area: Engineering, Natural Sciences

**EN.570.616. Data Analytics in Environmental Health and Engineering. 3 Credits.**

Data analytics is a field of study involving computational statistics, data mining and machine learning, to explore data sets, explain phenomena and build predictive models. The course begins with an overview of some traditional analysis approaches including ordinary least squares regression and related topics, notably diagnostic testing, detection of outliers and methods to impute missing data. More recent developments are presented, including ridge regression. Generalized linear models follow, emphasizing logistic regression and including models for polytomous data. Variable subsetting is addressed through stepwise procedures and the LASSO. Supervised machine learning topics include the basic concepts of boosting and bagging and several techniques: Decision Trees, Classification and Regression Trees, Random Forests, Conditional Random Forests, Adaptive Boosting, Support Vector Machines and Neural Networks. Unsupervised machine learning approaches are addressed through applications using k-means Clustering, Partitioning Around Medoids and Association Rule Mining. Methods for assessing model predictive performance are introduced including Confusion Matrices, k-fold Cross-Validation and Receiver Operating Characteristic Curves. Public health and environmental applications are emphasized, with modeling techniques and analysis tools implemented in R. EN.570.616 meets with EN.570.416. Undergraduate (usually Senior) students should sign up for 416 with permission of instructor only.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.619. Methods in Microbial Community Analysis. 3 Credits.**

This graduate level course will provide a practical knowledge of molecular methods used to identify microorganisms present with a sample and gain insight into their function and dynamics. It will provide theoretical background into how to identify microorganisms and infer functional capabilities from genetic material, practical knowledge of common molecular methods and computational skills needed to analyze the resulting sequence data. No background in molecular biology, computation or microbiology is necessary. Course objectives include (1) understanding key aspects of microbial community composition from literature reports; (2) recognizing major microbial taxonomic groups and understanding phylogenetic relationships; (3) developing molecular biology lab skills required to create gene amplicon libraries from an aquatic samples; (4) working knowledge of statistical methods used to associate taxonomic and functional gene information with specific environmental conditions. Recommended Course Background: Microeconomics, Introductory Statistics, Optimization. Co-listed with EN.570.429

**EN.570.623. Environmental Impacts of Climate Change. 3 Credits.**

This course will begin with a brief review of the climate system and climate change projections for the 21st Century. We will then focus on quantifying the impacts of climate change as predicted under different representative concentration pathways and learn the workflow of retrieving climate change projections from reliable databases and sources. Particular focus will be on impacts of rising temperatures and changing precipitation patterns on heat severity and droughts, agriculture, and air quality. We will study other impacts such as rising sea levels and growing intensities of storm surges and flooding. We will consider vulnerable cities and vulnerable populations, and discuss impacts of climate change on health, in terms of heat related illnesses, air quality related illnesses, and spread of vector-borne diseases. We will consider the impact of heat severity on the energy needs of the future. We will use GIS tools for spatial analysis of available impact projections, and study physics-based simple systems dynamics models to understand the processes underlying climate-change impacts. The course will also cover preparedness and potential solutions that aim to mitigate the impacts of climate change in the near term and in the long term. Students will employ the tools and skills learned in the course to conduct a project (possibly in groups) focused on first-order quantification of climate change impacts on a specific environmental or health issue at a specific location.

**EN.570.626. Groundwater, Porous Media, and Hydrogeology. 3 Credits.**

Fundamentals of groundwater flow and transport emphasizing groundwater as a major water resource, role of groundwater in the hydrologic cycle and as an agent of geologic processes, groundwater management, and groundwater contamination and its protection. Specific topics include the Darcy equation, storage of water in a porous medium, mass conservation and the groundwater flow equation, solutions to the groundwater flow equation, well hydraulics, unsaturated flow and vadose zone processes, contaminant transport, dispersion and adsorption. Assignments will include quantitative exercises requiring simple computer codes. Recommended Course Background: A course in Differential Equations or Consent of Instructor.



**EN.570.641. Environmental Inorganic Chemistry. 3 Credits.**

Advanced undergraduate/graduate course that explores the chemical transformations of elements of the periodic table. Thermodynamic, kinetic, and mechanistic tools needed to address the multiple chemical species and interfaces that are present in natural waters and water-based technological processes are emphasized. Ligand exchange, metal ion exchange, adsorption/desorption, precipitation/dissolution, electron and group transfer reactions, and other concepts from coordination chemistry will be covered. Applications include elemental sources and sinks in ocean waters, reactive transport in porous media, weathering and soil genesis, nutrient and toxic element uptake by organisms, water treatment chemistry, and rational design of synthetic chemicals. Co-listed with EN.570.441

Area: Natural Sciences

**EN.570.642. Environmental and Analytical Organic Chemistry. 4 Credits.**

This course examines the major physical and chemical attributes and processes affecting the behavior of organic compounds in the environment. Emphasis is on anthropogenic hydrophobic organic compounds (e.g. halogenated organic compounds) and less hydrophobic emerging contaminants of concern (e.g. pharmaceuticals, explosives, etc). The course will also address (bio)analytical and computational approaches that are used to detect organic compounds in the environment and assess their potential environmental and human health risks.

Area: Engineering, Natural Sciences

**EN.570.643. Aquatic and Biofluid Chemistry. 3 Credits.**

Equilibrium speciation of natural waters, biofluids, and engineered systems. Topics include acids, bases, pH, and buffering; the precipitation and dissolution of solids; complexation and chelation; oxidation and reduction reactions; regulation and design. Intended for students from a variety of backgrounds. Recommended Course Background: One year of both Chemistry and Calculus. Meets with EN.570.443 (Aquatic and Biofluid Chemistry)

Area: Engineering, Natural Sciences

**EN.570.644. Physical and Chemical Processes. 3 Credits.**

The application of basic physical and chemical concepts to the analysis of environmental engineering problems. Principles of chemical equilibrium and reaction, reaction engineering, interphase mass transfer, and adsorption are presented in the context of process design for unit operations in common use for water and wastewater treatment. Topics addressed include mass balances, hydraulic characteristics of reactors, reaction kinetics and reactor design, gas transfer processes (including both fundamentals of mass transfer and design analysis), and adsorption processes (including both fundamentals of adsorption and design analysis).

Area: Engineering

**EN.570.648. Physical and Chemical Processes II. 3 Credits.**

Fundamentals and applications of physical and chemical processes used in water and wastewater treatment. This class will cover particle interactions, coagulation, flocculation, granular media filtration, membrane processes, and emerging water treatment processes. Recommended Course Background: EN.570.445 or Permission Required.

Area: Engineering

**EN.570.649. Water quality of rivers, lakes, and estuaries. 3 Credits.**

Sustainably managing aquatic environments for ecosystem and public health in a changing climate requires us to understand the combined effect of multiple physical, chemical, and biological processes. This class will equip students to apply their understanding of environmental engineering principles to real-world water quality issues using computer simulation models. Emphasis will be placed on gaining insight by understanding fundamental assumptions and equations, and application to classical problems of oxygen demand and eutrophication. Advanced topics including pathogen and toxin dynamics will also be introduced. Students should have taken EN.570.303 (or equivalent).

**EN.570.651. Environmental Transport and Dispersion. 3 Credits.**

The course will provide an overview of the basic foundations of transport and dispersion phenomena in the environment (surface water, groundwater, ocean and atmosphere). The emphasis will be on mathematical formulation of transport equations, analytical solutions, physical insights, methods of analysis of concentration data. The course will cover classical advection-diffusion concepts, shear dispersion phenomena, and transport in random velocity fields with applications to turbulent diffusion and macrodispersion in groundwater. Although numerical modeling is not the primary objective of the course, we will build a simple computational toolbox using random-walk particle tracking to visualize and quantify transport processes. Computation of analytical solutions will require MATLAB or python (or equivalent programming, although EXCEL may also suffice with macros). If time permits, we will touch upon reactive transport and non-Fickian transport formulations. Recommended course background in EN.553.291 Linear Algebra and Differential Equations and EN.570.351 Fluid Mechanics.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.652. Experimental Methods in Environmental Engineering and Chemistry. 4 Credits.**

An advanced laboratory covering principles of modern analytical techniques and their applications to problems in environmental sciences. Topics include electrochemistry, spectrometry, gas and liquid chromatography. The course is directed to graduate students and advanced undergraduates in engineering and natural sciences. Co-listed with EN.570.452

**Prerequisite(s):** Students must have completed Lab Safety training prior to registering for this class. To access the tutorial, login to myLearning and enter 458083 in the Search box to locate the appropriate module.;EN.570.443 OR EN.570.643 OR permission of instructor.

Area: Engineering, Natural Sciences

Writing Intensive

**EN.570.653. Hydrology. 3 Credits.**

The occurrence, distribution, movement, and properties of the waters of the Earth. Topics include precipitation, infiltration, evaporation, transpiration, groundwater, and streamflow. Analyzes include the frequency of floods and droughts, time-series analyzes, flood routing, and hydrologic synthesis and simulation. Recommended Course Background: AS.110.302, EN.570.351

Area: Engineering

**EN.570.654. Geostatistics: Understanding Spatial Data. 3 Credits.**

Spatial and geographic datasets are becoming increasingly common with improvements in data collection technologies. For example, satellites are able to collect more and more types of earth/environmental data, and web technologies (e.g., social media and e-commerce) provide vast new datasets on social, economic, and public health phenomena. However, many common statistical tools are ill-suited to spatial datasets; these datasets often exhibit complex spatial (and temporal) dependencies that require a special set of tools. In this course, students will learn how to quantitatively analyze, model, and predict spatial and spatiotemporal phenomena. Topics will include quantifying the spatial and temporal properties of data, interpolation and prediction, multivariate models, modeling uncertainty, measurement design, and strategies for very large datasets. We will draw examples from a wide variety of academic disciplines, including environmental engineering, earth science, public health, and political science. Pre-requisites: An introductory course in statistics is recommended. Knowledge of a scientific programming language (e.g., Matlab, R, or Python) will also be helpful.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.657. Air Pollution. 3 Credits.**

The course consists of an introduction to the fundamental concepts of air pollution. Major topics of concern are aspects of atmospheric motion near the earth's surface; basic thermodynamics of the atmosphere; atmospheric stability and turbulence; equations of mean motion in turbulent flow, mean flow in the surface boundary layer; mean flow, turbulence in the friction layer; diffusion in the atmosphere; statistical theory of turbulence; plume rise. Emphasis is placed upon the role and utility of such topics in a systems analysis context, e.g., development of large and mesoscale air pollution abatement strategies. Comparisons of the fundamental concepts common to both air and water pollution are discussed.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.690. Solid Waste Engineering and Management. 3 Credits.**

This course covers advanced engineering and scientific concepts and principles applied to the management of municipal solid waste (MSW) to protect human health and the environment and the conservation of limited resources through resource recovery and recycling of waste material.

Area: Engineering

**EN.570.691. Hazardous Waste Engineering and Management. 3 Credits.**

This course addresses traditional and innovative technologies, concepts, and principles applied to the management of hazardous waste and site remediation to protect human health and the environment.

Area: Engineering

**EN.570.695. Environmental Health and Engineering Systems Design. 3 Credits.**

A collection of systems analytic techniques which are frequently used in the study of public decision making is presented. Emphasis is on mathematical programming techniques. Primarily linear programming, integer and mixed-integer programming, and multiobjective programming. Recommended Course Background: AS.110.106-AS.110.107/AS.110.109

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.697. Risk and Decision Analysis. 3 Credits.**

This class introduces the decision analysis approach to making decisions under risk and uncertainty. Topics covered include decision trees, Bayes law, value of information analysis, elicitation of subjective probabilities, multiattribute utility, and their applications to environmental and energy problems. Textbook: R.T. Clemen, Making Hard Decisions, 2014. Recommended Course Background: introductory statistics and probability.

Area: Engineering, Quantitative and Mathematical Sciences

**EN.570.698. Pursuing Sustainability Policy. 2 Credits.**

This seminar examines the pursuit of sustainability policy. Students will explore whether the complex systems approach to sustainability and sustainable development leads to different priorities, strategies, and methods compared to conventional approaches and analytical tools that are used in environmental policy. The seminar will draw from case studies related to energy and climate change, water sustainability, and land use change, as well as theoretical materials. Invited speakers will include technical experts and practitioners.

**EN.570.699. Pursuing Sustainability Policy: Knowledge to Action. 1 Credit.**

This seminar examines the pursuit of sustainability policy. Students will explore whether the complex systems approach to sustainability and sustainable development leads to different priorities, strategies, and methods compared to conventional approaches and analytical tools that are used in environmental policy. The seminar will draw from case studies related to energy and climate change, water sustainability, and land use change, as well as theoretical materials. Invited speakers will include technical experts and practitioners. This course is a continuation of EN.570.698, which is recommended but not required.

**EN.570.800. Graduate Independent Study. 1 - 3 Credits.**

Investigation of an environmental engineering problem and preparation of project deliverable under supervision of faculty instructor.

**EN.570.801. Doctoral Research. 3 - 20 Credits.**

This course is intended for Ph.D. students continuing their doctoral research and thesis. Students should register for the section taught by their faculty advisor.

Area: Engineering, Natural Sciences

**EN.570.803. Master's Research. 3 - 10 Credits.**

Adding missing course description: "Investigation of an environmental engineering problem and preparation of project report." Please add to every section.

Area: Engineering

**EN.570.805. Jensen Internship. 3 Credits.**

Restricted internship; reserved for students who have received the Jensen Fellowship.

**EN.570.841. Wolman Seminar- Graduates. 1 Credit.****EN.570.873. Environmental Science & Management Seminar. 1 Credit.****EN.570.881. Environmental Engineering Seminar. 1 Credit.**

**PH.180.600. Public Health Implications of Health as a Human Right. 2 Credits.**

Applies a human rights framework to the analysis of key determinants of health status and PH policies, programs and practices. Readings and discussions explore health as a human right and its implications for PH research and practice. Focuses broadly on 3 areas: health as a human right, impact of public health policies, programs and practices on human rights; and collective health impact of human rights violations, whether gross violations in human conflict or insidious violations associated with mistreatment of marginalized groups. Topics include: international instruments defining human rights principles, their historical development and application; operationalization of the right to health and its consequences for public health practice; governmental obligations for health under international human rights law; linkages between health and human rights; application of the human rights framework to the design, implementation, and evaluation of PH programs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.601. Environmental Health. 5 Credits.**

Summarizes the concepts and principles underlying environmental health sciences, characterizes the major environmental agents and vectors affecting public health, and introduces major ecologic, scientific, and political issues from selected topical areas of environmental health. Presents the major concepts and principles that are environmentally mediated and that constitute a risk to humans —emphasizing the chemical, biological, and physical agents and factors. Considers sources, environmental pathways of transmission, exposure-dose relationships, adverse health effects, and particularly susceptible populations. Identifies the principles and methods of risk assessment and risk management, and uses these as a unifying theme.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.602. Environment and Health in Low and Middle income Countries. 2 Credits.**

Introduces students to how environmental health hazards can affect human health in low and middle income settings. The core concepts are: exposure assessment, environmental epidemiology, and risk communication. Topics include: heavy metals, water sanitation and hygiene, waterborne and related diseases, tropical diseases, energy resources and health, and air pollution.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.605. Food Systems Practicum. 4 Credits.**

Students learn first-hand about food system sustainability issues by engaging with organizations working for positive change. They broaden their learning through classroom education, readings and assignments covering: food system sustainability, with emphasis on content areas relevant to student projects; skills and context relevant to working with these organizations; and reflection on service-learning experiences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.606. Case Studies in Food Production and Public Health. 4 Credits.**

Focuses on food production practices in the United States and the associated public health risks and benefits; discussions on animal and crop agriculture and food processing encompass both historical practices and modern methods. Presents case studies which delve deeper into specific topics, including industrial food animal production, aquaculture, veterinary drugs, agricultural policy, chemical exposures, rural communities and food animal worker health, and sustainable production methods. Lectures draw from the literature, and from the firsthand experiences of lecturers in research translation and agricultural production.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.607. Climate Change and Public Health. 3 Credits.**

Explores the science of how and why the climate is changing, as well as the likely and potential impacts of climate change on public health in developed and developing regions of the world. Discusses how rising sea levels; fossil fuels; worsening air quality; frequency and severity of weather-related disasters; and scarcity of food and drinking water are all influenced by the changing climate. Examines policy, behavior, mental health, social determinants of health, economics, sustainable strategies for mitigation and adaptation, and the role public health professionals can play in these decisions. Synthesizes concepts and knowledge from multiple disciplines through a hands-on, translational project.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.609. Principles of Environmental Health. 4 Credits.**

Presents concepts, principles, and applications underlying the field of environmental health. Topics include contaminant sources, fate and transport, exposure and dose, study design in toxicology, climate change, environmental justice, and the built environment. Emphasizes policy, practice, and systems-based approaches. Discussions and exercises focus on reviewing current environmental health issues in the media, evaluating peer-reviewed literature on these issues, and deliberating on potential opportunities for prevention and intervention.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.610. Applied Environmental Health Practice. 4 Credits.**

Applies principles of environmental health to a real-world problem impacting a community in our own backyard. Investigates the driving forces that underlie these complex environmental health issues. Explores strategies for assessment and intervention. Integrates the lived experiences of community members and students wherever possible. Incorporates group work, so students are expected to coordinate schedules with each other and the community-based organization. Students practice skills in project management and data analysis —enacting theoretical principles of environmental health learned in previous classes—while working in a group setting. The combination of these practical skills and theoretical foundations are fundamental in today's professional practice.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.611. The Global Environment, Climate Change, and Public Health. 4 Credits.**

Explores how global environmental issues such as global warming, urban sprawl, deforestation, mining, environmental refugees, biodiversity loss, and food security may cause increasing human harm. Provides an overview of the science and policy issues related to the changing environment, how environmental problems affect human health, and emphasizes potential solutions and sustainable development methods essential for resolving a myriad of environment-health problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.612. Advanced Environmental Health I. 4 Credits.**

Addresses environmental contaminants originating from four environmental vectors, Air, Water, Soil, and Food, impact human health. Focuses on the foundational knowledge and methods in environmental health needed by doctoral students to prepare for advanced careers in environmental health including integration of multi-disciplinary approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.613. Teaching Environmental Health. 1 Credit.**

Prepares students to excel in required teaching activities as part of their PhD program. Includes access to teaching resources, departmental best practices and faculty support. Reviews critical skills in teaching and communicating environmental health and engineering concepts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.614. Urban Agriculture and Public Health. 2 Credits.**

Explores the connections between urban agriculture and public health using case studies around the United States. Examines the people, practices, policies, and public health significance of urban agriculture. Lectures and background reading provide an evidence-based introduction to the connections among public health, agriculture, community development and food justice. Students are expected to listen to online lecture(s), do readings, and quizzes before the course begins. The course be based at the Center for a Livable Future's Food System Lab, an urban farm at Cylburn Arboretum featuring an aquaponics system. Field trips to local food system sites, such as a farm, farmers market and community garden, and hands-on activities help students blend theory and practice.

For a final project, students will translate what they learn in the course by exploring and reporting on aspects of their own local food environment. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.618. Law and Laboratory Animals: Statutes, Regulations and Policies. 3 Credits.**

Examines the laws, regulations and policies that govern the relationship between biomedical institutions, laboratory researchers and animals that have developed over the past half-century. Focuses on the systems of governmental and self-regulation that are at the heart of the U.S. (and international) efforts to address ethical and societally beneficial laboratory animal use. Explores the ethical foundations of these laws and discusses the relationship between scientists, animals and society. Includes both in-person and online lectures by research scientists, veterinarians, and professionals who are experts in humane science. Features class discussions and case studies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.619. Drinking Water and Water Policy: Avoiding Another Flint. 1 Credit.**

Provides an overview of the federal drinking water and clean water laws, as well as the resultant regulations from these laws. Considers the contaminants addressed by the regulations and the drinking water and wastewater treatment necessary to comply with the regulations. Explores the use of the Consumer Confidence Report (CCR) to understand what's in drinking water. Investigates current issues and problems facing the water sector, as well as some of the potential solutions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.620. Introduction to Food Systems and Public Health. 4 Credits.**

Introduces the complex and challenging public health issue of food security (sufficient, safe and nutritious food for all) in a world where approximately 850 million people are under-nourished while over 2 billion are overweight or obese. Explores the connections among diet, our food system, the environment and public health, considering factors such as equity, population pressure and the historical, economic and political forces that have helped shape food systems. Considers approaches to achieving both local and global food security. Explores the important role public health professionals can play. Guest lecturers include experts from a variety of disciplines and experiences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.621. Protecting the Environment and Safeguarding Worker Health: A Problem-Based Approach. 3 Credits.**

Examines environmental and worker health by introducing and analyzing four real world problems; Explores how evidence-based interventions are designed and implemented; Emphasizes the role that social justice and environmental equity play in establishing effective public health interventions; Reviews how science, communication, and policy interweave in environmental and occupational health decision-making; Shows how environmental and occupational health leaders act to address and solve problems and prepares students to tackle and design solutions for contemporary problems in environmental and occupational health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.623. Infectious Disease Threats to Global Health Security. 3 Credits.**

This course will introduce students to the major health security threats that face the US and other countries and the strategies, policies and organizations that are in place to defend against them. Throughout the course, we will make notes of areas where approaches to health security have evolved. We will also examine where important gains in health security preparedness have been made and identify areas in which progress is still needed. Given their particular challenges and frequency with which they occur, preparedness for and response to biological threats to health security will be a large focus of this class. Discussions of other health security threats and sharing of experiences from students are welcome.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.624. Biotechnology and Health Security. 3 Credits.**

Prepares students to examine the complex issues surrounding the security of advances in the biological sciences, and their impact on public health. Acquaints students with medical and public health options that may be possible as a result biotechnology advances—for example, to rid areas of malaria-carrying mosquitoes. Will also acquaint students with the difficult history of past bioweapons programs in the 20th century, and the continuing effect that history has on current biodefense and health security efforts. Introduces the concept of the dual-use dilemma—that is, how biotechnologies may have applications for good and harm—and explores how current biotechnology advances may be applied towards security aims, or could be misused. Topical issues in science and security policy, including genetically modified organism (GMO) controversies, will be explored, researched, and debated. Encourages application of critical thinking skills through class discussions and written assignments. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.625. Community-Driven Epidemiology and Environmental Justice. 3 Credits.**

Introduces principles, concepts, and methods in community-driven environmental justice research. Presents current environmental justice research and future research needs. Offers practice opportunities for active involvement in problem-solving in environmental justice research. Provides students an opportunity to develop facility with analytic methods needed to conduct research into community environmental justice concerns. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.626. Environmental Justice and Public Health Practice. 3 Credits.**

Explores environmental justice through a historical, ethical and political lens with discussions on the impacts of environmental injustice on health disparities, particularly in low income and minority communities. Critical assessment of existing environmental justice approaches will be used to foster discussions and strategies for alleviating inequities in environmental exposure and disease at multiple levels and domains of public health. This course will highlight various approaches for public health officials, advocacy groups, health professionals, policymakers, and stakeholders to contribute to environmental justice, and guide students through integrating existing expertise into environmental justice solutions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.627. Lessons Learned in 1918 Pandemic Flu. 1 Credit.**

Prepares students to examine the complex history surrounding the 1918 influenza pandemic, the public health response at that time, and compare to preparedness, today. Acquaints students with the realities of mass vaccination and medical countermeasure development. Topical issues related to influenza preparedness will be discussed, including an examination of what happened in the 1977 reemergence of H1N1 influenza, gain of function influenza experiments and other controversial influenza research, and the effectiveness of non-pharmaceutical interventions. Encourages application of critical thinking skills through class discussions and written assignments. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.628. Introduction To Environmental and Occupational Health Law. 4 Credits.**

Introduces the theory and practice of environmental and occupational health law. Examines the approaches and strategies that underlie federal (United States) and state environmental and occupational health laws and regulations. Focuses on the study of the most significant federal and state environmental and occupational health laws and regulations, such as the Clean Air Act, Occupational Safety and Health Act, Comprehensive Environmental Response, Compensation, and Liability Act, and workers' compensation laws, with a particular emphasis on how they can be utilized as public health tools. Introduces students to the institutions and agencies that administer worker and environmental protection programs, and acquaint students with international treaties and laws aimed at protecting the environment and workers. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.630. Chemical and Biological Weapons Threats: Science, Public Health, Policy. 3 Credits.**

Provides a broad understanding of the application of scientific concepts of biological and chemical warfare agents to inform evidence-based public health action and policy-making. Reviews the scientific principles and outcomes of threat agent use. Includes topics such as scientific and clinical aspects of threats agents, history of past use, and overarching policies to control their use. Examines the public health aspects of preparedness, including national development, use, and sharing of medical countermeasures. Explains principles of preparedness and response using case studies. Builds skills in crafting evidence-based public health policy options in preparing and responding to chemical and biological threats. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.631. Environmental and Occupational Health Policy Seminar. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.632. Introduction to Molecular Toxicology. 3 Credits.**

'Introduction to Molecular Toxicology' is a 3-credit online course that introduces toxicology at a molecular level. It is designed for students with minimal background in biology and toxicology. The course will review the molecular mechanisms of diseases associated with environmental exposures. The course will introduce the cellular signaling pathways involved in protection from effects of chronic exposure to environmental toxicants, including responses to stress and oxidative damage. The course will also review both genetic and epigenetic changes that are associated with disease pathogenesis. In addition, the course will present the most recent technological advances in the molecular tools available to study effects of environmental toxicants, including next generation sequencing, mass spectrometry, gene editing models and emerging alternative animal models. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.633. The Sociocultural Dimensions of Disasters. 3 Credits.**

Provides an anthropological viewpoint on extreme events including natural disasters, outbreaks, and technological accidents. Explores the human hand in, and experience of disasters - phenomena that influenced by the ways people imagine, build, organize, and value their communities. Critically examines the present trend of more frequent and more severe disasters, as well as chronic disparities in people's abilities to withstand and to recover from mass tragedy. Introduces theories of social vulnerability and community resilience to inform policies on how to reduce the chances for, as well as consequences of disasters. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.634. Public Health Emergencies: Risk Communication and Decision Science. 3 Credits.**

Explores the science of risk communication and decision making. Discusses risk perception, communication guidance, and news media portrayal of risks. Reviews existing guidance on risk decision making. Presents previous and current public health emergencies as practice-based examples of risk communication and decision making. Examines public health emergency scenarios to prepare students for communication and decision making in their future work. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.635. Seafood and Public Health: Global Trade, Nutrition and the Environment. 3 Credits.**

Explores the (sea)food system with a multi-disciplinary approach and real world examples. Examines the local-to-global connections in the most internationally traded food commodity, and why this matters for food and nutrition security, as well as environmental health. Discusses how the seafood sector can create sustainable aquatic food systems that work for businesses, fish workers, and consumers. Focuses on low- and middle-income countries where seafood is key for food and livelihoods. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.636. Human Rights and Health Seminar. 3 Credits.**

Introduces students to human rights in general, health as a human right, impact of health policies, programs and practices on human rights, and collective impacts of human rights violations, whether gross violations in human conflict or insidious violations associated with mistreatment of individuals and marginalized groups. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.637. Refinement of Animal Experimentation: Essential to Reduce Animal Suffering and Enhance Scientific Rigor. 2 Credits.**

Prepares students who work or plan to work with animal subjects in the laboratory. Explores how to comprehensively and adequately apply Refinement methods in practice. Focuses on current housing and husbandry standards and discusses the benefits of a 'culture of care' for animals. Examines current best approaches to the important experimental refinements, namely anesthesia, analgesia, pain assessment and management, health monitoring, and humane endpoints and killing methods. To further assess the quality of animal-based research, necessary refinements in planning, conduct, analysis and reporting practices of animal studies are reviewed. Presents potential barriers to the uptake and application of Refinement methods and how they are challenged. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.638. Animals in Research: Ethics. 1 Credit.**

Introduces students to the principles of bioethics when using animals in biomedical research and testing. Discusses the most common ethical theories such as contractarianism, Kantianism and utilitarianism. Addresses ethical issues arising from the use of animals in biomedical research and emphasizes on the role the three Rs of animal experimentation (Replacement, Reduction and Refinement) play when conducting animal experiments. Explores the harms involved in animal studies and assesses these against the benefits (harm-benefit analysis, HBA). The HBA is considered to be a key ethical safeguard for animals and, thus, is discussed in detail. Prepares students for real-world problems they may face in the laboratory. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.639. Advanced Environmental Health II. 4 Credits.**

Focuses on the foundational knowledge and methods and their application in environmental health and engineering needed by doctoral students to prepare for careers in environmental health. Frames how environmental contaminants originating from four environmental vectors, Air, Water, Soil and Food, impact human health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.640. Molecular Epidemiology and Biomarkers in Public Health. 4 Credits.**

Emphasizes the scientific basis of molecular epidemiology and provides examples of the application of molecular biology, analytical chemistry, and toxicology to the study of chronic disease etiology and its public health application, including examples in human cancer, cardiovascular, immunological, and neurological diseases. Also discusses methodological and study design problems. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.641. Climate Change and Public Health Problem Solving Seminar: Global Challenges and Solutions for Mitigation, Adaptation, and Sustainability. 3 Credits.**

Equips students with the skills to understand how to evaluate, assess, and design adaptation and mitigation strategies for global climate change impacts on public health. Features "real world" scenarios and case studies that are used to demonstrate the likely impacts of climate change on public health. Analyzes case studies and discusses how evidence-based science is deployed to combat the environmental health aspects of climate change. Gains a better understanding of the role that social justice and environmental equity play in the challenges that climate change brings. Emphasizes a systems-based approach, recognizing that climate change problem-solving methodology is multi-dimensional and multi-sectorial. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.644. Food System Resilience. 2 Credits.**

Provides an overview of how acute and chronic disasters affect food systems, describes actions to support food security, and discusses public health roles. Shares stories and insights from guest speakers at the cutting edge of policy, practice, and research, from community to global scale. Explores concepts of food systems, resilience, preparedness, and equity. Reviews strengths, limitations, and unintended consequences of responses. Discusses how systemic factors (e.g., poverty, racism, and unsustainable food systems) affect outcomes. Challenges students to explore diverse perspectives and constraints, build on assets, and envision responses for emergency needs and longer-term systemic change.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.647. The Health Effects of Indoor and Outdoor Air Pollution. 3 Credits.**

Provides a broad understanding of air pollution, its sources, transport and exposure. Examines important atmospheric chemistry and measurement methods. Discusses the relationship between air pollution and health effects. Includes topics such as oxidant pollutants, sulfur dioxide and acid aerosols, particulates, bioaerosols, volatile organic compounds, and indoor air pollution. Also covers host susceptibility factors, the influence of global warming, and regulation and public policy. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.650. Fundamentals of Clinical Oncology for Public Health Practitioners. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.651. Energy, Environment, and Public Health. 2 Credits.**

Examines why energy policy choices are so important to human health and well-being. Explores how the impacts of energy exploration, generation, and usage patterns are tied directly to economic prosperity, the condition of the environment, the health of the population, and even aspects of national and international security, for developed as well as developing nations. Discusses and presents potential solutions to the three biggest energy challenges: (1) meeting the basic energy needs of the world's poorest people in a more healthful manner, (2) de-carbonizing electricity generation, and (3) reducing oil dependence. Emphasizes that energy is the core of the environment problem and environment is the core of the energy problem.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.653. Climate Change: Avoiding Conflict and Improving Public Health. 3 Credits.**

This course explores the potential for a changing climate to cause food and water shortages, forced migration, and conflict. Through a series of case studies of climate change-relevant crisis events around the world, we will examine the factors that led to the communities in question mustering resilience to survive and recover from the crisis vs. the factors that led to conflict. Through this analysis, we will identify a suite of resilience factors and strategies, such as community cohesion, ecosystem restoration, agricultural and water capture and storage, that could be built into policies to assist high risk areas in avoiding conflict. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.655. Baltimore Food Systems: A Case Study of Urban Food Environments. 4 Credits.**

Challenges students to look closely at the environment of Baltimore City's complex food systems, and to consider what it would take to improve these systems to assure access for all to nutritious, adequate, affordable food, ideally with reduced environmental harm. Students "go backstage" with tour guides at sites including a supermarket, a corner store, an emergency food distribution center, and a farm connected to the city school system. Students learn about the types of food available at these sites, who uses them, relevant aspects of their operations, and site-relevant key barriers to, and opportunities for, providing access to healthier and more sustainably produced food. Students also conduct oral history interviews about food with elderly city residents to understand how food access has changed over the years. Class sessions engage students to think critically, and provide background and frameworks for understanding the experiential sessions. Throughout, students consider the relative impacts of access, demand, and stakeholder interests, and consider the relative strengths and weaknesses of voluntary, regulatory (governmental), legal and other strategies. Lectures and discussions consider applicability of lessons gained from the study of Baltimore to other food systems. For their final papers, students identify a problem and its key determinants, and they propose/analyze an option to address it. Students think critically about selected aspects of the city's food systems and food environments, identifying challenges and opportunities for change and incorporating lessons learned from other food systems and programs. Students also discuss implications beyond Baltimore.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.661. Writing Scientific Papers I. 2 Credits.**

Enables doctoral students to attain skills in writing successful scientific papers—that is, papers that are accepted by peer-reviewed journals. Confers skills in identifying and using online information sources. Informs participants on different publication options, including open source journals. Explains NIH requirements for notification and access. Through problem based learning and review of successful scientific papers, conveys the elements of successful scientific papers, including formats, data presentation, citations and acknowledgements. Demonstrates successful response to reviewer comments.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.662. Writing Scientific Papers II. 2 Credits.**

Enables doctoral students to attain skills in writing successful scientific papers—that is, papers that are accepted by peer-reviewed journals. Confers skills in identifying and using online information sources. Informs participants on different publication options, including open source journals. Explains NIH requirements for notification and access. Through problem based learning and review of successful scientific papers, conveys the elements of successful scientific papers, including formats, data presentation, citations and acknowledgements. Demonstrates successful response to reviewer comments.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.663. Grant Writing I. 2 Credits.**

Enables doctoral students to attain skills in writing successful funding proposals—that is, proposals that are likely to receive approval for funding. Introduces students to grant writing, funding sources, types of NIH grants, how to read an RFA, PA or other announcements, and develop a biosketch. Explores the requirements of a successful NIH style grant proposal.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.664. Grant Writing II. 2 Credits.**

Enables doctoral students to attain skills in writing successful funding proposals—that is, proposals that are likely to receive approval for funding. Introduces students to grant writing, funding sources, types of NIH grants, how to read an RFA, PA or other announcements, and develop a biosketch. Explores the requirements of a successful NIH style grant proposal.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.670. Introduction to Public Health Emergency Preparedness. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.820. EHE Doctoral Thesis Research. 1 - 22 Credits.**

Provides an opportunity to actively conduct research in environmental health

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.829. Summer Thesis Research. 12 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.840. EHE Doctoral Special Studies and Research. 1 - 22 Credits.**

Provides a forum for students to receive feedback on their research ideas and projects. Acquaints students with research of leading environmental health experts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.841. SS/R: INTRODUCTION TO ENVIRONMENTAL HEALTH. 3 Credits.**

Examines health issues, scientific understanding of causes, and possible future approaches to control of the major environmental health problems in industrialized and developing countries. Topics include physical, chemical, and biological agents of environmental contamination; solid and hazardous waste; susceptible populations; biomarkers and risk analysis; the scientific basis for policy decisions; and emerging global environmental health problems

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.180.860. EHE Student Seminar & Grand Rounds. 1 Credit.**

Provides a forum for students to present their current research project and receive feedback from faculty and students. Introduces students to research of leading environmental health experts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.181.845. MHS Special Studies & Research. 1 - 22 Credits.**

Provides a forum for students to receive feedback on essay topics and outlines.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.181.850. MHS Essay. 1 Credit.**

Provides the opportunity for the student to work with their adviser to formulate, research, finalize, and gain approval of the required essay.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.613. Exposure Assessment Techniques for Health Risk Management. 3 Credits.**

Prepares the students to use techniques of exposure assessment to quantitatively estimate exposures in occupational and non-occupational settings. Students will be introduced to concepts of exposure variability and its implications for interpreting small exposure data sets. Students will apply advanced techniques such as mathematical modeling of exposures using exposure determinant information, analysis of variance for between- and within-subject variability, Monte Carlo analysis of uncertainty, Bayesian decision analysis using small data sets, exposure assessment strategies in occupational settings. Students will analyze case studies to assess exposures in real-life scenarios using multiple methods. Students will critically evaluate key scientific papers on exposure assessment strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.614. Environmental and Occupational Monitoring. 5 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.615. Airborne Particles. 4 Credits.**

Describes the basics of airborne particles. Explores properties of gases, particle motion, size statistics, Brownian motion and diffusion, curvilinear motion of particles, particle deposition and clearance in the human respiratory system, filtration, aerosol samplers, and sampling methodology, optical properties and electrical properties of aerosols.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.617. Exposure Sciences for Health Risk Assessment. 4 Credits.**

Prepares students to use techniques of exposure assessment in aid of epidemiological studies. Introduces students to core concepts including exposure variability and its implications for reconstructing historical exposures; sparse data and measurement errors; the exposure data matrix; methods for imputation of missing values; the relationship between exposure and tissue concentrations; the choice of exposure metric; and exposure-response relationships. Examines advanced techniques for imputing missing data while reconstructing exposures. Demonstrates the application of mathematical models of exposure using exposure determinant information and Bayesian methods.

Considers exposure windows and exposure lagging. Focuses on using biologic models of how disease develops in response to exposure. Students critically evaluate exposure assessment strategies in selected epidemiological studies from the peer-reviewed literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.182.621. Introduction to Ergonomics. 4 Credits.**

Introduces the fundamental principles of ergonomics, including terminology, concepts, and applications of physiology, anthropometry, biomechanics, psychology, and engineering to work place and work methods design. Emphasizes the complex relationships among workers, job demands, work place designs, and work methods. Prepares students for advanced study in safety science, industrial hygiene, injury prevention, industrial engineering, and safety and health management.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.622. Ventilation and Hazard Control. 4 Credits.**

Covers the principles of industrial ventilation and engineering controls for airborne hazards. Provides competency in general ventilation and industrial ventilation design.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.623. Occupational Health Management. 3 Credits.**

Examines modern Lean management methodology and how it can be leveraged to design and implement an effective health, safety, and environmental (HSE) management system in an organization. Discusses Lean management methods and tools and how they impact organizational structure, SHE planning, risk assessment, training, and continuous HSE improvement.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.625. Principles of Occupational and Environmental Hygiene. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.626. Issues for Water and Sanitation in Tropical Environmental Health. 2 Credits.**

Introduces major environmental health problems in the tropical areas of the world and discusses some solutions in detail. Covers engineering, human behavior, and public health approaches to providing potable water and sanitation including simple water supplies, sanitary latrines, the relationship of water supply and sanitation to diarrheal diseases, disaster sanitation, and techniques for disinfection. Demonstrates field treatment of water supplies and water microbiology. Each student develops a case study drawn from current events and designs a field project for an environmental control measure to reduce disease in a community. In addition, students develop a short (4-6 page) mock grant proposal designed to implement an integrated water and sanitation hygiene intervention of their choosing drawing on the lessons learned during this course.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.631. Principles of Occupational Safety. 2 Credits.**

Introduces the organizational framework in which safety sciences are practiced in the U.S. Illustrates professional and scientific methodologies by focusing on selected, substantive areas of practice (systems safety, nature of accidents, electrical hazards, fire and fire suppression, explosions and explosives, and falls and walking and working surfaces).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.637. Noise and Other Physical Agents in the Environment. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.638. Environmental and Health Concerns in Water Use and Reuse. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.640. Food- and Water- Borne Diseases. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.641. AIR, WATER AND FOOD TOXINS. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.810. MS Field Placement. 1 - 22 Credits.**

Focuses on a mentored, hands-on practical public health experience, which involves meaningful participation and interaction with public health professionals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.845. EHE MS Special Studies and Research. 1 - 22 Credits.**

Prepares students to identify and research the central issues in environmental health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.850. EHE MS Essay. 1 - 16 Credits.**

Students work with their adviser to formulate, research, finalize, and gain approval of their master's essay, which is based on a required Independent Professional Project (IPP). Students write the essay as a professional report summarizing the findings of the IPP. This represents a substantive application of professional technical skills through the process of collecting and summarizing data and reviewing appropriate literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.182.860. Special Studies Seminar in Occupational and Environmental Hygiene. 1 Credit.**

Presents seminars by faculty, students and invited speakers dealing with occupational and environmental hygiene professional practice and research. Provides examples of various occupational/environmental settings and associated worker hazards. Serves to integrate various courses taken as part of the online master's in OEH program and to familiarize students with state-of-the art professional practice procedures and guidelines. Provides a venue for master's students to present their final essays.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.183.631. Fundamentals of Human Physiology. 4 Credits.**

Encompasses the integration of a variety of organ systems. Invites leading scientists from different fields of physiology to offer exceptional and up-to-date lectures that quickly move through the basic mechanistic principles. Applies basic mechanistic principles of each organ system to current public health issues and environmentally relevant topics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.183.638. Mechanisms of Cardiopulmonary Control. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.183.642. The Cardiopulmonary System Under Stress. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.183.643. Essentials of Pulmonary Function Measurements. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.183.825. EHE ScM Thesis Research. 1 - 22 Credits.**

Provides an opportunity to actively conduct research in environmental health

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.183.840. EHE Scm Special Studies and Research. 1 - 22 Credits.**

Provides a forum for students to receive feedback on research ideas and projects. ScM students enroll in this course prior to passing the written comprehensive exam.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.184.830. Postdoctoral Research Environmental Health and Engineering. 1 - 22 Credits.**

Offers an opportunity for postdoctoral students to conduct research and write papers for publication.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.185.600. One Health Tools to Promote and Evaluate Healthy and Sustainable Communities. 3 Credits.**

Students will learn and apply tools and principles of One Health, which is the interface of human health, animal health and environmental health, to promote and evaluate healthy and sustainable communities. Classes will cover methods central to the conduct of One Health research or programs, which includes study design, stakeholder participation, community engagement and program evaluation, and will cover topics of high relevance to One Health in a way that uses systems approaches and synthesis to join perspectives from the multiple disciplines. These topics include drivers—such as the food system and antimicrobial resistance—that can contribute to or detract from the health and sustainability of communities. Methods will be presented in the context of applications such as policy, regulation, and economics and will connect One Health techniques for knowledge integration and other approaches to the design of healthy communities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.185.601. One Health Seminar. 1 Credit.**

Addresses global and domestic health challenges through a One Health lens, including practice-based approaches increasingly adopted by government agencies, non-governmental organizations and the tripartite (WHO, OIE, FAO). Engages experts in the field to discuss emerging topics and application of One Health approaches. Explores wide-ranging topics that include zoonotic infectious diseases, health security, preparedness, disaster response, climate change, planetary health, food systems, sustainability, chemical exposures, occupational health, health communication, and policy.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.185.801. Exposure Sciences & Environmental Epi Journal Club. 1 Credit.**

Provides a forum for students and multiple faculty to keep up-to-date on the latest environmental health research and get feedback on their research ideas and projects. Emphasizes active participation in discussions of the peer-reviewed literature, the most up-to-date research, and the process of research development.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.185.803. Health Security Journal Club. 1 Credit.**

Provides a forum for students to engage with multiple faculty to discuss current topics in health security and global catastrophic biological risks. Emphasizes active participation in discussions related to peer-reviewed publications, as well as trends in research and policy, and offers an environment to contemplate and receive feedback on research development.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.185.805. Toxicology, Physiology & Molecular Mechanisms Journal Club & Seminar. 1 Credit.**

Provides an opportunity for students and postdoctoral fellows to present scientific papers from the current literature dealing with mechanisms underlying environmental diseases and the methodologies used to study them. Papers are organized around specific themes selected by the course instructors.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.185.806. Advanced Concepts in Toxicology, Physiology & Molecular Mechanisms. 2 Credits.**

Provides a platform for students, postdoctoral fellows and faculty to present and discuss impactful scientific papers from the current literature that deal with mechanisms underlying environmental disease along with accompanying methods. Explores additional aspects that are relevant to conducting and conveying laboratory research, including study design and statistical analysis, manuscript and grant review, policy and practice, and risk assessment. Outside speakers will also be invited to present on a topic relevant to advanced concepts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.185.810. Field Placement Esee. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.186.800. MPH Capstone: Environmental Health & Engineering. 2 Credits.**

Provides students with the opportunity to work on a public health practice project on a chosen public health problem that simulates a professional practice experience.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.186.895. MPH Practicum: EHE. 1 - 4 Credits.**

The MPH Practicum is a mentored, hands-on practical public health experience, which involves meaningful participation and interaction with public health professionals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.610. Public Health Toxicology. 4 Credits.**

Examines basic concepts of toxicology as they apply to the effects of environmental agents present in air, water and food (e.g. chemicals, metals) on public health. Discusses the distribution, cellular uptake, metabolism, and elimination of toxic agents, as well as the fundamental principles governing the interaction of foreign chemicals with biological systems. Considers how population data on disease incidence (various cancers, lung, kidney, heart, etc.) can suggest possible etiologies and how genetic and epigenetic factors can influence risk for adverse health effects. Focuses on the application of how these concepts provide evidence relevant to the understanding and prevention of morbidity and mortality resulting from environmental exposures to toxic substances through presentation of case studies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.625. Animals in Research: Law, Policy, and Humane Sciences. 3 Credits.**

Imparts fundamental knowledge about basic and applied (bio)medical research. Explores the main shortcomings of animal use in science. Discusses how to fully apply the 3R principles, and how to properly conduct experiments. Prepares students to critically appraise the validity of animal and non-animal models and methods in order to choose the best means for particular research interests.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.632. Molecular Toxicology. 4 Credits.**

Reviews the mechanisms by which environmental toxicants cause chronic diseases such as cancer, COPD, asthma and heart diseases that impact public health. Topics include cell signaling pathways involved in oxidative and nitrosative stress, the microbiome, cell growth, cell death, DNA repair, inflammation and carcinogenesis in response to exposure to air pollutants, metals and other environmental toxicants. Presents most recent technological advances in the molecular and genetic tools available to study how environmental toxicants cause diseases, which includes omics technologies (genomics, proteomics and metabolomics), next-generation sequencing for gene expression and genetic variations, transgenic animals and emerging alternative animal models.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.633. Introduction to Environmental Genomics and Epigenomics. 3 Credits.**

Presents the concept of the genetic and epigenetic data analysis in environmental health studies. Introduces not only single gene analysis but also genome-wide data searching. Also introduces cutting-edge analytical tools for 'omic' data not limited to genomics, but also for epigenomics, proteomics and metabolomics. Provides an introduction to the pathway analysis for 'omic' data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.634. Analysis for Environmental Genomics and Epigenomics. 1 Credit.**

Emphasizes the analytical methods for genomic and epigenomic data analysis. Presents step-by-step instructions for searching and extracting databases and performing pathway analyses on existing genomic and/or epigenomic data. Acquaints students with 'omic' data analysis by participating group project that aims for proving the principle or generating new hypothesis for a selected research topic.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.640. Toxicology 21: Scientific Foundations. 1 Credit.**

Provides students with fundamental knowledge of the emerging science driving new strategies for human risk assessment. Includes topics: toxicokinetics, xenobiotic activation and inactivation, systems biology, and databases for toxicity testing. Presents case studies that have used different data bases for toxicity testing. Offers hands-on experiences using the databases and other Web-based applications.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.645. Toxicology 21: Scientific Applications. 3 Credits.**

Familiarizes students with the novel concepts being used to revamp regulatory toxicology in response to a breakthrough National Research Council Report "Toxicity Testing in the 21st Century: A Vision and a Strategy." Presents the latest developments in the toxicology field: moving away from animal testing toward human relevant, high content, high throughput integrative testing strategies. Active programs from EPA, NIH and the scientific community work-wide illustrate the dynamics of safety sciences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.650. Alternative Methods in Animal Testing. 3 Credits.**

Discusses and evaluates strategies for reducing the number of animals utilized in basic and applied research. Addresses traditional in vitro methods, including cell culture and analytical chemistry as well as newer and evolving techniques such as informatics, genomics, proteomics, and metabolomics. Also discusses governmental regulatory processes for approving new testing methods, especially in vitro methods.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.655. Evidence-Based Toxicology. 3 Credits.**

Provides students with fundamental knowledge about EBT approaches currently in use (or in development) that integrate and utilize diverse sources of data. These approaches include meta-analysis and systematic reviews, as used in evidence-based medicine. Introduces, explains and expands upon techniques such as risk of bias, QA/QC, good laboratory practice and validation, and the role that these tools and techniques play in assuring maximum confidence in evidence-based approaches

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.187.661. Environmental Health in Neurological and Mental Disorders. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.680. Fundamentals of Occupational Health. 3 Credits.**

Introduces selected important topics in occupational health through lectures, readings, and class discussion. Provides an overview of the field, providing a survey of the history of occupational health; analysis of case studies in the history of asbestos, coal workers pneumoconiosis, and uranium mining; identification of the burden of occupational injuries and diseases; application of the toxicologic paradigm to activities in occupational health; analysis of occupational health hazards; identify the association between social, behavioral, and organizational factors and health outcomes in the workplace; identification of legal, regulatory, and ethical issues; analysis and research in clinical and non-clinical emerging issues in occupational health; and an introduction to the concepts of occupational health in developing countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.681. Onsite Evaluation of Workplace and Occupational Health Programs. 5 Credits.**

Lectures, discussions, and visits to various industrial sites present approaches to evaluating the industrial environment, including industrial process, hazards, organization, and management structure. Stresses the importance of interdisciplinary cooperation in the development of occupational health programs, with reference to the U.S. workplace in the next decade.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.682. A Built Environment for A Healthy and Sustainable Future. 3 Credits.**

Addresses the role that the built environment plays in public health. Examines how building design, community planning and design, land use, and transportation networks contribute to energy use, water supply degradation, climate change, ecosystem degradation, and public health. Explores the contributions of suburban sprawl to adverse environmental and public health outcomes. Examines how the built environment could and must change if we are to stabilize the climate and move into a sustainable future.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.686. Clinical Environmental and Occupational Toxicology. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.688. Global Sustainability & Health Seminar. 1 Credit.**

Discusses the causes, consequences, and implications of key global environmental challenges that we are facing and that are likely to become more challenging over time. Addresses how land use (e.g., patterns of urban growth and suburban sprawl), energy use, food production and distribution, water use, and population growth are causing climate change, ecosystem degradation, biodiversity losses, species extinctions, and other resource depletion, and how all this is in turn is a threat to human health as individuals, in communities, and globally. Focuses on discussion and not lectures and will utilize a mix of movies, guest discussants, and student-directed discussions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.694. Health of Vulnerable Worker Populations. 3 Credits.**

Discusses occupational safety and health program considerations for vulnerable populations, including all levels of prevention and using examples such as the health needs of women workers, shift workers, aging workers, workers' families, and workers with chronic diseases or impairments. Focuses on strategies for identifying and removing barriers that affect health and work performance, program development and management responsibilities, and cost issues related to selected preventive and rehabilitative programs. Presents relevant research findings on the ability of vulnerable populations to benefit from safe and healthy working lives.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.840. Special Studies and Research Environmental Health & Engineering. 1 - 22 Credits.**

Prepares students to identify and research the central issues in environmental health

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.188.861. Advanced Topics in Toxicology and Physiology. 1 Credit.**

Reviews the unique and advanced topics in toxicology and physiology. Presents students with guidelines for understanding the basic knowledge as well as the advanced methodology in toxicology and physiology. Prepares students to be able to identify the environmental health problems and present the critical reviews on the original peer-review papers in selected topics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.600. Stata Programming. 2 Credits.**

Teaches Stata programming in a systematic way to students who have had exposure to Stata or another statistical package, but may not have the tools to perform complex analytical projects independently. Covers data management, programming concepts, procedural programming, Stata-specific commands and constructs, and project workflow.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.601. Principles of Epidemiology. 5 Credits.**

Introduces principles and methods of epidemiologic investigation of infectious and noninfectious diseases. Illustrates methods by which studies of the distribution and dynamic behavior of disease in a population can contribute to an understanding of etiologic factors, modes of transmission, and pathogenesis. Presents different types of study design, including randomized trials, case-control and cohort studies, risk estimation, and causal inferences. Demonstrates the relationship between epidemiology and the development of policy. Laboratory problems provide experience in epidemiologic methods and inferences, illustrating a common-vehicle epidemic; the spread of infectious disease in school, home, and community; epidemiological aspects of a noninfectious disease; vaccination; the epidemiological approach to health services evaluation; rates of morbidity and mortality; sensitivity and specificity; and life table methods.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.602. Intermediate Epidemiology. 3 Credits.**

Covers key principles, designs and methods of observational epidemiology studies. Includes a description of general designs of the main observational studies (birth cohort analysis, ecologic studies, cohort, case-based case-control studies, case-control studies within a defined cohort, and case-crossover studies), measures of disease frequency (cumulative incidence, rate and odds) and of association (relative risk, odds ratio), evaluation of confounding and interaction, types of bias, and the most often used methods of adjustment for confounding effects and their assumptions. Employs lectures and group discussions of exercise

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.604. Introduction to -Omics in Public Health. 2 Credits.**

Introduces quantitative scientists to how "omics" can address public health questions. Reviews basic biology concepts for -omics with a focus on genomics, epigenomics, transcriptomics, and metabolomics. Presents commonly used -omic measurement methods and data preprocessing tools. Discusses challenges that may arise in data analysis due to data measurement issues as well as interpretation of results.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.606. Methods for Conducting Systematic Reviews and Meta-Analyses. 4 Credits.**

Presents basic methods in the qualitative and quantitative meta-analysis, including formulating a hypothesis that can be addressed via meta-analysis, methods for searching the literature, abstracting information, and synthesizing the evidence. Includes Bayesian and likelihood approaches to meta-analysis quantitative methods. Emphasizes essential steps of conducting systematic reviews through hands-on exercises. Focuses on analytical skills in performing meta-analyses and network meta-analyses.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.607. Introduction to Cardiovascular Disease Epidemiology. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.608. Using Big Data for Epidemiologic Research in Health Care. 0.5 Credits.**

Demonstrates a practical approach to big data: where to find it, how to store and analyze it, and why to use it. Provides a technical overview of the utilization of big data with the inclusion of several case examples and inclusion of industry leaders in the application of big data to health care.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.609. Concepts and Methods in Infectious Disease Epidemiology. 4 Credits.**

Develops deeper understanding of the concepts and quantitative methods unique to infectious disease epidemiology. Builds upon the concepts and methods of general epidemiology and knowledge of specific infectious diseases. Topics include disease emergence, transmissibility and the basic reproductive number, transmission patterns and serial intervals, seasonality, virulence, heterogeneity in hosts and pathogens, herd immunity, diagnosis of infectious diseases, co-infections, and phylodynamics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.610. The One Health Approach to Epidemiology and Global Public Health: Problem Solving Seminar. 3 Credits.**

Introduces students to the One Health approach to public health research and practice, providing examples of how evidence shapes public health policy and health promotion, from the local to the global scale. Students will practice strategic thinking and decision making in translating evidence to behavior and policy and will have the opportunity to interact with guest speakers working in One Health fields.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.612. Epidemiologic Basis for Tuberculosis Control. 2 Credits.**

Considers subjects and epidemiologic principles relevant to control measures against tuberculosis. Includes the following topics: diagnosis of TB infection and disease; risk factors and epidemiology; prevention by case-finding and treatment, vaccination, and preventive therapy; pediatric TB; TB modeling; and elements of control programs in low-, middle-, and high-income settings. Offers lectures, group discussions, and review of the tuberculosis literature as the primary components.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.613. Design and Conduct of Clinical Trials. 2 Credits.**

Introduces clinical trial design in the context of epidemiological concepts, covers various topics in the design and conduct of clinical trials, and profiles clinical trials that illustrate these issues. Topics include the definition and history of clinical trials; trial designs, including phase III-IV, cross-over, factorial, and large, simple designs; internal and external validity; controls, randomization, and masking; ethical issues; introductions to data collection and management and analysis principles; monitoring of trials for safety and efficacy; and use of clinical trial data in healthcare decision-making.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.614. Conducting Epidemiologic Research. 2 Credits.**

Covers applications of epidemiologic principles in the conduct of observational studies as taught in advanced epidemiologic methods. Focuses on developing skills to conduct and manage a research protocol, monitor data collection, manage data and disseminate results. Covers components of a clinical research team, responsibilities, expertise and tasks study members perform, and organizational, logistical and attitudinal issues that need to be addressed in producing an effective research group. Topics include infrastructure needed for single-site and multi-site studies, selection bias and analytical intent in the determination of populations and methods for recruitment, development of a manual of operations and forms for data collection and administration, data management tools, implementation and review of quality assurance, specimen repository tracking, and useful statistics for evaluating the progress of the study.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.615. Understanding the Relevance of New Analytical Methods to Epidemiological Research. 2 Credits.**

Provides a basis for understanding how new analytic methods are relevant to epidemiologic research. Explores methods in "plain English" in order to focus on utility of the methods as well as how to interpret analyses as they are applied to research. Addresses the assumption of the methods and big picture pros and cons.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.616. Epidemiology of Aging. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.617. Pharmacoepidemiology. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.618. Epidemiology: the Basics. 3 Credits.**

Introduces the population science of epidemiology, including methods and approaches to measurement and outcomes, study design and inference, risk estimation, and surveillance. Provides the essential elements of epidemiology as appropriate for public health scientists.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.619. Topics in Pharmacoepidemiology. 2 Credits.**

Introduces the key elements of pharmacoepidemiology. Explores the utilization and effects of drugs in large numbers of people and the application of epidemiological methods to pharmacological issues. Focuses on questions of drug safety and effectiveness, concentrating on clinical patient outcomes and on evaluating the use of therapies. Applies the research methods of clinical epidemiology (e.g., randomized trials, cohort studies, case-control studies, use of secondary data, attention to biases and confounding, effects of non-adherence, active and passive surveillance for adverse events) to study medication exposures and outcomes.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.620. Principles of Clinical Epidemiology. 2 Credits.**

Presents lectures and interactive sessions designed to expose students to basic principles of clinical epidemiology and introduce key methods utilized in clinical outcomes research. Focuses on principles and methods in clinical epidemiology which would be most utilized by clinicians/clinician researchers for screening and diagnosis of illness as well as for prognostication and decision-making. Introduces methods and issues in studying clinical epidemiology in health care settings (e.g. administrative data).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.623. Cancer Epidemiology, Prevention, and Control. 2 Credits.**

Emphasizes the role of epidemiology in cancer prevention and control. Compares and contrasts the descriptive epidemiology, natural history, and pathologic and biologic characteristics of selected common cancers, as well as factors related to their etiology. Discusses the influence of environmental and genetic factors and their interplay on the development of cancer together with the epidemiologic issues involved in their investigation. Provides overview of problems involved in cancer prevention and screening.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.624. Etiology, Prevention, and Control of Cancer. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.627. Epidemiology of Infectious Diseases. 4 Credits.**

Introduces the basic methods for infectious disease epidemiology and case studies of important disease syndromes and entities. Includes definitions and nomenclature, outbreak investigations, disease surveillance, case-control studies, cohort studies, laboratory diagnosis, molecular epidemiology, dynamics of transmission, and assessment of vaccine field effectiveness. Focuses case studies on acute respiratory infections, diarrheal diseases, hepatitis, HIV, tuberculosis, sexually transmitted diseases, malaria, and other vector-borne diseases.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.628. Social Epidemiology. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.629. The Epidemiology of LGBTQ Health. 3 Credits.**

Introduces constructs of sexual orientation and gender identity in the context of public health. Explores historical, epidemiological, and social perspectives related to the physical and mental health of lesbian, gay, bisexual, transgender and queer (LGBTQ) individuals and communities. Orients students to current and historic epidemiological and contextual issues that shape what is known about LGBTQ health, presents an overview of LGBTQ health disparities and interventions, and develops a foundation for critical thinking about LGBTQ health research and intervention potential.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.630. Topics in Social Epidemiology. 2 Credits.**

Provides a systematic and selective overview of conceptual approaches and research findings related to the impact of social context and social phenomena on health. Sessions highlight a different area of frontier social epidemiology research. Social processes examined include 1) social inequalities (including social class differences as well as the effects of income inequality), 2) social networks, 3) neighborhood and urban characteristics, 4) gender inequalities and 5) macro-social changes. Discusses global health approaches to social determinants of health including research experiences from different parts of the world. Includes discussion of methods related to the study of social epidemiology; however, this is not intended to be a methods course. Includes limited lecture matter and thorough group discussions on selected classic papers and latest readings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.633. Data Management in Clinical Trials. 3 Credits.**

Acquaints students with important principles of the acquisition, management, and distribution of data in the clinical research environment. Focuses on real-world needs of investigators and emphasizes those issues that researchers need to understand to work effectively with other members of study teams, including coordinators, data entry staff, programmers, and data managers. Covers topics that apply to many studies, and discusses approaches ranging from small single-investigator trials using only a spreadsheet through international networks using sophisticated web-based data management systems, although does not focus on any particular type or size of study. Discusses the benefits and costs of alternatives rather than recommending particular courses of actions. Combines practical and hands-on exercises with advanced treatment of important concepts, although it does not focus on computer programming.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.635. Clinical Trials: Issues and Controversies. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.636. Epidemiology in Evidence-Based Policy. 2 Credits.**

Focus on how scientific evidence in general and epidemiologic studies in particular are used to inform health and regulatory policies. Reviews the role of scientists and epidemiologists in translating evidence to practice and policy; examines how science fares in the legislative, regulatory, and judicial settings; addresses methodological issues related to types and availability of evidence to guide policy. Topics include nutrition recommendations (e.g. population-wide sodium intake), environmental policies; opioid epidemic (e.g. safe injection sites); tobacco control and e-cigarettes; health disparity (e.g., racial disparities in kidney transplantation); diabetes prevention; legal and policy implications of class action lawsuits (e.g., gun policy and local food policy); COVID-19 (e.g., evidence-informed policy making during a pandemic); and modelling to guide policy. Guest faculty, experts in their field, present examples, discuss their experiences using evidence to guide policy.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.639. Assessing Epidemiologic Impact of Human Rights Violations. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.640. Eye Disease: Epidemiology and Control. 1 Credit.**

Presents lectures and group discussions on the pathology, clinical manifestations, epidemiology, treatment, and control of the major blinding diseases, including diabetic retinopathy, cataract, glaucoma, trachoma, and age-related macular degeneration, as well as refractive error and ocular complications of Ebola and Zika.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.641. Healthcare Epidemiology. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.643. Bioinformatic Strategies for Microbiome Data. 2 Credits.**

Introduces key steps for bioinformatic analysis of microbiome data from preparing the data for analysis to visualizing the results. Provides a foundation in ecological concepts including alpha and beta diversity. Explains different methods for finding microbes that differ between environments. Prepares students to plan their own analyses and interpret the results using lectures and hands-on data interpretation exercises.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.644. Epidemiology of Diabetes and Obesity. 2 Credits.**

Describes the epidemiology and prevention of diabetes, obesity, and associated complications. Discusses methodological issues associated with evaluating these in epidemiologic studies. Designed to cover the global epidemics of diabetes and obesity, environmental and genetic risk factors, as well as interventions to improve diabetes outcomes and weight management. Includes lectures from several expert faculty members in the School of Public Health and the School of Medicine. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.645. Introduction to Clinical Trials. 3 Credits.**

Introduces clinical trial design in the context of epidemiological concepts, covers various topics in the design and conduct of clinical trials, and profiles clinical trials that illustrate these issues. Topics include the definition and history of clinical trials; trial designs, including phase I-IV, cross-over, factorial, and large, simple designs; internal and external validity; controls, randomization, and masking; ethical issues; data analysis principles; monitoring of accumulating safety and efficacy data; and use of data from randomized trials.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.646. Epidemiology and Public Health Impact of HIV and AIDS. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.648. Clinical Trials Management. 3 Credits.**

Provides an overview of methods related to the day-to-day conduct of multicenter randomized clinical trials with an emphasis on the Coordinating Center perspective. Using case studies of multicenter clinical trials for illustration, emphasizes topics related to practical applications such as organizational models, use of standardization, and performance monitoring. Discussion of methods is encouraged, including alternatives to usual practice.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.650. Nutrition Epidemiology (Sum Epi). 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.651. Emerging Infections. 2 Credits.**

Explores the factors promoting the emergence of new infectious diseases and the re-emergence of some of the more traditional infections.

Evaluates agent, host, environmental and ecological factors in the emergence of infectious diseases. Presents methods of surveillance and early recognition of several important emerging infections. Includes discussions from lecturers with considerable experience in the investigation of specific emerging infections on the issues specific to emerging infections. Presents and discusses a paper describing an investigation of an Emerging Infection following each one-hour lecture. Presents, describes, and analyzes the factors related to the emergence of infectious diseases, new and old, that have emerged as important public health problems, or which have the potential for major epidemic spread. Explains possible methods for the rapid recognition, prevention, and control.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.653. Epidemiologic Inference in Outbreak Investigations. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.654. Epidemiology and Natural History of Human Viral Infections. 6 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.658. Critical Reading of Epidemiologic Literature. 1 Credit.**

Develops skills in the critical reading of epidemiologic reports. Reviews key epidemiologic concepts and methods including bias, confounding and interaction. Identifies the key issues and common mistakes in the preparation of epidemiologic reports of empirical research. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.660. Practical Skills in Conducting Research in Clinical Epidemiology and Investigation. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.663. Epidemiology Workshop: Interpreting and Using Epidemiologic Evidence. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.666. Foundations of Social Epidemiology. 3 Credits.**

Presents applications of social epidemiologic concepts, introduced through weekly online lectures and readings, and the use of discussions and case studies. Prepares students to understand and appreciate the contribution of social factors to disease etiology, course, and the distribution of states of health in populations. Reviews the conceptual and theoretical underpinnings of social epidemiology from an historical perspective. Focuses on the scientific findings in the field from the 1970's until today; the influence of social context on behavior is well known and forms the backbone for most health promotion interventions. Delineates how the social environment influences behavior by shaping norms, reinforcing social control, providing environmental opportunity, and coping strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.667. Health Equity Research Methods to Address Social Determinants of Health. 4 Credits.**

Introduces innovative methods, practical tools, and skills required to conduct evidence-based research that addresses the social determinants of health disparities. Draws on theoretical frameworks on fundamental values and principles, including social justice, human rights, the value of diverse ideas and stakeholder perspectives, inclusiveness, trustworthiness, behavioral and implementation science, and community-based participatory design. Uses lectures, panel discussions, and case-based examples to provide opportunities in obtaining feedback on ideas from experienced investigators.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.668. Topics in Infectious Disease Epidemiology. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.671. Topics in Management of Clinical Trials. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.674. Causal Inference: Emulating A Target Trial to Assess Comparative Effectiveness. 2 Credits.**

Introduces students to a general framework for the assessment of comparative effectiveness and safety research. The framework, which can be applied to both observational data and randomized trials with imperfect adherence to the protocol, relies on the specification of a (hypothetical) target trial. Explores key challenges for comparative effectiveness research and critically reviews methods proposed to overcome those challenges. The methods are presented in the context of several case studies for cancer, cardiovascular, renal, and infectious diseases.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.676. Bayesian Adaptive Trials. 2 Credits.**

Presents Bayesian adaptive designs and teaches students the skills and considerations necessary to construct such designs. Examines the operating characteristics of Bayesian adaptive designs and the benefits and costs of interim analyses, in particular within the regulatory framework.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.677. Infectious Disease Dynamics: Theoretical and Computational Approaches. 4 Credits.**

Focuses on the dynamic processes that affect the spread of infectious disease. Presents basic conceptual approaches and a survey of specific theoretical and computational methods for simulating the spread of diseases. Specific topics include the effect of population heterogeneity on transmission, simulation of the impacts of interventions, social networks and the links between transmission dynamics and the evolution of pathogens. Particular methods include mathematical models, spatial-temporal analysis of epidemics, social network theory, genetic algorithms, individual based models and other tools of systems epidemiology. Concepts and methods are applied to historical epidemics, current emerging diseases and diseases of international public health importance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.678. Infectious disease transmission models for public health decision making. 3 Credits.**

Studies global tobacco control methods in depth. Focuses on designing, implementing, and evaluating tobacco control interventions based on the need of a specific region or country. Highlights the use of multi-level solutions linking policy, communication, prevention, education, regulation, advocacy, and community organizing to address the interdisciplinary problem of tobacco use. Examines the aspects of tobacco use and tobacco control through lectures, case studies, presentations, and discussion. Upon successfully completing this course, students should be able to:

- Perform a situational assessment of the tobacco control environment in a particular country including the health and economic burden of tobacco use in the country;
- List criteria that can be used to determine the tobacco control priorities of a country, and evaluate the strengths and weaknesses of different criteria for setting tobacco control priorities;
- Evaluate the strengths and weaknesses of various strategies to reduce tobacco use;
- Select and define appropriate indicators for evaluating progress in implementing a tobacco control intervention;
- Utilize acquired methods to plan, implement, evaluate, and lead a tobacco control interventions based on the need of a specific region or country;
- Utilize acquired methods to formulate grant applications.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.340.680. Environmental and Occupational Epidemiology. 4 Credits.**

Introduces the key health effects of environmental and occupational exposures and the epidemiologic methods used to identify and estimate those effects. Emphasizes the interplay of methodological issues, including the assessment of environmental exposures and the understanding of specific disease processes in identifying the health impact of environmental exposures in the population. Learns about environmental and occupational exposures (including water and air pollution, food contamination, ionizing radiation, persistent environmental pollutants and emergent environmental exposures) and key methodological issues relevant for these exposures in population studies (including study design, exposure assessment and biomonitoring, disease clusters, dose-response relationships, susceptibility, geographic analysis, and evidence synthesis).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.682. Pharmacoepidemiology Methods. 3 Credits.**

Introduces the key elements of pharmacoepidemiology. Explores the utilization and effects of drugs in large numbers of people. Discusses the application of epidemiological methods to pharmacological issues. Focuses heavily on questions of drug safety and effectiveness, concentrating on clinical patient outcomes and on evaluating the use of therapies. Applies the research methods of clinical epidemiology (e.g., randomized trials, cohort studies, case-control studies, use of secondary data, attention to biases and confounding) to the content area of pharmacology (e.g., determinants of beneficial and adverse drug effects, effects of patient heterogeneity on drug effect, effects of non-adherence, active and passive surveillance for adverse events).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.683. Human Rights in Public Health Practice. 2 Credits.**

Presents human rights as both a tool and an analytical framework for public health practice. Considers how concepts and values from human rights can enhance the work of public health professionals in a variety of realms. This includes the development of policy in public health, the design and implementation of programs, and identification of human rights obstacles to achieving public health goals and potential responses. Examines the relationship between traditional bioethics and human rights approaches to ethical questions and will conclude with discussions and controversies about the roles of public health professionals in advocacy. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.684. Pharmacoepidemiology: Drug Utilization. 3 Credits.**

Provides an overview of drug classification systems as well as a review of data sources used for drug utilization research. Reviews methods of investigating drug utilization and evaluating interventions to modify utilization, such as time-series designs and segmented regression analyses. Discusses varied patient, provider, practice and system-level determinants of prescription drug utilization, including their impact on costs and quality of care. Emphasizes the impact of drug formularies, marketing and promotion of drugs, health insurance exchanges, and emerging evidence of benefits and harms.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.686. Introduction to Systematic Reviews and Meta-Analysis. 2 Credits.**

Reviews methods used by those performing systematic reviews and meta-analysis, including building a team, formulating a research question and hypothesis, methods for searching the literature, abstracting information, and synthesizing the evidence both qualitatively and quantitatively. Covers how to formulate an answerable research question, defining inclusion and exclusion criteria, searching for the evidence, data extraction, assessing the risk of bias in the underlying studies, qualitative synthesis, meta-analysis, sensitivity analysis, and assessing meta-bias. Acquaints students with a few practicalities of conducting a systematic review using hands-on exercises.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.687. Epidemiology of Kidney Disease. 2 Credits.**

Studies kidney disease comprehensively, emphasizing chronic and end-stage kidney disease, since kidney disease is characterized as an epidemic worldwide, and the prevalence continues to rise. Highlights controversies and areas of ongoing and future research by reviewing findings from cohort studies, clinical trials, and landmark studies. Emphasizes methodological issues specific to the study of kidney disease.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.690. Epidemiologic Approaches to Hearing Loss and Public Health. 1 Credit.**

Introduces biologic, epidemiologic and clinical aspects of aging-related declines in the auditory system. Demonstrates methods of assessment of auditory function for epidemiologic studies. Reviews current epidemiologic knowledge of sensory function and aging-related outcomes in older adults, including the epidemiology and consequences of dual sensory loss. Presents areas for future research and opportunities for intervention and prevention

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.692. Prisons, Public Health, and Human Rights. 2 Credits.**

Explores the public health implications of mass incarceration and discusses the human rights and ethical ramifications of providing health care to men, women, and children in jails, prisons, and detention centers both in the United States and internationally. Takes a systems approach to addressing the basic health needs of the prison population, including infection control, care for acute and chronic medical conditions, and mental health care. Students apply problem-solving skills and explore the challenges of providing care in incarcerated settings. Emphasizes the roles of human rights principles and professional ethics in public health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.693. Investigation of Outbreaks. 2 Credits.**

Learns how to detect, investigate, and interpret disease outbreaks. Focuses on application of epidemiological skills to develop hypotheses relevant to understanding source or reservoirs of infection, modes of spread and possible control measures. Includes simple epidemiological approaches for examining field data on outbreaks and deriving inferences. Reviews the main factors involved in the occurrence of an outbreak and steps in investigating an epidemic. Uses data from large and small epidemics to illustrate the main concepts and terminology. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.694. Power and Sample Size for the Design of Epidemiological Studies I. 1 Credit.**

Systematically introduces students to sample size and power analysis for the most common epidemiological study designs. Provides participants with the key conceptual elements and practical tools for computing sample sizes to achieve a given level of precision and power in statistical tests.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.696. Spatial Analysis I: ArcGIS. 3 Credits.**

Examines the use of Geographic Information System (GIS) software (ArcGIS Pro) as a tool for integrating, manipulating, and displaying public health-related spatial data. Covers mapping, geocoding, and manipulations related to data structures and topology. Introduces the spatial science paradigm: Spatial Data, GIS, and Spatial Statistics. Uses selected case studies to demonstrate concepts along this paradigm. Focuses on using GIS to generate and refine hypotheses about public health-related spatial data in preparation for a formal statistical analysis. Discusses topics related to spatial statistical modeling throughout (although not a required part of the curriculum). Includes both lecture and lab formats with GIS concepts and software-specific details demonstrated during the lab portions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.697. Spatial Analysis II: Spatial Data Technologies. 2 Credits.**

Examines technologies for collecting, obtaining and creating spatial data. Technologies considered include, but are not limited to GPS, tablets, tracking devices, cell phones, Google Earth, remote sensing applications, and the Internet. Introduces software applications such as ArcGIS, QGIS, and R for integrating spatial data from the aforementioned technologies into useable forms for spatial analysis. Also covers metadata, data accuracy, and confidentiality/disclosure issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.698. Methods For Assessing Power, Privilege, and Public Health in the United States. 4 Credits.**

Discusses emergent health issues and how the choice of measures for power, privilege, and inequality influence results in epidemiological research. Challenges you to reflect on how your own positions of privilege influence your interpretation of data and your public health practice. Provides an opportunity to apply epidemiology research skills to develop and execute a data-driven project on a real-world health problem that can will be presented and used by a community partner.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.699. Epidemiology of Sensory Loss in Aging. 3 Credits.**

Introduces biologic, epidemiologic and clinical aspects of aging-related declines in the auditory, visual, and vestibular systems. Demonstrates methods of assessment of sensory function for epidemiologic studies. Reviews current epidemiologic knowledge of sensory function and aging-related outcomes in older adults, including the epidemiology and consequences of dual sensory loss. Presents areas for future research and opportunities for intervention and prevention.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.700. Advanced Stata Programming. 1 Credit.**

Presents advanced topics in Stata Programming to expand upon the material in 340.600. Topics include simulations, advanced programming, file manipulation, and code optimization.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.701. Epidemiologic Applications of Gis. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.705. Advanced Seminar in Social Epidemiology. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.706. Methods and Applications of Cohort Studies. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.710. Seminar in Disability Health Research. 2 Credits.**

Examines disability and disability health within the context of public health research and policy to advance equity and social justice. Discusses the origins and current landscape of disability health research from the perspectives of key stakeholders, inclusive of researchers, advocates, policy makers, with a focus on including the perspectives of people with disability.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.715. Problems in the Design of Epidemiologic Studies: Proposal Development and Critique. 5 Credits.**

Presents the methodologic and logistic problems involved in designing and conducting epidemiologic studies. Students participate in the preparation of a research protocol for a study in a human population. Offers an opportunity to critically evaluate the adequacy and scientific merit of research protocols, develop an appreciation of the ethical aspects of conducting research involving human subjects, and apply methods and principles learned in earlier (340.751 - 753) and current courses to specific epidemiologic problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.716. Implementation Science Concepts, Methods & Study Designs. 2 Credits.**

Digs into how to conceptualize implementation science questions, define implementation outcomes, and leverage frameworks and designs to achieve public health impact.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.717. Health Survey Research Methods. 4 Credits.**

Exposes students to the practical aspects of health survey research methods. Emphasizes the development of skills to design and administer a survey. Introduces formative research, sampling methods, questionnaire development, recruitment techniques, interviewer training, and quality assurance/quality control.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.721. Epidemiologic Inference in Public Health I. 5 Credits.**

Introduces principles and methods of epidemiologic investigation of disease and other health states. Presents different types of study designs, including randomized trials, cohort and case-control studies; measurement of exposures and outcomes; risk estimation; surveillance; program evaluation; and causal inference. Discusses evaluation measures for screening programs and health interventions. Links epidemiologic inferences with the development of policy. Activities provide experience in applying epidemiologic methods, interpreting findings, and drawing inferences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.722. Epidemiologic Inference in Public Health II. 4 Credits.**

Expands knowledge beyond introductory level epidemiologic concepts and methods material, using examples from the published literature. Emphasizes interpretation and the ability to critically evaluate issues related to populations/study design, measurement, population comparisons and inference, including: modern cohort study designs; advanced nested designs; novel techniques for exposure assessment; interpretation and utility of measures of impact; sources of bias and methods for their prevention; descriptive and analytical goals for observational study inference; the counterfactual model for defining exchangeability, cause, and confounding; and synthesis of inferences from observational studies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.723. Epidemiologic Practice Methods for Population Health Research. 2 Credits.**

Introduces quantitative epidemiologic techniques applied by both academics and public health professionals to analyze and interpret routinely collected at the subpopulation level to target and address health inequities. Four modules include instruction in Stata and R, with topics including: 1. Weighted Survey Analysis: Analytic techniques for the incorporation of weights in the analysis of survey data to make inferences about the target population. 2. Calculating Life Expectancy: Calculation of single-decrement life tables using statistical programs as well as publically available Excel-based tools. 3. Estimate Preventable Deaths: Econometric techniques for estimating preventable deaths and potential lives saved from risk factor modification. 4. Conceptual Frameworks in Epidemiology: Apply graph theory to understand the relationships between variables in commonly-used causal frameworks. Understand the importance of using conceptual frameworks in guiding epidemiologic inquiry.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.724. Global Cancer Epidemiology. 2 Credits.**

Examines the causes, incidence, and trends in cancer globally, with a perspective on the differences across settings. Provides an epidemiological foundation for understanding cancer statistics and engaging in international cancer research and control activities. Covers key concepts such as study designs for cancer epidemiology and interventions, use and meaning of common cancer statistics, levels of prevention, and cancer screening/use of diagnostic tests.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.725. Methods for Clinical and Translational Research. 1 Credit.**

Provides an overview of the methods of translational research. Emphasizes developing skills in the interpretation and application of findings of translational research. Topics include study design, biomarkers, statistical analyses, validation strategies, and evidence synthesis methods.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.726. Implementation Research Methods to Address Real World Epidemiological Questions. 3 Credits.**

Considers the use of observational data, including real-world program data, natural experiments and designs for interventions which cannot be ethically or practically randomized and experimental designs, focused on implementation and real-world effectiveness. Analyzes preference-based research methods, which can be observational or experimental, highlighting the importance of human-centered approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.727. Introduction to Health Survey Research Methods. 2 Credits.**

Exposes students to the practical aspects of health survey research by emphasizing the development of skills to design and administer a survey questionnaire. Introduces students to formative research, questionnaire development, interviewer training, and quality assurance/quality control.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.728. Advanced Methods for Design and Analysis of Cohort Studies. 5 Credits.**

Explores advanced methods useful for the design and analysis of cohort studies. Emphasizes methods for analyzing time-to-event data subject to staggered entries using advanced parametric and semi-parametric methods; analytical methods for incomplete observations in cohort studies; methods to measure effects of exposures on time-to-event using relative times and relative hazards; parametric survival analysis methods and taxonomy of hazard functions; coefficients of determination based on parametric models for survival data; regression methods for trajectories of biomarkers; methods for the analysis of interventions in observational studies: confounding by indication, marginal structural models for individual effectiveness; methods for estimating population effectiveness; and methods to jointly analyze longitudinal and survival data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.729. U.S. Based National Health Surveys: their Application and Associated Research Methods. 2 Credits.**

Introduces the purpose and application of national health surveys, and the strengths and limitations of this type of data. Uses publicly available survey data collected by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS), including data from the National Health Interview Survey (NHIS) and National Health and Nutrition Examination Survey (NHANES) to provide practical experience in accessing the data files, designing and executing basic analysis using complex survey data and determining when and how to appropriately conduct age adjustment and trend analysis. While the class utilizes U.S.-based examples, the principles and methods covered are applicable to other settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.730. Assessment of Clinical Cardiovascular Disease. 2 Credits.**

Familiarizes students with techniques used to detect and quantify the presence of clinical cardiovascular disease. Tour the hospital, and the dialysis, angiography, echocardiography, and vascular laboratories. Observe radiographic (CT and MRI) imaging of atherosclerosis and review gross and histological specimens of atherosclerosis in the pathology laboratory. Directly observe various cardiac imaging techniques performed including 1) cardiac echocardiography, 2) coronary or peripheral angiography, 3) coronary calcium scores and coronary CT angiography using multi-detector CT, 4) carotid and peripheral vascular studies using ultrasound, 5) the clinical assessment of blood pressure, and 6) DXA and anthropometric measures of body composition. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.731. Principles of Genetic Epidemiology 1. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.732. Principles of Genetic Epidemiology 2. 3 Credits.**

Second offering in a three-part series of graduate courses in Genetic Epidemiology. Details the concepts of linkage disequilibrium and population genetics, including methods for admixture analysis useful for adjusting for individual variation in genetic ancestry/background. Presents the principles of genetic association analyses for quantitative and qualitative phenotypes for population-based studies. Details the concepts and tools related to confounding due to population stratification, and approaches for genome-wide association studies. Introduces methods for linkage analysis in families and use of high-throughput sequence data (whole exome and whole genome). Selected class sessions are dedicated to computer labs to illustrate the methods covered.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.733. Principles of Genetic Epidemiology 3. 3 Credits.**

Concepts behind linkage and association studies in genome-wide studies, and demonstrates how they can be applied to complex qualitative and quantitative phenotypes (i.e. those where both genetic and environmental factors influence the phenotype). Introduces the principles underlying family-based and population-based study designs and analytical methods for both marker panels and sequencing data (whole exome and whole genome).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.734. Principles of Genetic Epi 4: Emerging and Advanced Methods. 2 Credits.**

Discusses advanced topics in genetic epidemiology methods. Builds on the knowledge gained in Principles of Genetic Epidemiology 1-3. Students discuss the details of the methods they have learned, and are also exposed to cutting-edge topics not yet in the mainstream. Also covers emerging topics such as CNV analysis, epigenetic analysis, sequencing analysis, and admixture mapping. Students also carry out an independent analysis project through the term.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.744. Advanced Topics on Control and Prevention of HIV/AIDS. 4 Credits.**

Focuses on directed readings and discussion on the science and pathogenesis of HIV/AIDS. Covers dynamics of the HIV epidemic in the populated world, difficulties and contrasts between clinical management of HIV/AIDS in developed and developing countries, prevention and control modalities against HIV/AIDS, and predicting patterns of future growth of the HIV/AIDS epidemic with special reference to global economic impact of HIV vaccine and eradication issues of HIV/AIDS. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.751. Epidemiologic Methods 1. 5 Credits.**

Presents as the first course in the Epidemiologic Methods sequence. Introduces students to the principles and concepts used in epidemiologic research. Presents material in the context of an epidemiological framework with three major areas: populations and an introduction to study designs; measurement, including measures of accuracy and disease occurrence; and methods used for comparing populations. Illustrates synthesis lectures on how these elements come together in modern epidemiological research. Provides experience using laboratory exercises and assignments with applying concepts and calculations to problems drawn from real epidemiological data and published literature. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.752. Epidemiologic Methods 2. 5 Credits.**

Second offering in the Epidemiologic Methods sequence. Builds on the concepts of epidemiologic reasoning, population health measures, validity, and study design taught in Epidemiologic Methods 1. Provides a detailed presentation of causal inference, study design and threats to validity (confounding, information bias and selection bias). Discusses a wide range of epidemiologic designs in detail, together with their advantages and limitations. Laboratory exercises, assignments, and the MiniProject provide experience with applying concepts and calculations to problems drawn from real epidemiological data and published literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.753. Epidemiologic Methods 3. 5 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.761. Epidemiologic Methods for EPI Doctoral Students I. 5 Credits.**

Introduces epidemiologic methods to doctoral students in the department of epidemiology (first in a four-term sequence). Delves into the role of epidemiology in public health, clinical and population health research, epidemiologic study designs, and measurement of exposures and health outcomes (validity, reliability, information bias).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.762. Epidemiologic Methods for EPI Doctoral Students II. 5 Credits.**

Introduces epidemiologic methods to doctoral students in the department of epidemiology (second course of four-term sequence). Focuses on the use of regression analysis in epidemiological research, selection bias, confounding and methods to address it, and effect modification.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.763. Epidemiologic Methods for EPI Doctoral Students III. 5 Credits.**

Introduces epidemiologic methods to doctoral students in the department of epidemiology including prediction in epidemiology, causal inference methods, mediation, advanced analytical methods to address bias, evidence synthesis, and translational epidemiology.

**Corequisite(s):** Must also enroll for PH.340.963

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.764. Epidemiologic Methods for EPI Doctoral Students IV. 5 Credits.**

Introduces epidemiologic methods to doctoral students in the department of epidemiology. Formulates an epidemiologic research question, obtains, cleans, and analyzes data, summarizes findings (graphs, tables, abstract), and presents a project in a poster format. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.765. Professional Epidemiologic Methods: Epidemiologic intelligence and Population Health Assessments. 2 Credits.**

Focuses on practical skills for epidemiological assessments of population health, which include methods for monitoring epidemiological profiles and health trends, using public health information systems for measuring health burden, developing epidemiological profiles and conducting health situation analyses.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.766. Professional Epidemiologic Methods: Surveillance. 2 Credits.**

Covers epidemiological methods and analyses for public health surveillance, including novel measurement approaches for “real and near real time” surveillance, syndrome surveillance and surveillance of public health events. Students learn interpretation of analytic strategies including descriptive and inferential epidemiological methods for surveillance data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.767. Professional Epidemiologic Methods: Topics and Methods for Health Situation Analysis. 2 Credits.**

Focuses on epidemiological methods and tools used in key health situation analyses. Includes the use of prospective epidemiological scenarios for monitoring health targets and indications. Also covers examples of health priority setting assessments; health needs assessments, and the methods for epidemiological stratification of public health problems. Laboratory exercises provide experience with applying concepts, methods and tools to problems drawn from real epidemiological data and published literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.768. Professional Epidemiologic Methods: Decision Making in Health Situation Analysis. 2 Credits.**

Covers advanced health situation analyses for the evaluation of effectiveness of public health programs using real public health scenarios and available health information datasets. Covers selected epidemiological metrics for measuring social health inequalities and methods for informing evidence-based healthcare decision-making using epidemiologic data. Also addresses the role of available epidemiological evidence and translational research for public health programs. Laboratory exercises provide experience with applying concepts, methods and tools to problems drawn from real epidemiological data and published literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.769. Professional Epidemiology Methods. 4 Credits.**

Trains future leaders using advanced epidemiological methods applied in modern public health practice, and provides students with the key epidemiological competencies for mid-level and senior-level epidemiologists. Covers examples of health priority assessments, health needs assessments, epidemiological stratification of public health problems, measuring health inequalities and evaluation of effectiveness of public health programs using real public health scenarios and available health information datasets. Also covers selected methods for translating epidemiologic data for decision-making. Addresses the role of available epidemiological evidence and translational research for public health programs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.770. Public Health Surveillance. 3 Credits.**

Acquaints students with Public Health Surveillance, which is a core public health function essential for understanding and monitoring population health. Covers the theory, data collection methods, data analysis techniques, and presentation strategies of the systematic, continuous, analysis and interpretation of population health data to inform planning, implementation, and evaluation of public health practice. Students identify the different types of surveillance, and how each is applied in varied settings. Practical experiences/labs involve creating data collection tools, and reviewing how they can be applied in practice. Real-world surveillance data is used to illustrate methods for analysis, and how surveillance data should be presented to different audiences. Guests who are coordinating and conducting surveillance in different community settings lead interactive discussion sessions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.774. Advanced Theory and Methods in Epidemiology. 4 Credits.**

Integrates and extends content taught in the Epidemiologic Methods 340.751-753 sequence. Focuses on the conceptual underpinnings and application of strategies for addressing key methodologic challenges that arise when carrying out epidemiologic research. Incorporates experiential learning components, including a term-long self-directed group research project, and provides resources for students to acquire a working knowledge of how to apply presented methodological tools.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.775. Measurement Theory and Techniques in Epidemiology. 4 Credits.**

Reviews concepts, key assumptions, and published applications of measurement theory, including true scores and counterfactual outcomes, latent variables, and validity. Explores novel applications of item response theory to refinement of measures, assessment of differential item functioning, and calibration of metrics across diverse samples. Topics include analysis of novel types of data (biomarkers, high-dimensional data, administrative records, genetics), item response theory, latent growth curve models for longitudinal data and their extensions, and cross-study statistical harmonization and co-calibration. Draws examples from epidemiologic applications in the behavioral and social sciences. Offers students opportunities for applying lessons from didactic lectures in a laboratory setting using prepared examples.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.776. Study Design and Analysis for Causal Inference With Time-Varying Exposures. 3 Credits.**

Presents a holistic framework for studying causal effects of time-varying exposures. Builds on 140.664 and 340.774 and explores how to articulate causal questions and clarifies assumptions needed to identify the effects of time-varying exposures. Distinguishes total effects of exposures at a given point in time from those that involve cumulative doses or adherence to dynamic treatment rules. Outlines design parameters such as eligibility, start of follow-up, and artificial censoring with data from cohorts or administrative healthcare records. Reviews the motivation, intuition, and application of advanced methods such as time-dependent propensity scores, marginal structural models, and the parametric g-formula to overcome time-varying confounding and selection-bias. Emphasizes practical application and robustness checks, guideposts for choosing among study designs and analytic methods, and comparative strengths for studies with an etiologic vs. translational focus.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.794. Power and Sample Size for the Design of Epidemiological Studies II. 1 Credit.**

Introduces power and sample size (PSS) calculations for the design of more complicated studies, including survival or time-to-event outcomes, cluster randomized trials, studies with correlated outcomes, and non-inferiority trials. Introduces the use of simulation to conduct PSS calculations for the design of special situations where existing PSS tools do not directly apply. Showcases the design and conceptualization processes of real-world examples and how PSS statistical calculations serve as an integral component of the processes.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.800. MPH Capstone Epidemiology. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.802. Expert Searching for High Quality Evidence in The Online Environment. 2 Credits.**

Introduces students to effective and efficient searching of the medical literature, in particular the skills and knowledge needed to produce an effective search in support of a systematic review of the medical literature. Discusses existing standards and evidence for these standards. Familiarizes students with software that helps with managing the results of literature searches. Addresses the competencies needed to complete comprehensive, systematic, transparent searches of the literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.803. Advanced Topics in Cardiovascular Disease Epidemiology. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.810. Field Placement Epidemiology. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.820. Thesis Research Epidemiology. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.830. Postdoctoral Research Epidemiology. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.840. Special Studies and Research Epidemiology. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.841. SS/R Translational Epidemiology. 2 Credits.**

Introduces the concept and application of translational epidemiology. Presents a range of topics including communication techniques, giving press releases, use of social media, community engagement, and engaging with policymakers. Introduces related topics like implementation science and public health practice.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.853. First Year Epidemiology Doctoral Seminar. 1 Credit.**

Introduces current discussion, controversies, and applications of epidemiology. Reviews landmark papers and current literature and provides guided discussions of the materials. Focuses on exploring key paradigms that have influenced the field of epidemiology. Includes discussion of current trends influencing epidemiologic research and training, controversies in the assessment of populations and outcomes, and individual-level vs. population-health, among others.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.855. SS/R: Biological Basis of Cardiovascular Disease Epidemiology. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.860. Current Topics in Epidemiologic Research. 1 Credit.**

Engages with staff, students, fellows, and faculty in the Department of Epidemiology for exposure to epidemiologic methods as applied in research settings. Provides a broader perspective on contemporary issues in epidemiology and its research, through presentations of current research in the field of epidemiology.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.861. Clinical Trials: Procedures, Design, and Interpretation of Results. 3 Credits.**

Augments Introduction to Clinical Trials (340.645). Describes current standards for clinical trial protocols, consent procedures and describes regulatory requirements and expands upon design and analysis concepts presented in 340.645. Reviews key standards for clinical trial protocols, including the SPIRIT guidelines, recruitment and consent of participants, and principles for data acquisition and sharing. Covers regulatory requirements for drug development and adverse event monitoring as well as the statistical aspects of data monitoring for clinical trials. Provides more in-depth discussion of newer designs for clinical trials including non-inferiority design and adaptive designs. Investigates specific analysis issues for handling missing data, interim monitoring and cost-effectiveness. Addresses the synthesis of results from clinical trials in meta-analyses and the role of post-marketing surveillance in assessing drug safety.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.863. Doctoral Seminars in Epidemiology. 3 Credits.**

Provides an opportunity for doctoral students to discuss challenges in epidemiology and apply methods and principles learned in didactic courses to formulate research questions and specific aims. Participates in the preparation of dissertation proposal components, develop skills to effectively communicate research questions, and critically evaluate the scientific merit of research proposals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.865. Teaching Epidemiologic Methods and Concepts At the Graduate Level. 1 - 8 Credits.**

Review and evaluate critical skills in teaching and communicating science, epidemiology, methods, and theory to a wide range of individuals. Provides a feedback mechanism for learning best practices in education at the graduate level.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.871. Welch Center Research Seminar. 1 Credit.**

Students, postdoctoral fellows and faculty present contemporary epidemiological research articles, focusing on clinical and cardiovascular epidemiology. Emphasizes presentation skills and the ability to critically evaluate scientific papers. Uses a journal-club format in which one or more papers are distributed in advance. Participants are expected to read and discuss the assigned material. Media reporting/coverage in the lay and medical press is explicitly discussed related to the article. Provides a forum for the discussion of the appropriate use of statistical methods for various study designs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.872. Genetic Epidemiologic Seminars in Current Research and Methodology. 1 Credit.**

Emphasizes the importance of reading, understanding, and discussing literature. Presents scientific papers from the current literature in genetic epidemiology (students, postdoctoral fellows, and faculty). Provides students the opportunity to interact with faculty regularly. Reviews current topics and methodology in genetic epidemiology with current faculty and research leaders and practitioners.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.873. Contact Tracing During the COVID-19 Pandemic. 1 Credit.**

Provides basic elements and methodology of contact tracing and practical experience by executing these newly learned skills. Reviews current issues and concerns encountered by students. Evaluates and promulgates best practices in contact tracing.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.874. Current Topics in Human Rights. 1 Credit.**

Reviews a common framework for the analysis of comparative effectiveness and safety research CER randomized trials and observational studies, and presents several applications for cardiovascular, renal, and infectious diseases.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.875. GEM Research Seminar. 1 Credit.**

Emphasizes critical evaluation of scientific papers, presentation skills, and open discussion among learners. Uses various session formats, such as a) guided journal-club format in which one or more papers are distributed in advance; b) GEM faculty "mini-talks" introducing broad topics relevant to sub-specialty areas within GEM; c) structured debates and discussions; and d) student presentations of research-in-progress. Expects participants to be prepared for each session, which may include: reading journal articles in advance and responding to Guided Journal Article Review questions (and submitting responses through CoursePlus), or preparing a research-in-progress talk. Intends to be a welcoming and rigorous forum for the discussion of the appropriate use of study designs and statistical methods for answering different types of epidemiology research and practice questions, and the strengths and limitations of various approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.895. MPH Practicum: Epidemiology. 1 - 5 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.901. Principles of Epidemiology Lab.**

Lab for Principles of Epi

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.921. EPIDEMIOLOGIC INFERENCE IN PUBLIC HEALTH I Lab.**

EPIDEMIOLOGIC INFERENCE IN PUBLIC HEALTH I LAB

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.951. EPI Methods 1 Lab.**

Lab for PH.340.751

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.952. EPI Methods 2 Lab.**

Lab for PH.340.752

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.340.953. Lab for Epi PH.340.753.**

Lab for EPI 340.753

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.001. English for Academic Purposes I.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.002. English for Academic Purposes II.**

Focuses on academic writing skills including documentation styles, and combines Saturday class meetings with online assignments and one individual conference.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.600. Living Science Ethics - Responsible Conduct of Research. 1 Credit.**

Fosters the responsible conduct of scientific research using a combination of lectures, discussion and analysis of case studies. Includes topics: data management, conflict of interest, scientific misconduct, questionable research practices, responsible authorship, peer review, collaborations with peers and industry, trainee-mentor relationships, research ethics and regulatory requirements of the conduct of animal and human research, and the scientist as a responsible member of society.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.601. Implementation Research and Practice. 3 Credits.**

Distinguishes implementation science from traditional research and practice. Combines didactic methods and group activities to explore the rapidly evolving topic of implementation as it pertains to public health research and practice. Provides an overview of the concepts, theories, tools, and methods used to advance implementation research and practice. Presents key principles of implementation science from a multidisciplinary perspective and provides practical applications of those principles in both practice and research-based settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.602. Interprofessional Education Activity.**

Provides the opportunity to participate in a case study highlighting the essential role of teams and teamwork in building multi-sector collaborations and partnerships in population health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.603. Fundamentals of Immunology. 3 Credits.**

Introduces the major molecular and cellular components of the immune system and provides a broad understanding of the biological concepts associated with the induction and regulation of innate and adaptive immune responses. Explores major mechanistic topic areas that include the innate recognition of pathogens, the molecular nature of antigens and antigen presentation; molecular basis for antibody and T-cell receptor structure and diversity; cytokine signaling in immune activation, T cell lineage commitment, cellular basis for antibody production, cellular basis for T cell activation and cellular immunity, and central and peripheral tolerance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.604. Qualitative Reasoning in Public Health. 2 Credits.**

Provides students with a broad overview of qualitative methods and concepts used in the public health sciences. Emphasizes the conceptual foundations of qualitative research and how it is used in public health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.605. History of Public Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.606. Milestones in Public Health. 1 Credit.**

Provides a broad overview of public health milestones through the lens of diverse public health faculty spanning from molecular biology, vaccine policy, injury, and micronutrient supplementation to health disparities, legal issues, bioethics, and health security. Reviews a milestone with each lecture as viewed by an individual faculty and provides opportunity for questions and discussion.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.607. MPH Seminar in Public Health Topics. 1 Credit.**

Provides a broad overview of public health topics through lectures given by faculty across the Departments and Centers of the School. Provides exposure to these issues and discussions that may help students further refine their MPH interests, goals, and future projects.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.608. Problem Solving in Public Health. 4 Credits.**

Uses divergent public health issues to illustrate a systematic problem solving process for use in addressing public health problems. Includes defining the problem, measuring its magnitude, understanding the key determinants, developing a conceptual framework of the relationships between the key determinants, identifying and developing intervention and prevention strategies (either interventions or policies), setting priorities among intervention options, understanding barriers to implementation and evaluation, and developing an effective communication strategy. Consists of lectures, discussions, small-group exercises, a group project, and individual assignments.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.609. Life and Death in Charm City: Histories of Public Health in Baltimore, 1750 to the Present. 3 Credits.**

Critically explores a range of important topics in the history of public health in Baltimore from the mid-18th century to the present, including: migration and health; sewers and water supply; infectious disease control (for example, tuberculosis and STDs); housing and lead poisoning; rodent control. Recurrent themes are racial inequality, the geography of poverty and the multiple challenges of urban government. Focuses on the city of Baltimore, but the issues discussed are placed in their wider national and international contexts and take into account broad historical developments in the theory and practice of public health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.550.610. Using Generative Artificial Intelligence (AI) to Improve Public Health. 1 Credit.**

Generative artificial intelligence (AI) has the potential for profound impact on all aspects of modern culture, including the practice of public health. Rather than seeing generative AI purely as a threat ("Don't use ChatGPT to write your papers"), this course takes an alternative approach, asking "how can we use generative AI tools to improve the public's health?" Having a solid foundation in the both the capabilities and limitations of generative AI can help students produce good outcomes and prevent bad ones. Direct use of these tools will give students a skills-based foundation in the effective use of these potentially transformative tools. We expect there to be broad student interest in this topic, and a course on generative AI in public health will help advance the School's leadership position in cutting-edge public health education. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.630. Public Health Biology. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.631. Biological Basis of Public Health. 3 Credits.**

Discusses molecular, biochemical, cellular and immunological methodology and approaches for the mechanistic understanding, treatment and prevention of human diseases, and for understanding disease susceptibility. The focus will be on the application of biological methods and approaches to such critical issues as infectious disease, cancer, neurodegenerative disease, COPD, environmental toxicant effects on early development, and reproductive anomalies and their treatment. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.714. Secondary Uses of Electronic Health Record Data. 3 Credits.**

Introduces students to concepts, methods, and issues related to the application of analytics to Electronic Health Record (EHR) data. Covers the use of EHR data to define and identify populations and sub-populations of patients, evaluate common metrics in health care, and improve patient safety and care quality. Emphasizes the use of EHR data in hospital settings. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.800. MPH Capstone Extradepartmental. 2 Credits.**

The MPH capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.840. P.H. Special Studies and Research. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.844. Current Issues in Public Health: COVID-19 Pandemic Response. 2 Credits.**

Explores topics related to clinical investigation presented by faculty experts from within and outside of Johns Hopkins. Addresses issues related to biomeasurement, the design of randomized clinical trials, challenges with observational cohort studies, studies focusing on special populations (pediatric age group, pregnant subjects, international studies), and research fraud. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.845. Comprehensive Or Preliminary Oral Exam for Part Time International DRPH Students. 2 Credits.**

Since US Immigration laws require that all International students must be enrolled full time when on campus, students must complete their departmental/program comprehensive examination or their School preliminary oral examination enrolled as a full-time student during the time period of the exam.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.850. MPH MBA Internship. 12 Credits.**

MPH MBA Internship

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.853. Seminar for MPH Concentration in Social and Behavioral Sciences I. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.854. Seminar for MPH Concentration in Social and Behavioral Sciences II. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.855. MA Public Health Biology Thesis. 5 - 6 Credits.**

Provides an opportunity for students to, in consultation with a faculty mentor from the Dept of Biochem and Molecular Bio, Environmental Health or Molecular Microbiology and Immunology, prepare a critical, scholarly paper on an agreed upon subject area.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.860. Academic & Research Ethics at BSPH.**

Examines academic and research ethics at BSPH in a series of online interactive modules. Focuses on information about the academic ethics code and responsible conduct of research at the School. Explores issues of academic integrity such as proper ethical conduct and referencing, and discusses violations such as plagiarism and cheating, relative to case studies that illustrate situations faced by students and faculty in the academic setting. Addresses topics that include responsible conduct of research, authorship, data management, data ownership, guidelines for professional conduct, research fraud or scientific misconduct, federal and institutional guidelines related to research using human and animal subjects and ethical issues involving vulnerable subjects in research. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.864. Baltimore Community Practicum. 1 - 4 Credits.**

Conducts a project involving a defined denominator population at a community-based organization or local health department. Participates in seminar sessions that cover basic methods of outreach to community organizations, attitudes and values about the role of professionals in community-based work, the social contract required of service professionals, and the attitudes required for effective public health practice.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.865. Public Health Perspectives on Research. 2 Credits.**

Introduces the substantive and methodologic bases for public health research, emphasizing the critical roles of the quantitative, qualitative, biologic, social, and behavioral sciences in improvement of public health. Highlights principles of high-quality research, including the value of a population perspective, interdisciplinary cooperation, the importance of new measurement techniques, and the interface between theory and practice. Gives students information about the interactions between the public and the researcher.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.867. Introduction to MPH Studies.**

Introduces MPH students to their educational program. Includes enrichment seminars, required readings and assignments, including the Goals Analysis requirement.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.870. SS/R: Occupational Medicine Residency-Practicum Year. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.880. SS/R: General Preventive Medicine Residency-MPH. 1 Credit.**

Prepare residents in the theoretical, practical, and clinical knowledge and skills essential to leadership roles in the design, management, and evaluation of population-based approaches to health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.890. SS/R: General Preventive Medicine Residency-Residency Year. 3 - 16 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.895. MPH Practicum (Non Departmental). 1 - 4 Credits.**

The MPH Practicum is a mentored, hands-on practical public health experience, which involves meaningful participation and interaction with public health professionals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.550.908. Lab for Prob Solving 550.608.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.551.826. Summer Internship/Practicums.**

Allows international graduate students required to take in practicums for their degree, to engage in practicum opportunities outside of JHU. Permits OIS to process Curricular Practical Training (CPT) for students in this course.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.551.840. P.H. Special Studies and Research. 0.5 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.551.867. Designing an MPH Capstone Project. 1 Credit.**

Discusses the importance of selecting the appropriate format for addressing different capstone topic. Reviews search strategies and data bases for a literature review. Provides tips for using a citation management software such as RefWorks in order to provide proper attribution to references. Introduces the basic strategies for writing a clear and concise capstone paper. Provides tips for presenting data in tables and graphs. Introduces the basic strategies for giving a good oral presentation. Presents tips for giving and receiving meaningful feedback. Introduces principles for the design of a good poster.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.551.895. SOURCE Practicum Special Studies. 1 - 4 Credits.**

Special studies for practicum activities with SOURCE and participating Baltimore City community-based organizations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.602. The Role of Quantitative Methods in Public Health. 0.5 Credits.**

Covers the bases for the role of quantitative methods in public health, including how to formulate scientific questions quantitatively, different types of data, properties characterizing high or poor quality of measurements, the implications of statistical uncertainty, and the difference between association and causation. Uses illustrative case examples including the opioid epidemic and aging.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.603. The Role of Qualitative Methods and Science in Describing and Assessing a Population's Health. 0.5 Credits.**

Acquaints students with a broad overview of the use of qualitative research methods in public health. Explores the types of critical public health questions best addressed through a qualitative approach and introduces conceptual principles that are foundational to qualitative research. Exposes students to key issues in planning and conducting qualitative research, as well as strategies for analyzing qualitative data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.604. Causes and Trends in Morbidity and Mortality. 0.5 Credits.**

Provides a broad understanding of the top causes of morbidity and mortality globally, in the U.S., and in Baltimore City, as well as the trends in these estimates. Introduces measurement of morbidity and mortality, and threats to the quality of measurements. Addresses the role of population characteristics (age, sex, region, race/ethnicity) in estimates and trends. Discusses case studies of major causes and trends in morbidity and mortality in defined populations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.605. The Science of Primary Secondary and Tertiary Prevention in Population Health. 0.5 Credits.**

Provides a broad understanding of the different levels of public health prevention: primary, secondary, and tertiary and discusses the impact of each level on prevention in population health. Emphasizes the role of epidemiology in prevention and control; compares and contrasts the descriptive epidemiology, natural history, and pathologic and biologic characteristics as well as factors related to their etiology. Presents the impacts of recent advances in human genomics/genetics, immunology and metabolism on prevention strategies for chronic and acute disease. Introduces basic principles, theories, and methods in the field of prevention science. Identifies public health interventions that operate at multiple ecological levels, including the community, family, and individual. Introduces the role of resilience. Discusses case studies related to the prevention of different physical, mental, behavioral and infectious disease health problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.606. The Critical Importance of Evidence in Advancing Public Health Knowledge. 0.5 Credits.**

Emphasizes the need to establish the credibility of the evidence, based on the rigor of the methods used in generating it (e.g., type of studies, rules of causality, the nature of errors) before employing evidence to advance knowledge, practice, or policy. Discusses the bases for debate about recommendations for particular interventions that impact a population's health, how to weigh their benefits and harms, the ethics of scientific conduct, and effective communication in building evidence. Uses illustrative case examples, such as breast and prostate cancer screening, vaccines for measles and cervical cancer, nutritional sodium reductions, and the opioid epidemic.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.607. Essentials of Environmental Health. 0.5 Credits.**

Course Description: Summarizes the public health impact of environmental agents (e.g. chemical, biological, physical) present in air, water, soil, food, and the community. Discusses how these agents cause adverse health effects as well as ways to assess the risk of such effects and apply strategies for preventive interventions. Presents systems that have major impacts on environmental health, as well as applications of the science in the real domestic and international world. Through four modules: Foundations; Exposures in Air, Water and Food; Systems; and Cases, exemplifies effects of specific environmental exposures.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.608. Biologic, Genetic and Infectious Bases of Human Disease. 0.5 Credits.**

Focuses on the basics of cellular and molecular biology, genetics, and infectious agents. Explains concepts that link basic biology to disease and population health. Illustrates application of biologic and genetic principles to population health using case studies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.609. Psychological and Behavioral Factors That Affect A Population's Health. 0.5 Credits.**

Shows the role of behavior in health, drawing from smoking and other risk behaviors. Examines factors along the socioecological continuum that influence such behavior. Highlights key determinants for achieving behavior change to improve health outcomes, such as feasibility, self-efficacy and social support. Introduces common types of behavior change interventions, such as counseling and social marketing.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.610. The Social Determinants of Health. 0.5 Credits.**

Provides an overview of social, political, and economic influences on health and their role in producing health inequalities within and among populations. Emphasizes key axes of inequality: gender, race/ethnicity, and socioeconomic status. Explains conceptual foundations for social determinants of health and health inequalities. Summarizes evidence linking selected social, political, and economic factors to health and the pathways by which they influence health. Highlights importance of understanding social determinants of health, despite challenges of designing interventions targeting social determinants.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.611. Globalization and Population Health. 0.5 Credits.**

Evaluates in depth the complex relationship between globalization and health. Discusses this relationship across the four main dimensions of globalization (economic, political, cultural and environmental). Examines the existing evidence on the impact of globalization on global burdens of disease. Explores the opportunities of globalization and strategies for mitigating its negative effects.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.612. Essentials of One Health. 0.5 Credits.**

Introduces the principles of One Health, the interface of human health, animal health and environmental health. Examines the methods and tools for the conduct of One Health studies and the design of One Health programs. Uses a systems thinking approach to explore multiple topics including food systems, food and animal policies, One Health governance, and stakeholder engagement.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.621. Basic Resources Management for Public Health. 1 Credit.**

Provides an overview of budgeting and resource management for public health practitioners working in health settings. Discusses the role and functions of governing bodies. Considers the types and categories of performance problems as well as how to determine causes of performance deviations and approaches for remedying them. Explores the tools and resources of budget and resource management.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.622. Creating, Implementing and Monitoring Budgets for Projects and Programs. 1 Credit.**

Addresses strategies for creating budgets for projects and programs. Stresses the essential role of budgets in promoting the health of organizations and resource management. Explores how budgets are used to facilitate project and program management, including assessing whether high-quality outcomes are being achieved on time and within resource constraints or whether changes to the work plan, budget, or available resources are needed.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.625. Building Collaborations Across Sectors to Improve Population Health. 0.5 Credits.**

This course provides an overview of the essential role interprofessional teams in building multi-sector collaborations and partnerships in population health. Following deliberate, evidence-based methods for effective collaboration, the course identifies and discusses several key factors that can only be addressed through cross-sector efforts. These factors include the social determinants of health, complexity, context, and societal resistance. The Collective Impact Model, designed to tackle entrenched, socially complex issues, is introduced as an evidence-based for effective, large scale, sustainable change.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.626. Systems Thinking: Concepts and Methods. 0.5 Credits.**

Provides students with an understanding of how to apply systems thinking in public health. Trains students on the fundamentals of systems thinking theory and offers opportunities to apply key methods and approaches to health policy and health questions. Prepares students to ask relevant research questions and apply systems thinking to describe, understand, and anticipate complex behavior. Examines how systems models can be critically appraised and communicated with others so public health policymakers can exercise a greater degree of wisdom and insight.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.644. Public Health Advocacy: Grassroots Organizing for Policy Change. 3 Credits.**

Provides a practical introduction to grassroots organizing for policy change. Uses foundational literature and case studies to review the history of advocacy and organizing for public health. Introduces campaign planning and management, discusses the role of research and coalition-building, and explores different types of organizing. Prepares students to participate in and critically assess public health campaigns to change the policies and structures that set the contexts in which people make their decisions about health. Introduces students to two key areas of knowledge in public health practice: 1) the principles and methods of community organizing and 2) campaigning for policy and structural change. Includes a series of short assignments and group activities that will culminate in a final product: the creation of a campaign plan for changing public policy regarding a specific public health problem. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.600. Fundamentals of Health, Behavior and Society. 4 Credits.**

Introduces students to a social ecological perspective of population health. Challenges students to address societal and structural forces such as socioeconomic position, racial and ethnic and gender sources of inequality as well as interpersonal processes reflected in norms, networks, and social capital. Focuses on behavior, communication, decision-making, and health outcomes at the individual, family, and community levels. Applies these social and behavioral perspectives to a better understanding of health problems and prepares students to develop effective public health interventions for individuals, families, communities, and populations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.601. Emerging Tobacco Products and Regulatory Approaches. 3 Credits.**

This course provides students with an overview of tobacco product regulation, including cigarettes, smokeless tobacco, shisha, and emerging nicotine delivery systems, such as e-cigarettes and heated tobacco products. Students will explore tobacco regulatory frameworks and national policies; review past regulatory successes and emerging regulatory strategies; search industry patents to understand how product innovation is protected and presented; and study the tobacco industry's tactics to counter tobacco regulation by critically assessing media stories.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.602. Evaluation of Workplace Health Promotion Programs. 2 Credits.**

Provides an introduction to workplace health promotion (wellness) programs, including a practical measurement and evaluation guide. Explains the key elements of measurement: structure, process, and outcomes. Reviews rigorous techniques and principles used in applied research studies and how they can be adapted to workplace health promotion evaluations. Offers easy to implement techniques for conducting survey studies at the workplace.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.603. Introduction to Genetic Counseling Research. 1 Credit.**

Acquaints first-year genetic counseling students with the thesis proposal development process. Provides an overview of the ongoing research opportunities at Johns Hopkins and the National Institutes of Health. Familiarizes students with possible collaborators.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.604. Harm Reduction: A Framework for Evidence-Based Policy and Practice. 3 Credits.**

Discusses a variety of harm reduction strategies as they pertain to substance use issues. Introduces various programs that address substance use problems from a harm reduction perspective. Describes the evidence base supporting harm reduction programs. Explores the complicated legal and contextual issues associated with implementation of harm reduction programs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.605. Fundamental Tools for Promoting Health Equity. 3 Credits.**

Prepare DrPH students to apply health equity frameworks and measurement tools in their everyday functions; Includes four components: definitions and historical perspectives of health equity, health disparity, and social justice; common theoretical frameworks and their applications to different aspects of health equity, health disparities, and social justice; measurement tools used for health equity and health disparities in context; strategies and policies to reduce health disparities and promote health equity; Students complete a final project in which they must propose a program based in theory and proven need within their professional capacity

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.606. Local and Global Best Practices in Health Equity Research Methods. 4 Credits.**

Introduces students to innovative methods, practical tools, and skills required to conduct evidence-based research that promotes local and global health equity. Theoretical frameworks draw on fundamental values and principles, including human rights, social justice, the value of diverse ideas and perspectives, inclusiveness, trustworthiness, behavioral and implementation science, and participatory decision-making. Includes lectures, interactive panel discussions, case-based examples, and opportunities to obtain feedback on research ideas from experienced investigators.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.607. Introduction to the Video Production Process for Public Health Professionals. 1 Credit.**

Introduces public health professionals to the five phases of the video production process: conceptualization, script writing, pre-production (e.g., scouting locations, casting), production (e.g., shooting, voice-over), post-production (e.g., editing, graphics). Acquaints students to the fundamentals of script writing.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.608. Applying Systems Thinking to Obesity Prevention. 2 Credits.**

Given the complexity of many public health problems, systems thinking is increasingly cited as an approach and competency needed to understand these problems. The field of obesity in particular has benefited from systems thinking, methods and modeling, however, the application of these methods remains in an inchoate stage. Students will explore various systems concepts such as leverage points, heterogeneity, complexity, adaptability, interdependence, and learn how those concepts have been applied in obesity and food system research. Students will learn which systems concepts are most useful for researching specific obesity topics and their limitations. Finally, students will explore how systems research concepts and models critically appraised and communicated with others so public health policy makers can exercise a greater degree of wisdom and insight.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.609. The Wellness Industry and Public Health: Partners Or Adversaries in Health Promotion?. 1 Credit.**

Introduces students to the contemporary wellness industry in the US (including fitness and yoga) and explores the relevance of this industry for public health promotion. Describes core industry strategies for behavior change, and opportunities for public health evidence and research to inform industry practice. Content includes consideration of social media and the application of effective industry communication and motivation strategies for health promotion broadly defined.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.610. Housing Insecurity and Health. 3 Credits.**

Introduces the issues of homelessness and its relationship to health. Presents factors leading to homelessness, myths about homelessness, barriers to accessing services, health problems that arise from homelessness, multidisciplinary approaches to health care from homeless persons, and advocacy strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.611. Under Pressure: Health, Wealth & Poverty. 3 Credits.**

Explores the relationship between health, wealth, poverty, and public policy in the U.S. as well as internationally; assesses past and future strategies to remedy inequities in health and health care. Addresses theories of social class; distribution of poverty across gender, age, and ethnic/racial groups; antipoverty programs and their effects; effects of changes in health care organization on the poor; and possible modifications to provide greater equity. Investigates how a dramatically changing media landscape influences patterns of belief about the causes of poverty and its remedies. Synthesizes scientific evidence with a variety of genres and disciplines including: history, psychology, political science, religious thought, philosophy, geography, literary theory, popular culture, film/media studies, and music.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.612. Sociological Perspectives on Health. 3 Credits.**

Examines three theoretical perspectives that are foundational to sociology, particularly as applied to medical sociology and sociologically informed public health research: 1) Conflict Theory, (aka: critical theory), 2) Social Integration Theory (aka: structure functionalism), 3) Sociology of Meaning (including social construction, medicalization, and symbolic interactions). Uses these perspectives to analyze various aspects of health and illness, the healthcare system, and health policy issues. Analyzes these aims: (1) its assumptions about the social world; (2) how it helps us think differently about social structure and human agency; and (3) the intellectual questions it raises. Examines how each perspective has been or could be applied in the study of health and illness and healthcare systems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.613. Psychosocial Factors in Health and Illness. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.614. A New View: Improving Public Health Through innovative Social and Behavioral Tools and Approaches. 4 Credits.**

Emphasizes real world integrative thinking, tools, and solutions in the pursuit of improving public health in the U.S. and internationally. Presents a global, multifaceted examination of health and illness, exploring the many factors that influence - or even determine - whether we remain healthy or become ill. Using biopsychosocial and environmental/ecological perspectives, explores the most prevalent diseases and health challenges confronting us today. Presents emerging views of health and illness being used in research, program and policy arenas. Examines factors such as socioeconomic status, ethnicity, stress, stigma, social support, coping, and politico-cultural influences through an array of contemporary issues, including: obesity, HIV/AIDS, women's health, bioterrorism, environmental public health, mental health and others. Presents innovative social and behavioral perspectives, tools and approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.615. Research Design in the Social and Behavioral Sciences. 3 Credits.**

Provides an overview of the design and conduct of research in the social and behavioral sciences as applied to public health. Draws primarily from the research perspectives and methodologies of sociology, anthropology, and health promotion, students examine the formulation of a research question, selection of a research design, selection of a study site and population, issues and methods of data collection, and measurement validity and reliability. Evaluates the strengths and weaknesses of the major types of research design used in the social sciences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.616. Social and Behavioral Aspects of Public Health. 4 Credits.**

Explores social influences on behavior and health. Teaches what research and experience in public health practice can tell us about how to affect social and structural change to improve the health of the public. Draws on theoretical, epidemiological, and case study evidence, uses specific health issues such as substance use, HIV, and stigma, and explores and illustrates the effects of social structures and practices on individual health status and behaviors. Develops a deeper understanding of the key concepts that inform a social and structural perspective on health, including race, class, gender, sexuality, socio-economic status, environments, and social networks and social capital. Also instructs and challenges students to think in terms of multi-level interventions that can influence these factors toward improved health outcomes.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.617. Foundations of University Teaching and Learning. 3 Credits.**

This eight-week course will prepare participants to be effective teachers who: 1. Are knowledgeable about how learning takes place 2. Can develop and use appropriate active learning strategies in their classrooms 3. Can propose ways to make classrooms more inclusive and equitable Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.618. Using Software in Qualitative Research and Analysis. 1 Credit.**

Introduces students to several qualitative data analysis software (QDAS) programs, including MAXQDA, Atlas.ti, NVivo, and Dedoose. Discusses the functions and limitations of qualitative data analysis software. Explores how QDAS can be used throughout a qualitative research project. Explains how to use QDAS for multi-media analysis, including images, video, and audio. Demonstrates how to use QDAS to organize data, produce reports, make comparisons, detect patterns, and facilitate analysis. Demonstrates how to use QDAS in team-based research projects for data coding and analysis. Prepares students to use QDAS to develop deeper insights into their data through visualization and mapping. Complements qualitative research methods and data analysis courses.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.619. Social Justice: Policy, Practice, and Research. 4 Credits.**

Introduces students to social justice frameworks and operational definitions to apply to research, policy, and practice. Challenges students to address societal and structural forms of oppression across systems in efforts to center cultural values and practices when implementing public health policies or programs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.620. Program Planning for Health Behavior Change. 3 Credits.**

Introduces students to different health behavior change theories addressing several levels of the Ecological Model. Students review and practice using program planning frameworks and needs assessments for designing effective interventions. Students choose a public health problem of their choice and design a behavior change intervention to address that problem. The process of creating the intervention is guided by a needs assessment and is theoretically informed.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.621. The Opioid Crisis: Problem Solving Seminar. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.622. Strategic Leadership Principles and Tools for Health System Transformation in Developing Countries. 4 Credits.**

Introduces students to the principles of strategic leadership, placing these in the context of facilitating health systems change in developing countries. Covers the following topics: mental models and the household production of health, systems thinking and strategic leverage, personal mastery and commitment to change, action-learning principles and practice, shared vision and creative tension, the theory of constraints and root cause analysis, strategy design and key moves, implementation with accountability, and linking data to action. Develops leadership skills via interactive computer exercises using STARGuide software, small group work and class presentations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.623. Interprofessional Education Activity.**

Provides the opportunity to participate in a case study highlighting the essential role of teams and teamwork in building multi-sector collaborations and partnerships in population health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.624. Genetic Counseling Cancer Standardized Patient Clinical Rotation. 4 Credits.**

Prepares students for case preparation and genetic counseling in the cancer setting. Exposes students to a wide range of challenging counseling scenarios that require intermediate and some advanced counseling and communication skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.625. Injury and Violence Prevention: Behavior Change Strategies. 2 Credits.**

Expands students' understanding of, and skills in planning, implementing, and evaluating injury and violence prevention programs. Both unintentional and intentional injuries have been the focus of a considerable body of behavioral science research and behavior change interventions. Students read and discuss selected examples of this work and enhance their skills in applying behavioral science principles and best practices to an injury or violence area of interest to them. Topics include historical overview of behavior change and the injury prevention field, as well as examples of behavior change theories, strategies, and methods that have been applied to selected injury and violence problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.626. The Epidemiology of LGBTQ Health. 3 Credits.**

Introduces constructs of sexual orientation and gender identity in the context of public health. Explores historical, epidemiological, and social perspectives related to the physical and mental health of lesbian, gay, bisexual, transgender and queer (LGBTQ) individuals and communities. Orients students to current and historic epidemiological and contextual issues that shape what is known about LGBTQ health, presents an overview of LGBTQ health disparities and interventions, and develops a foundation for critical thinking about LGBTQ health research and intervention potential.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.630. Implementation and Sustainability of Community-Based Health Programs. 3 Credits.**

Uses projects primarily from domestic settings to illustrate and evaluate the program component delivery process and continuation or sustainability of activities and benefits of community-based disease prevention and health promotion programs after initial funding ends. Covers theories of innovation and organizational change; community participation and involvement; programmatic, cost-benefit, and ethical considerations related to the goal of sustainability; program characteristics associated with sustainability; and the relationships between investments in health and overall community development.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.631. Introduction to Community-Based Participatory Research: Principles and Methods. 3 Credits.**

Introduces students to the fundamental principles of, rationale for, and key considerations in conducting community-based participatory research (CBPR). Offers knowledge of and skills in CBPR that emphasize the importance of community inclusion and partnership as a viable approach to constructing and increasing the acceptance of interventions and improving the health and well-being of populations. Also uses case-based learning as an approach for real world application of CBPR concepts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.635. Applications of innovative Methods in Local and Global Health Equity Research. 4 Credits.**

Provides practical methods to develop, implement, and sustain successful health equity research programs in the United States and communities around the world. Introduces students to innovative methods, practical tools, and skills required to conduct rigorous health equity research and translate evidence-based strategies into practice and policy. Topics range from stakeholder engagement and behavioral intervention development to research methods in healthcare services for socially at-risk populations. Includes lectures, interactive discussions, case-based examples, and opportunities to obtain feedback on research ideas from experienced investigators.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.638. Scientific Writing in Health Sciences: Developing A Manuscript for Publication I. 3 Credits.**

This course introduces and guides students in the writing of scientific manuscripts for publication in an area related to public health, particularly social and behavioral sciences. The goal of the course is to facilitate more effective writing of research articles using practical examples and peer feedback. Topics include: principles of good writing; tips for writing more efficiently; journal selection; co-author selection, and the anatomy of a manuscript. Students begin the course with a research question (purpose of study) and a summary of quantitative or qualitative (or mixed methods) data they would like to present in a scientific manuscript. This typically takes the form of summary tables.

All analyses must be completed prior to the start of the course. Students end the course with at least two sections (e.g., methods and results) of a completed manuscript.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.639. Scientific Writing in Health Sciences: Developing A Manuscript for Publication II. 3 Credits.**

This course guides students in the writing of scientific manuscripts for publication in an area related to social and behavioral sciences. The goal of the course is to facilitate more effective writing of research articles using practical examples and peer feedback. Topics include: completion of the manuscript; drafting a cover letter; the process of peer review; revising a manuscript; and proofs and ultimate publication. Students end the course with a completed manuscript for ready for submission to a journal for publication.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.640. Global Tobacco Control. 3 Credits.**

Provides an overview of actions taken over 50 years that have led to tobacco control being the most successful public health initiative. Actions of tobacco control are directly linked to changes in societal norms so that smoking is no longer socially acceptable in the US and in other countries. This course presents evidence-based policies, regulations, advocacy and communication strategies responsible for these changes. Challenges still present include disparities as well as introduction of novel products (Juul). The influence of transnational tobacco industries will be discussed and their role in undermining governmental and international actions to control tobacco use.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.645. Applying the Social Ecological Model in Tobacco Control and Climate Change. 3 Credits.**

Compares the fields of tobacco control and climate change by describing the lessons learned from tobacco control—one of the most successful public health movements. Provides an overview of tobacco control research and advocacy approaches that form a comprehensive public health strategy and considers the use of the social ecological model to address the threats posed by climate change. Explores how both issues involve economic, social, environmental, and behavioral forces that require multi-level approaches from multiple sectors. Offers insight into industry and private sector interference that obfuscates scientific evidence, confuses the public, and stalls effective regulatory policy for both fields of study. Encourages critical comparative skills throughout to discuss how to improve public health approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.650. Introduction to Persuasive Communications: Theories and Practice. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.651. Health Literacy: Challenges and Strategies for Effective Communication. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.652. Interpersonal Influence in Medical Care. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.653. Contemporary Issues in Health Communication. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.654. Health Communication Programs I: Planning and Strategic Design. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.655. Health Communication Programs II: Implementation and Evaluation. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.656. Entertainment Education for Behavior Change and Development. 4 Credits.**

Examines and teaches ways in which education can be subtly but effectively worked into both new and time-honored genres of entertainment in order to foster positive behavior change and life improvement in both developing countries and local environments. Develops students' ability to understand the ingredients of successful entertainment: emotions, empathy, efficacy and empowerment, and how these can be employed to enhance social and personal health and life skills. Examines methodology and develops skills needed to create a successful Entertainment-Education (E-E) project in entertainment (story, drama, etc.) formats with effective behavior change messages. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.657. Communication Strategies For Sexual Risk Reduction. 3 Credits.**

Focuses on strengthening students' understanding of sexual risk-taking and provides a solid foundation in communication strategies for sexual risk-reduction from an international perspective. The literature and examples emphasize HIV and STI risk reduction. Adopts a seminar format and consists of readings, discussions, presentations, video viewing, case studies, and critiques of literature on sexual risk-taking and protective behaviors. Includes hands-on analyses and interpretation of empirical data on sexual risk-taking and development of a communication strategy. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.658. Health Communication Planning and Management for Behavior Change. 3 Credits.**

Provides an overview of concepts and theories in communication with a focus on health behavior change. Explains the importance of health behavior as a contributor to current public health problems and the role of behavior change communication; describes methods of communications needs assessment. Also provides the approaches, conceptual tools in planning and management of communication processes in hospitals and out-reach programs in health services, and to develop skills for effective communication with clients and other stakeholders.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.660. Latino Health: Measures and Predictors. 3 Credits.**

Examines the measures and predictors of health for the US Latino population. Learns how psychosocial and other individual-level factors, as well as socio-political, community, and health care delivery factors influence an individual's success in accessing the health care system in a sustainable manner. Learns key steps to design, implement, and evaluate health care programs working to decrease the health disparities gap faced by Latinos in the US, by using case studies that take into consideration the heterogeneity of the Latino population.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.663. Media Advocacy and Public Health: Theory and Practice. 3 Credits.**

Broadens students' understanding of health communication to include the strategic use of the news media to support community organizing to change public health policy. Builds on theoretical and empirical work in mass communications, and uses case examples in a number of health policy areas to show how the strategies and tools of media advocacy may be applied to specific public health policy campaigns. Ample opportunities are provided for students to "practice" media advocacy, in the form of writing letters to the editor and opinion pieces, role-playing interviews, and so on. Introduces students to research literature about news media forms and practices; to framing techniques to influence news content and gain access to news channels; and to the relationship between media advocacy and other forms of health communication. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.664. Knowledge Management for Effective Global Health Programs. 3 Credits.**

Introduces participants to knowledge management (KM), behavioral science, and adaptive management principles, processes, and tools, and their applicability to the design and implementation of global health efforts. Demonstrates, through real-life examples, how KM, behavioral science, and adaptive management principles can be applied to strengthen public health systems and maximize available knowledge to reach public health objectives. Emphasizes the importance of culture and equity as drivers for program success.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.410.668. Policy Interventions for Health Behavior Change. 3 Credits.**

Examines the major theoretical frameworks that are relevant to the development, enactment, implementation and evaluation of policy interventions that support healthy behavior change. Explores the roles of ideas, interests, institutions, key actors and ethics in the policy process are explored. Discusses how the environment can be influenced to improve the chances of implementing effective interventions to improve the public's health. Presents case studies to critically explore the strengths and limitations of policy change theories as they relate to current hot topics in the area of health, behavior and society. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.671. Introduction to Qualitative Research Methods. 3 Credits.**

Introduces students to qualitative research methods applied to the investigation of public health issues. Explores the theoretical underpinnings of qualitative research, factors that influence the utility of a qualitative approach, and ethical considerations in qualitative research. Focuses on the qualitative interview and provides an overview of the practical skills and tools required for conducting qualitative interviews and analyzing qualitative data. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.672. Organizing for Public Health with the Six Steps to Effective Advocacy: Turning Public Will into Public Policy. 3 Credits.**

Introduces students to a key area of knowledge in public health practice: the principles and methods of community organizing and campaigning for policy and structural change. Focuses on how to mobilize the right people at the right time, with the right demands, to change public policies to promote health. Complements other courses in the school that look at advocating within policy processes or by using the mass media by placing these strategies in the context of the practical daily work and thinking of people who plan and carry out policy change campaigns at grassroots and grasstop levels. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.673. Introduction to Qualitative Data Analysis for Public Health. 2 Credits.**

Introduces students to the analysis of interview and focus group data collected as part of qualitative public health research. Explores distinct analytic approaches and traditions, and compares the strengths and weaknesses of different analytic paradigms for different research questions. Introduces computer software for coding and managing data using freely available online demonstration of various software packages. Presents both theoretical and practical dimensions of qualitative data analysis. Emphasizes hands-on learning activities within the classroom to practice and apply concepts learned through readings, lectures, and discussion. Develops skills to conceptualize an analytic plan for qualitative data for future research. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.677. Theory and Practice in Campaigning and Organizing for Public Health I. 4 Credits.**

Provides a practical introduction to campaigning and organizing for public health. Combines experiential learning (through participation in an actual campaign) with traditional learning (online lectures, in-class discussions and readings). Uses case studies to review the history of organizing for public health. Introduces campaign planning and management, discusses the role of research and coalition-building, and explores different types of organizing. Part of a two-term sequence that prepares students to participate in and critically assess public health campaigns to change the policies and structures that set the contexts in which people make their decisions about health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.678. Theory and Practice in Campaigning and Organizing for Public Health II. 4 Credits.**

Provides a practical introduction to campaigning and organizing for public health. Combines experiential learning (through participation in an actual campaign) with traditional learning (online lectures, in-class discussions and readings). Uses case studies to review the history of organizing for public health. Introduces campaign planning and management, discusses the role of research and coalition-building, and explores different types of organizing. Part of a two-term sequence that prepares students to participate in and critically assess public health campaigns to change the policies and structures that set the contexts in which people make their decisions about health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.679. Decoloniality and Global Health Communication. 3 Credits.**

Applies insights from anti-colonialist texts to the field of global health communication. Critically examines the intersection of theories of economic development, social change, and communication as applied to public health. Introduces the complex and dynamic role of global communication in the social determinants of health. Interrogates "development" discourses as applied to health communication in middle- and low-resource areas countries. Presents evaluations of communication interventions in low- and middle-resource nation-states. Investigates health communication endeavors abroad as well as in low-resource settings in the U.S. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.680. Social Ecological Approaches to Health Regimen Adherence in Chronic Conditions. 3 Credits.**

Addresses social approaches to promoting sustained adherence to health regimens among persons living with chronic conditions. Addresses prescribed use of medications, lifestyle changes, and retention in healthcare over time among persons living with HIV/AIDS, hypertension, and other chronic conditions. Enables students to: (1) assess adherence to health regimens, (2) identify correlates of adherence at the individual, interpersonal, and social network levels, and (3) assess major approaches and components of medical adherence interventions, and their linkage to theories of behavior change. Explores social factors impacting vulnerable populations' medical adherence and health disparities, drawing examples from both domestic and international contexts. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.681. Gay, Bisexual and Other Men Who Have Sex With Men (MSM) and HIV: Theoretical Perspectives on the Us Epidemic. 3 Credits.**

Introduces students to key epidemiological, conceptual and historical constructs critical to understanding and responding to the HIV epidemic among gay, bisexual and other MSM in the United States. Explores the role of social and ecological factors and theoretical constructs (e.g., race and ethnicity, intersectionality and minority stress, gender and masculinity, policy and structural changes, and other social determinants) on individual and population-level experience of the HIV epidemic. Provides an in-depth understanding of the challenges to prevention and care in these constituencies through lectures, readings, small group work, and a panel discussion with community stakeholders. Provides students with an ability to develop new lines of theory, research and practice to more effectively apply a socio-ecologic framework to the HIV epidemic and better respond to HIV as a public health issue. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.683. Global Perspectives on LGBT Health. 3 Credits.**

This course introduces and guides students in the writing of scientific manuscripts for publication in an area related to public health, particularly social and behavioral sciences. The goal of the course is to facilitate more effective writing of research articles using practical examples and peer feedback. Topics include: principles of good writing; tips for writing more efficiently; journal selection; co-author selection, and the anatomy of a manuscript. Students begin the course with a research question (purpose of study) and a summary of quantitative or qualitative (or mixed methods) data they would like to present in a scientific manuscript. This typically takes the form of summary tables. All analyses must be completed prior to the start of the course. Students end the course with at least two sections (e.g., methods and results) of a completed manuscript.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.684. Effective Risk Communication. 2 Credits.**

Prepares students to develop effective risk communication strategies and materials for use during a pandemic. Reviews common theories of social and behavior change communication across the socioecological spectrum. Examines the disproportionate impact of pandemics on marginalized and vulnerable population groups. Challenges students to critically assess risk communication messages and approaches using an equity and disparities lens. Challenges students to develop communication strategies that mitigate the effects of social and structural disparities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.686. Advanced Quantitative Methods in The Social and Behavioral Sciences: A Practical Introduction. 4 Credits.**

Presents advanced analytic methods relevant to the social ecological model and other theoretical frameworks common in the social and behavioral sciences. Emphasizes multilevel analyses, longitudinal analyses, and propensity score methods. Introduces factor analysis, analysis of experimental studies, structural equation modeling, and complex surveys. Explores the suitability of these methods to address different research questions and study designs. Provides discussions of underlying concepts and assumptions and presents key issues in their application. Illustrates methods through critical review of published articles and by working through examples in Stata. Presents resources for continued advanced study, including methods courses offered through the school.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.690. Ethnographic Fieldwork. 3 Credits.**

Introduces students to ethnography as a method of qualitative research (fieldwork) and a product of this research (written accounts and monographs). Introduces skills and data collection methods fundamental to ethnographic fieldwork, particularly immersion, participant observation, writing field notes, and listening. Discusses what constitutes “the field” in ethnographic fieldwork, the holistic perspective, and “thick description.” Explores key theoretical and methodological issues in contemporary ethnographic fieldwork such as ethics, positionality, reflexivity, and power. Emphasizes the role of ethnographic research in public health. Prepares students to critically assess ethnographic writing. Combines lecture, discussion, and practical skill development.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.710. Concepts in Qualitative Research for Social and Behavioral Sciences. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.711. Doctoral Seminar in Mixed Methods for Public Health Research. 3 Credits.**

Introduces doctoral students to emerging discussions and applications of mixed methods research in public health. Explores mixed methods as a third research paradigm that involves the utilization of both quantitative and qualitative methods within a single inquiry to enhance the researcher’s ability to understand the problem at hand. Fosters synthesis of and engaged reflection on qualitative and quantitative research training. Specific topics include: history and language of mixed methods research; relevant paradigms and epistemological debates; mixed methods design and research questions; and analysis and dissemination considerations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.712. Theory and Practice in Qualitative Data Analysis and Interpretation for The Social and Behavioral Sciences. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.721. Translating Research into Public Health Programs and Policy. 3 Credits.**

Examines how behavioral research (especially intervention research) is used, and not used, by policy makers and program administrators to determine what public health services are delivered. Defines the major types of decisions made in determining services to deliver in public health programs and major decision analytic methods used to aid these selections. Includes these types of decisions: (1) how much to invest in service for one disease area relative to another, (2) determining if an intervention is affordable for large-scale delivery, and (3) choosing how much to invest in each of several different types of services within one disease area. Includes methods decision tree analysis, cost analysis, and cost-utility analysis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.722. Translating Research into Public Health Programs II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.733. Communication Network Analysis in Public Health Programs. 4 Credits.**

Introduces the theory and method of network analysis, its application to public health, emphasizing the dissemination of public health information and the transmission of disease, and the influence of networks on health-related behavior. Introduces the theory and method of network analysis, its application to public health, emphasizing the dissemination of public health information and the transmission of disease, and the influence of networks on health-related behavior. The course consists of class lectures, discussions, labs, reading materials, and problem sets. Data analysis will be conducted using STATA, UCINET and Netdraw software packages. Students need to have the access to Window system to download a free version of UCINET and Netdraw.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.752. Children, Media, and Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.755. Health Communication Programs. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.800. MPH Capstone Health, Behavior and Society. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.810. Field Placement Health Behavior and Society. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.820. Thesis Research in Health Behavior and Society. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.830. Postdoctoral Research in Health Behavior and Society. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.840. Special Studies and Research in Health Behavior and Society. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.850. MHS Research Practicum in Health Behavior and Society. 1 - 16 Credits.**

Introduces MHS Social Factors students to hands-on social science research for public health. Provides an opportunity to work extensively with a doctorally trained research mentor. Prepares students to participate in social science research initiatives. Builds students' research knowledge and skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.860. Graduate Seminar in Social and Behavioral Sciences. 2 Credits.**

Explores and debates theoretical concepts and orientations in the social and behavioral sciences and their application to public health research and practice through readings, discussion, and writing assignments. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.861. Graduate Seminar in Community-Based Research. 1 Credit.**

Explores faculty-community partnership in community-based research (CBPR), education, and practice. Seminar topics may include CBPR principles and ethics, coalition and partnership building, implementation, dissemination, translation and sustainability, media and marketing, advocacy, policy, cultural diversity, collaborative grant writing, and publishing. Speakers include faculty and also community patrons. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.863. Doctoral Seminar in Social and Behavioral Research and Practice. 1 Credit.**

Explores and critiques social and behavioral sciences research and practice, emphasizing key constructs and methods of department faculty through presentations, readings, and group discussions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.864. Critical Issues in Health Disparities. 1 Credit.**

Provides an opportunity for students, postdoctoral trainees, and faculty to present scientific papers from the current and/or classic health disparities literature. Emphasizes presentation skills and the ability to critically evaluate scientific papers. Requires participants to read and discuss the assigned material.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.865. MSPH Seminar in Health Education and Health Promotion. 1 Credit.**

Introduces a variety of topics important to the profession of health education and health promotion, including both historical and current issues. Presents role definitions and competencies, health education certification, professional organizations representing the field, and other health education and promotion resources. Prepares students for the field placement requirement in the second year of the program. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.866. Careers in Health Education and Health Promotion. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.867. MSPH Field Placement Preparation I. 1 Credit.**

Prepares students to fully understand the MSPH field placement requirements, processes, and opportunities, so that they may make the most of this professional preparation opportunity.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.868. Program Planning for Health Behavior Change Practicum. 2 Credits.**

Explores program planning application through project-based experiential learning. Includes work in small groups to apply the PRECEDE-PROCEED needs assessment planning framework in a real world setting with a community-based organization or local government agency. Focuses on the basic methods of working with communities and community organizations, types of needs assessment tools, and the skills needed to develop these tools, through four seminar sessions and weekly sessions with community based organization representatives.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.869. MSPH Field Placement Preparation II. 1 Credit.**

Prepares students to fully understand the MSPH field placement requirements, processes, and opportunities, so that they may make the most of this professional preparation opportunity.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.870. HBS Research and Proposal Writing Process for Doctoral Students I. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.871. HBS Research and Proposal Writing Process for Doctoral Students II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.881. MHS Seminar in Social Factors in Health I. 1 Credit.**

Introduces students to social science concepts in public health and to ongoing social factors research at JHSPH. Introduces students to key concepts and tools necessary to successfully complete the MHS in Social Factors in Health degree program.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.882. MHS Seminar in Social Factors in Health II. 1 Credit.**

Provides additional skills in social science concepts for public health research. Introduces research methods for social factors research. Identifies current social factors research of interest to students.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.883. MHS in Social Factors in Health Seminar III. 1 Credit.**

Upon successfully completing this course, students will be able to: 1) Identify a range of social scientific research approaches adopted by public health agencies. 2) Identify a range of public health agencies where social science research is conducted.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.884. MHS Seminar in Social Factors in Health IV. 1 Credit.**

Advances students' understanding of the relationship between social factors and health outcomes and experiences. Exposes students to research pertinent to social factors in health. Provides MHS students with opportunities to explore applications of public health research skills in a variety of research and practice settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.410.895. MPH Practicum: Health Behavior and Society. 1 - 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.601. Genetic Counseling Prenatal Standardized Patient Clinical Rotation. 1 Credit.**

Provides first-year genetic counseling students with opportunities to explore and practice clinical genetic counseling and communication skills. Serves as a bridge between Practical Genetic Counseling and the first clinical placement, with a focus on prenatal genetic counseling.

Participates in synchronous weekly meetings, assignments, and encounters with simulated patients (SPs) to develop skills in giving and receiving feedback in the form of self-assessment, peer assessment, preceptor assessment, and standardized patient assessment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.602. Clinical Genetics for Genetic Counselors I. 2 Credits.**

Aims to equip graduate students enrolled in the JHU/NIH Genetic Counseling Training Program with the basic knowledge needed to enter into clinical genetic counseling rotations in a variety of settings.

Introduces the most common categories of genetic conditions associated with each body system using a series of modules. Provides an overview of the functioning of the relevant body system prior to covering the phenotypic features of the most common categories of hereditary conditions of relevance to that system. Includes topics: clinical presentation, considerations for family and medical history-taking and optimal diagnostic strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.603. Clinical Genetics for Genetic Counselors II. 2 Credits.**

Aims to equip graduate students enrolled in the JHU/NIH Genetic Counseling Training Program with the basic knowledge needed to enter into clinical genetic counseling rotations in a variety of settings.

Introduces the most common categories of genetic conditions associated with each body system using a series of modules. Provides an overview of the functioning of the relevant body system prior to covering the phenotypic features of the most common categories of hereditary conditions of relevance to that system. Includes topics: clinical presentation, considerations for family and medical history-taking and optimal diagnostic strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.610. Practical Genetic Counseling. 2 Credits.**

415.610 addresses the chromosomal basis of heredity, chromosomes and genes, tools of human molecular genetics, single gene inheritance, variation, polymorphism and mutation, genes in populations and genes in families. 415.611 presents the role of genetic counseling in health care and emphasizes the essential components of prenatal, pediatric, and adult genetics services. Indications for referral and genetics education and counseling components are illustrated using care examples. Clinical skills and tools are taught including family, medical and development history taking and pedigree construction. Additional case management skills such as the choice of laboratory and test interpretation, and issues in billing and reimbursement of genetic counseling services are addressed. 415.612 -613 expand on the previous two courses to examine the Hemoglobinopathies and Thalassemias as models of molecular pathology, the molecular/biochemical basis of genetic disease, genetics of cancer, gene mapping

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.611. Introduction to Human Genetics I. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.612. Introduction to Human Genetics II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.613. Introduction to Medical Genetics I. 2 Credits.**

Provides a foundation in medical genetics. Focuses on teaching genetic disorders using a systems approach. Presents an overview of the disease process and differential diagnosis of related genetic disorders. Includes the following topics: birth defects/embryology, prenatal diagnosis, pulmonary disorders, muscle diseases, hemoglobinopathies, ocular diseases, kidney disorders, craniosynostoses, skin disorders, deafness, because knowledge of the genetic contribution to disorders within these categories is critical to the work of genetic counselors and medical geneticists. Prepares students for the board certification exam given by the American Board of Genetic Counseling upon completion of the ScM in genetic counseling.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.614. Introduction to Medical Genetics II. 2 Credits.**

Builds upon the material in 415.613, and emphasizes other organ systems. Includes a patient panel where individuals discuss the impact of a genetic disorder on their lives and the lives of their family. Includes the following topics: neurogenetics, cardiac defects, cancer genetics, orofacial clefting, genitourinary disorders, skeletal dysplasias, connective tissue disorders because knowledge of the genetic contribution to disorders within these categories is critical to the work of genetic counselors and medical geneticists. Prepares students for the board certification exam given by the American Board of Genetic Counseling upon completion of the ScM in genetic counseling.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.619. New Genetic Technologies and Public Policy. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.620. Introduction to Genetic Counseling I. 2 Credits.**

Compares definitions of genetic counseling (GC) with objectives and service outcomes. Explores counselor values as they relate to roles and responsibilities toward clients. Introduces ethical and policy issues specific to GC in conjunction with a research agenda. Discusses and practices basic tools, including interviewing, history gathering, and case assessment, and nondirective counseling approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.621. Introduction to Genetic Counseling II. 2 Credits.**

Compares definitions of genetic counseling (GC) with objectives and service outcomes. Explores counselor values as they relate to roles and responsibilities toward clients. Introduces ethical and policy issues specific to GC in conjunction with a research agenda. Discusses and practices basic tools, including interviewing, history gathering, and case assessment, and nondirective counseling approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.624. Ethical, Legal and Social Implications in Genetics and Genomics Over Time. 3 Credits.**

Examines the ethical, legal and social implications (ELSI) of human genetics and genomics through the lens of significant and field-defining periods and events in the history of the field. Examines the ELSI raised by those events, and how the events have shaped and defined the current state of the science and emerging scientific, ethical, policy and public health issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.630. Therapeutic Genetic Counseling I. 2 Credits.**

Equips graduate students enrolled in the JHU/NHGRI Genetic Counseling Program with an applied psychological paradigm for genetic counseling. Defines and illustrates goals and the process of genetic counseling. Teaches students skills to assess clients' cognitive and affective responses to the genetic contribution to disease and risk. Defines components of a therapeutic relationship. Allows opportunities to practice establishing and acting on a therapeutic relationship.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.631. Therapeutic Genetic Counseling II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.640. Health Judgment and Decision Making. 2 Credits.**

Provides a foundation in cognitive, emotional, and motivational processes underlying judgment and decision making in a variety of health contexts. Focuses on antecedents and consequences of adaptive and maladaptive health judgments and decisions, with particular attention to risk perception and communication, application of decisional heuristics, and personal beliefs underlying health decisions. Considers how people make decisions, how they respond to health information, and how they mentally represent illness, as well as how health teams make decisions. Prepares students to apply basic research on health judgment and decision-making to effective genetic counseling and other applied settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.650. Facilitating Family Adaptation to Loss and Disability I. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.651. Facilitating Family Adaptation to Loss and Disability II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.675. Cancer Genetics: Managing the Risks Through Testing and Counseling. 2 Credits.**

Equips graduate students enrolled in the JHU/NHGRI genetic counseling program with principles of genetic components to common diseases, using cancer as the example for this course. Introduces key concepts throughout the course through case-based learning.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.676. Advanced Topics in Cancer Genomics for Genetic Counselors. 0.5 Credits.**

Aims to expose first-year ScM Genetic Counseling students to novel and emerging technologies in oncology. Evaluates the relevance of these technologies to genetic counseling practice. Familiarizes genetic counseling students with the emerging tools and clinical reasoning associated with new technologies for tumor profiling, genome-guided cancer prevention, and treatment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.701. Genetic Counseling Lab I. 2 Credits.**

Explores interactive genetic counseling interventions as they apply to specific clinical settings and client needs. Presents key issues in client education for various medical specialties, and identifies research needs related to genetic counseling. Examines counseling issues through the use of role-plays.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.702. Genetic Counseling Lab II. 2 Credits.**

This literature-driven course applies interactive genetic counseling techniques to specific settings and client needs. Faculty and students present key issues in client education for various medical specialties, and identify research needs related to genetic counseling. Explores counseling issues through role-play.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.710. Medical Genetics and Genomic Medicine: from Diagnosis to Treatment I. 2 Credits.**

Examines advances in the diagnosis of genetic disorders and treatments that result from genomic medicine. Focuses on examples from multiple malformation syndromes, autoinflammatory diseases, deletion/duplication syndromes, and Ras-opathies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.711. Medical Genetics and Genomic Medicine: from Diagnosis to Treatment II. 2 Credits.**

Examines advances in the diagnosis of genetic disorders and treatments that result with a focus on neurocutaneous syndromes, muscular dystrophies, connective tissue disorders and ciliopathies. Both terms aim to prepare students for the board certification exam given by the American Board of Genetic Counseling upon completion of the ScM in genetic counseling.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.820. Thesis Research: Genetic Counseling. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.840. SS/R: Genetic Counseling. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.851. Supervised Clinical Rotations: Genetic Counseling. 1 - 4 Credits.**

Clinical placements in adult, pediatric, and prenatal genetic centers in the Baltimore-Washington area provide opportunity to learn about genetic conditions by their impact on individuals and their families, and about roles of the genetic counselor. Individual rotations are scheduled to achieve a wide range of clinical experiences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.861. Genetic Counseling Seminar: Topics in the Field. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.866. Current Topics in Molecular Genetics I. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.867. Current Topics in Molecular Genetics II. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.870. Genetic Counseling Clinical Supervision. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.880. Genetic Counseling Program Thesis Proposal Development I. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.881. Genetic Counseling Program Thesis Proposal Development II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.415.882. Genetic Counseling Program Thesis Proposal Development III. 2 Credits.**

This is the third of a series of three courses designed to provide students with the skills needed to turn a research idea into a formally presented and orally defended thesis proposal. In this final course of the series, students will refine their working proposal for submission to the Executive Committee and prepare for the oral examination. They will be expected to have turned a nascent research idea into a workable proposal for the conduct of a research study that will constitute the ScM thesis. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.600. Introduction to Health Policy. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.603. The Tools of Public Health Practice and Decision Making. 3 Credits.**

Introduces the core functions of public health and the core competencies for public health professionals. Students assess their strengths and academic goals while building their toolbox of public health competencies. Uses case studies to examine the application of the competencies in public health practices. Provides an opportunity to apply knowledge by working in teams to assess a public health problem and propose potential solutions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.610. Public Health Policy. 4 Credits.**

Introduces MPH students to the many opportunities in public health policy to improve the health of populations in communities around the world. Focuses on identifying decision-makers, framing problems and key questions, developing and evaluating policy options, and advocating for change. Provides an introduction to some major policy challenges facing public health, such as inequity, injury, tobacco, nutrition, addiction, and violence.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.615. The Tools of Public Health Practice. 1 Credit.**

Introduces the challenges and rewards of public health practice. Presents and discusses the core functions and essential services of public health in the context of real world practice examples. Provides opportunities for application of the core competencies of public health professionals. Prepares students for their practicum experience.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.650. Crisis and Response in Public Health Policy and Practice. 3 Credits.**

Studies the phenomenon of crises in public health. From a historical perspective, demonstrates how much of U.S. public health policy traces back to crises and responses that riveted public attention. Explains how substantial increases in FDA authority came about through serial crises in drug, device, food and tobacco markets. Shows that modern vaccine infrastructure emerged out of both disease and vaccine-related crises. From a management perspective, reviews how public health leaders at all levels respond to crises – the good, the bad and the ugly. From a strategic perspective, explores how health officials effectively manage crisis and response in order to win significant policy advances.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.651. Introduction to the U.S. Healthcare System. 4 Credits.**

Focuses on the organization, financing, and delivery of healthcare in the U.S. Contrasts the private and public sectors and examines the effects of market competition and government regulation. Examines the ways that medical providers are paid, and explores the major issues currently facing physicians, hospitals, and the pharmaceutical industry. Discusses several potential small and large scale reforms to the U.S. healthcare system and evaluates their likely effects on healthcare spending, quality of care, and access to care.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.652. Politics of Health Policy. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.690. Designing your MPH Capstone as a Research Report. 4 Credits.**

Discusses the importance of clearly articulating a research question and its associated aims. Reviews search strategies and data bases for a literature review and critical appraisal. Critically examines how students can design research plans to answer their research questions, provides tips for formulating a conceptual framework, define variables and decide how to measure them and select the most appropriate study design (taxonomy).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.712. Formulating Policy: Strategies and Systems of Policymaking in the 21st Century. 3 Credits.**

Considers theories, strategies, and participants involved in formulating health and social policies. Discusses defining health and social problems, selecting and assessing policy options, and the role of stakeholders in policy process, as well as the context in which policy decisions are made. Analyzes case studies, discusses theories, participates in service-learning projects and writing exercises.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.713. Research and Evaluation Methods for Health Policy. 3 Credits.**

Introduces basic principles and methods for undertaking scientifically rigorous research with a special emphasis on evaluations of interventions intended to improve health and safety. Focuses on evaluations of policy, health care delivery systems, and public health programs. Topics include the evaluation and health policy analysis; common research designs and their strengths and weaknesses; and internal and external validity with the intent of giving students the fundamental tools needed to conduct health policy evaluations and/or making them better consumers of research conducted by others.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.715. Advanced Research and Evaluation Methods in Health Policy. 4 Credits.**

Introduces basic principles and methods for undertaking scientifically rigorous research with a special emphasis on evaluations of interventions intended to improve health and safety. Focuses on evaluation of health policies, health care delivery systems, and public health programs. Topics include the relationship between health services research, health policy research, health policy analysis and health program management; common research designs and their strengths and weaknesses; internal and external validity; survey research techniques; qualitative research methods; and basic cost effectiveness analysis with the intent of making students better conductors of research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.721. Foundations in Health Policy I. 2 Credits.**

Familiarizes students with some of the foundational readings in health policy and provides an understanding of the theories and conceptual frameworks used in the development, implementation and analysis of health policies. Explores how different disciplines (political science, ethics, law, economics, sociology, behavioral sciences and history) inform thinking about the development, implementation and analysis of health policies that make a difference in the public's health. Emphasizes critical reading and thinking, informed debate with respect for a range of opinions, and communication skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.722. Foundations in Health Policy II. 2 Credits.**

Familiarizes students with some of the foundational readings in health policy and provides an understanding of the theories and conceptual frameworks used in the development implementation and analysis of health policies. Explores how different disciplines (political science ethics law economics sociology behavioral sciences and history) inform thinking about the development implementation and analysis of health policies that make a difference in the public's health. Emphasizes critical reading and thinking informed debate with respect for a range of opinions and communication skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.723. Foundations in Health Policy III. 2 Credits.**

Familiarizes students with some of the foundational readings in health policy and provides an understanding of the theories and conceptual frameworks used in the development, implementation and analysis of health policies. Explores how different disciplines (political science, ethics, law, economics, sociology, behavioral sciences and history) inform thinking about the development, implementation and analysis of health policies that make a difference in the public's health. Emphasizes critical reading and thinking, informed debate with respect for a range of opinions, and communication skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.724. Foundations in Health Policy IV. 2 Credits.**

Supplements and builds upon the course entitled Health Policy Analysis and Synthesis. Students analyze and discuss in depth the materials presented in that course.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.741. PhD Seminar in Health Policy: Using Secondary Data to Conduct Health Policy Research. 2 Credits.**

Provides a small class-size, doctoral-focused experience and examines some of the most common data sources used in the field to study health policy and management research topics. Emphasizes secondary data sources and discusses: (1) data structure and challenges with conducting research with secondary data; (2) developing research questions and testable hypotheses using these data sources; (3) strategies for data cleaning, work flow management, and replication; (4) data protection and storage related concerns; and (5) orally communicating strengths and weaknesses of datasets in the context of research talks. Exposes doctoral students to faculty research projects and the specific datasets being used to conduct this research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.750. Teaching, Learning and Leading – in the Classroom, in the Workplace and in the Community. 3 Credits.**

Offers students opportunities for exploring how to design, develop, deliver, and evaluate educational approaches for a range of audiences and to attain professional aims. Considers a variety of approaches for integrating educational practices and strategies into professional practice. Engages students in developing educational philosophies and reflecting upon personal educational experiences and use of educational approaches for professional and leadership advancement. Presents strategies for designing an educational plan.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.800. MPH Capstone Health Policy and Management. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.830. Postdoctoral Research Health Policy and Management. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.840. Special Studies and Research in HPM. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.841. SS/R: Safe Communication for Safer Health Care. 2 Credits.**

Provides students with a comprehensive understanding of the communication pitfalls that can contribute to error and preventable harm in healthcare. Teaches ten misconceptions about communication that frequently cause interpersonal failures in communication, and how certain aspects of the healthcare setting facilitate their occurrence. Teaches specific interpersonal communication practices that are prone to failure, and how to replace them with five "safe communication" competencies that help them communicate more reliably and support safe, high-quality care.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.844. SS/R: Public Health Policy in the Misinformation Age. 2 Credits.**

Reviews basic skills of public health policy and politics, including key definitions and principles, assessing policymakers, formulating and analyzing policy questions, and advocating for change. Discusses challenges of policy discussion amid a sea of misinformation and disinformation and the decline in traditional news media, as well as new opportunities for working with nontraditional media to advance consideration of major public health policy issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.860. Special Studies/Research: The Media and the Message: What Public Health Needs to Know about the News. 3 Credits.**

Studies contemporary U.S. media through the lens of public health. Analyzes the economic, social and political forces behind the changing media landscape. Provides insight into how news is gathered and how coverage decisions are made. Reviews the current media landscape, provides insight on problems and potential solutions, with specific lessons for practitioners in public health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.862. Current Issues in Public Health. 1 Credit.**

Faculty experts present public health topics of current interest in both industrialized and developing nations, such as health promotion and disease prevention, health care delivery systems, environmental problems and the spectrum of factors influencing the health status of populations and communities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.300.863. HPM Practicum. 2 - 3 Credits.**

Provides PhD students in HPM with an integrated, practical experience, applying coursework and theory to real-world settings. Places students based on their individual goals and interests and preceptor needs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.870. The Research and Proposal Writing Process I. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.871. The Research and Proposal Writing Process II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.300.895. MPH Practicum: HPM. 1 - 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.615. Seminar in Health Disparities. 3 Credits.**

Addresses the nature of racial and ethnic disparities in health status and introduces the research literature on race disparities. Develops an annotated bibliography of research on a minority health topic selected by the class and produces a literature review on that topic.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.627. Understanding and Preventing Violence. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.635. Policing and Public Health. 3 Credits.**

Provides an overview of the history and evolution of policing in the United States and the intersections between policing and public health. Considers both short- and long-term policing impacts, both positive or negative, on the health and safety of communities and individuals through various interactions with the public. Explores how public safety is reimagined through a public health lens to understand the impacts of police on social determinants of health, justice, and equity. Examines needed reforms, police-community relationships, and strategies to co-create public safety

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.645. Health Advocacy. 3 Credits.**

Prepares health professionals, (from government health officials, business leaders, non-profit organization representatives to scientists) to advance public health policy improvements. Through lectures, group exercises and a "mock" congressional hearing, students develop the skills to evaluate the policymaking process, create opportunities to inform and influence policymaking, and become more effective in translating and communicating in a policymaking environment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.650. Crafting Effective Solutions to Gun Violence: Problem Solving Seminar. 3 Credits.**

Provides a foundation of data, theory and perspectives on understanding gun violence within the United States. Students apply common public health methods for assessing risk and protective factors for multiple forms of gun violence at many levels (individual, family, community), assessing available evidence on prevention options, and determining how to enhance population-level success. Provides an understanding of the legal, political, and institutional constraints and opportunities for enacting policies to curb gun violence. Opportunities to develop plans to prevent gun violence with examples dealing with urban gun violence, domestic violence, and situations in which someone is threatening to commit an act of gun violence (e.g., school or workplace shooting) and develop creative public health alternatives to current approaches to gun violence that promote equity and justice as well as safety will be available.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.660. Connecting Public Health Research with the U.S. Policymaking Process. 3 Credits.**

Considers the contradictory role of public health research in the U.S. policy making process. Examines the question of when does research influence the policy-making process and how is it verified and what role can and should researchers play in the process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.692. The Role of Community-Based Organizations (Cbos) and Non-Governmental Organizations (Ngos) in Improving Global Public Health. 3 Credits.**

Provides students with a working knowledge of NGOs and CBOs in health and public health, both domestically and internationally. Acquires on-the-ground insights and skills important to those planning a public health career from public health research, to service delivery, to health policy and management, both novice and expert. Presents the roles of CBOs/NGOs in a variety of arenas, including infectious disease control, environmental health, and disaster and humanitarian response. Provides basic skills and lessons, from starting and sustaining an organization, to working with CBOs/NGOs to achieve and maximize the success of your particular public health goals. Discusses the roles of CBOs/NGOs within the larger contexts of globalization, world politics, and social development. Includes guest lectures from domestic and internationally recognized organizations such as the American Red Cross, the National AIDS Fund, and the Center for Disaster and Humanitarian Assistance Medicine.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.820. Thesis Research in Health Policy and Management. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.301.861. Graduate Seminar in Health and Public Policy. 1 Credit.**

Reviews and critiques current literature in health and public policy and evaluates studies from a methodological and conceptual basis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.302.610. State Healthcare Policy. 3 Credits.**

Acquaints participants with the critical role states play in developing and implementing policies that affect both health and health care. Reviews how the role of states has evolved within the US federal system of government where states and the national government both have significant responsibilities. Drawing upon the experience of implementing the health insurance exchanges in Maryland and Alabama, participants assess how state differences affect the implementation of a major new national health program—the Affordable Care Act. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.302.675. Crisis Response in Public Health Practice: International Perspectives. 2 Credits.**

Examines crises from the point of view of an agency leader responsible for designing and implementing an effective response while maintaining credibility and securing long-term policy change. Discusses recent crises including: global response to Ebola and Zika, responses to regulatory failures, foodborne outbreaks, and vaccine controversies. Offers students an opportunity to apply their knowledge by proposing a crisis response plan for a public health agency. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.302.843. SS/R: CRISIS RESPONSE IN PUBLIC HEALTH PRACTICE: INTERNATIONAL PERSPECTIVES. 2 Credits.**

Examines crises from the point of view of an agency leader responsible for designing and implementing an effective response while maintaining credibility and securing long-term policy change. Discusses recent crises including: global response to Ebola and Zika, responses to regulatory failures, foodborne outbreaks, and vaccine controversies. Offers students an opportunity to apply their knowledge by proposing a crisis response plan for a public health agency. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.605. Public Health Policy: The Intersection of Science and Politics. 3 Credits.**

Employs both lecture and interactive formats to explore the nature of the public health policy process, including how policy is a reflection of knowledge, political will and social strategy. Through presentations by instructors and guest speakers, offers examples of public health policy development highlighting the intersection of science and politics. Deepens and enriches the learning process through field trip(s) that actively engage students with Washington, D.C. public health advocates and policy makers with varying policy roles and perspectives. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.607. Public Health Practice. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.610. Issues in Injury and Violence Prevention. 2 Credits.**

Addresses prominent sources of injury, including motor vehicles, falls, fires, and firearms. Explores the biological, behavioral, and social issues relating to injury and violence prevention and policy. Emphasizes basic strategies for preventing injuries and deaths in the workplace, home, travel, and recreation, and the relative effectiveness of various types of approaches. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.615. Occupation Injury Prevention and Safety Policy and Practice. 2 Credits.**

Provides a link between the public health approach to injury prevention, the traditions of safety science and engineering, and their relationship with ergonomics and biomechanics. Topics covered include identifying the injury problem; using surveillance and record-keeping systems; preventing injuries by government, unions, health departments, and industry; and comparing safety sciences and a public health approach to injury prevention. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.623. Fundamentals of Clinical Preventive Medicine. 3 Credits.**

Examines the complex interplay between clinical preventive medicine, population medicine, and the practice of public health. Covers core topics for practice and for the preventive medicine board examination: prevention at the individual and community level; the evidence-based policy approach to prevention; and the creation and use of clinical governance standards and practice guidelines for prevention. Covers high-yield topics in short modules that focus on a clinical prevention frame, including the latest science and best practices in integrative medicine, chronic diseases, communicable diseases, injury and violence prevention. Covers prevention-based approaches to various issues of public health significance including the use of: mind-body medicine, lifestyle medicine, diet and nutrition wellness, motivational interviewing and health coaching, and evidence-based complementary and alternative medicine. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.630. Transportation Policy, Equity and Health. 2 Credits.**

Provides an overview of the significant role of national politics on transportation safety policy in the United States. Using case studies of notable safety enhancement efforts in aviation, highway, and other transportation modes, students discover the significant roles and interactions of lobbyists, industry associations, politicians, and Federal Agencies in transportation safety research and subsequent safety improvement rulemaking. Through informal lectures, readings and a field trip to the Baltimore Washington International airport tower, students learn that transportation safety and injury prevention improvements often require significant efforts to successfully navigate the path from research findings to interventions that improve the traveling public's safety and health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.670. Principles and Practice of Injury Prevention. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.684. Health Impact Assessment. 3 Credits.**

Since health impact assessment (HIA), is an approach that informs decision-makers about the potential health effects of proposed projects, programs, and policies made in areas outside of the health sector (e.g., education or housing), students learn about HIA through readings, lectures, and hands-on experience. Students study the rationale for conducting HIAs, review a range of analytic methods used to conduct HIAs analyze cases from international and domestic settings, understand its role in policymaking, and walk through the steps of how to conduct a HIA. Students then apply these skills through working on a HIA with a partnering organization. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.861. Graduate Seminar in Injury Research and Policy. 1 Credit.**  
Weekly seminar advances understanding of injury, violence, and resulting disabilities as public health problems. Topics include methodological approaches, substance use and overdose, occupational injury, violence prevention, and disability. Emerging topics as well as the application of policy, law and practice for injury and violence prevention are considered. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.864. SS/RES: SOCIAL INEQUALITIES IN HEALTH IN LIGHT OF ROAD TRAFFIC SAFETY. 3 Credits.**  
Provides an overview of the various manners in which the road traffic infrastructure and environment may contribute to the occurrence of accidents and injuries and also to social inequalities in mobility and safety. Examines analytic methods related to injury research and prevention using examples from both LMICs and HICs  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.305.865. Advanced Seminar in Injury Prevention. 2 Credits.**  
Broadens, advances, and challenges existing skills and knowledge of injury prevention students and/or multi-disciplined injury prevention practitioners. Elaborates on the 9 Core Competencies for Injury and Violence Prevention, as developed by the SAVIR-STIPDA Joint Committee on Infrastructure Development. In addition to interactive lecture, students are given as many opportunities as possible, within the constraints of the 2-day training, to practice skills through practical application sessions for a facilitated hands-on, skills-development experience.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.601. Introduction to Bioethics in Public Health Practice and Research. 1 Credit.**  
Introduces MPH students to the basic principles and frameworks for research and public health ethics as well as concepts in professional and research integrity as a public health professional. Explores both domestic and global health examples. Focuses on introductory material on public health ethics, research ethics and professional integrity.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.650. Public Health and the Law. 3 Credits.**  
Introduces non-lawyers to the important role played by the law in determining the public's health. Analyzes judicial opinions, statutes, and regulations in classroom discussions. Covers substantive legal topics including the balance between individual rights and public health initiatives, privacy, medical malpractice, and informed consent.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.655. Ethical Issues in Public Health. 3 Credits.**  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.660. Legal and Public Health Issues in the Regulation of Intimacy. 3 Credits.**  
Examines the ways in which the state regulates intimate and private relations and the justifications for such regulation. Particularly focuses on the attention paid to the public health and morality justifications offered by the state for the enactment and enforcement of privacy laws. Topics include: when state regulation of intimate decisions, actions and relationships is justified; the regulation of consensual sexual activity; the regulation of contraception and abortion; the regulation of same-sex sexual activity; and the regulation of same-sex marriage.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.662. Public Health Agencies: Law, Policy and Practice. 3 Credits.**  
Explores the important and expanding role that regulatory or administrative agencies, such as FDA and EPA, play in protecting and promoting the public's health. Examines agencies' ability to create and implement health policy, and discusses the legal limits on agency powers. Discusses how agencies develop regulations and employ other regulatory tools. Uses case studies to illustrate key concepts, such as the role of science in the regulatory process and the influence of politics on agency actions. Class sessions involve the interpretation and analysis of judicial opinions, regulations, and other administrative materials. Focuses on U.S. regulatory policy, but also examines examples and implications for international health policy. This course builds on the skills introduced in 306.650, and exposes students to new public health law and policy topics relevant to regulatory agencies.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.663. Legal and Ethical Issues in Health Services Management. 3 Credits.**  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.665. Research Ethics and Integrity. 3 Credits.**  
Introduces ethical theory and principles, including ethics requirements when conducting research with human subjects in the U.S. and/or developing countries. Covers the following topics through lecture and case studies: ethical theory and principles; informed consent in research; Institutional Review Boards; the just selection of research participants; cultural relativism; genetic research; ethical issues in vaccine research; ethics and human rights; appropriate use of placebos; what is owed to research participants, communities, and countries after research is completed; the use of animals in research; and scientific and academic integrity. Familiarized students with research ethics in both the U.S. and global contexts.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.670. Issues in LGBTQ Health Policy. 3 Credits.**  
Examines the impact and importance of health policy on the health, well-being, and lives of LGBTQ people. Explores how particular health policies, both historically and currently, have contributed to and/or reduced health disparities within LGBTQ communities.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.861. Graduate Doctoral Seminar in Bioethics. 1 Credit.**  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.306.864. Fogarty Bioethics Fellows Seminar. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.307.864. Mental Health Services and Systems Practicum I. 0.5 Credits.**

Part I of a year-long practicum that complements traditional coursework by providing exposure to the real-world settings and organizations that compose the mental health care infrastructure. Through site visits and opportunities to interact with representatives from different components of the mental health care system, students will develop an understanding of the historical evolution of the mental health care system in the U.S. and be introduced to the various settings through which mental health services are delivered, including emergency psychiatric services, intensive outpatient treatment, psychiatric rehabilitation, and early intervention.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.307.865. Mental Health Services and Systems Practicum II. 0.5 Credits.**

Part II of a year-long practicum that complements traditional coursework by providing exposure to the real-world settings and organizations that compose the mental health care infrastructure. Through this course, students will develop an understanding of the operational, organization, and financial aspects of service delivery, barriers to implementation of evidence-based services, and the interaction of other service settings (e.g., social services, criminal justice) with the mental health care system.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.600. SS/R: Managing the COVID-19 Pandemic: From Epidemiology to Policy. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.604. Effective Writing for Public Health Change. 3 Credits.**

Sharpens writing skills for clear, effective public health communication. Introduces the key elements of successful writing, and how to successfully apply those fundamentals to different communication formats and goals, both traditional and modern. Writing and organization skills practiced through writing assignments focused on practical real-world examples students will face in their careers, including one-pagers, policy memos, and data summaries, including learning to edit, improve, and pressure test the work of others. Professional standards for accuracy, readability, structure, and style that help communicate more effectively and persuasively in the pursuit of public health goals will be presented.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.605. THE IMPACT OF THE FINANCIAL, ECONOMIC AND POLITICAL CRISES ON HEALTH, QUALITY OF LIFE AND WELL-BEING OF POPULATIONS. 3 Credits.**

Analyzes the causes of the current worldwide crises, both in developed and developing countries, with a special emphasis on the United States, Canada and Europe. Focuses on the consequences of those crises on health and social policies that affect the quality of life, the well-being and the health of populations. Considers these issues from the political economy, social policy and health policy perspectives.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.610. The Political Economy of Social Inequalities and Its Consequences for Health and Quality of Life. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.615. The Opioid Crisis: Problem Solving Seminar. 3 Credits.**

Uses interactive case-based and problem-based strategies to provide an overview of the impact of the opioid crisis in the United States. Enables students to develop skills to address different aspects of the opioid crisis. Addresses topics including stigma attached to opioid use and treatment of opioid use disorders, the development of strategies to address such stigma, the importance of data in identifying opportunities for response, assessment of current policy options for addressing the opioid crisis in the United States, and addressing the political challenges to support effective policymaking. Prepares students to undertake data collection at the state level.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.620. Graduate Seminar in Racism and Measurement in Public Policy & Analysis. 3 Credits.**

Prepares researchers and health leaders (governments, businesses, non-profit organizations, and social reformers) to conceptualize and analyze the development, design, validity, and outcomes of measures of structural and systemic racism in research and policy analysis. Uses lectures, group exercises, information-gathering tasks and their own interests, to teach existing racism measures and their limitations, enhances their skill to examine and apply measurement concepts to the definition and impact of structural and systemic racism, and develops tools of policy analysis as they propose how measures of structural and systemic racism may be incorporated at specific stages of the public policy process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.630. U.S. Pharmaceutical Policy. 3 Credits.**

Examines the pharmaceutical market and addresses the core issues related to pharmaceutical policy within the US health care system, such as drug pricing, regulation, and financing, drug coverage decisions, and ethical aspects of drug regulation. Considers the role of multiple health care system actors involved in and affected by pharmaceutical policy: drug manufacturers, drug regulation agencies, insurers, pharmaceutical benefits managers, health care providers, patients, families, and others. Provides an in-depth analysis of drug pricing strategies, coverage decisions, and access and affordability issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.650. Public Health Perspectives on U.S. Drug Policy. 3 Credits.**

Presents a critical examination of U.S. drug policy through a public health lens. Course topics include: policy mechanisms for reducing drug-related harm; implications of various drug control policies on population health and wellbeing; drug control enforcement and the role of the criminal justice system; stigma and the politics of drug policy; the organization and financing of services for people who use substances, including treatment of substance use disorders; and policies and services targeting special populations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.660. Food Industry, Politics and Public Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.680. Health Care and Congress: Perspective From K Street. 2 Credits.**

Introduces the roles and functions of the entire legislative process – from bill introduction, to committee markup, to the enactment of legislation. Throughout this process, students also examine the essential role of congressional lobbyists in shaping health care policy stemming from coalition building, knowing your opponents, organizing grassroots and campaign contribution efforts, identifying key Members of Congress and staff, working with the Administration, testifying on Capitol Hill, and knowing what and what not to tell your constituency. Using a case-study approach, students walk through the process of how an idea goes from an organization into federal or state law.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.701. Media Interviews and Applied Public Health Communications. 3 Credits.**

Public health professionals are often tasked with communicating with the news media and giving presentations to a wide variety of stakeholders. This may be during an emergency situation, or to explain research and advocate for policies. Whether you are giving a presentation to a small group of colleagues or appearing on CNN, skills for effectively presenting information will inevitably come in handy during your career. This course offers practical exercises to help you be more confident, poised and prepared for public speaking. In this course, you will learn from real-life examples—both good and bad—and develop your own presentation skills during on-camera exercises.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.810. Field Placement Health Policy-MSPH. 1 - 22 Credits.**

Provides students with an intensive “hands on” extension of their academic training under the guidance of one or two senior level health policy professionals and program faculty. Students gain a deeper understanding of how health policies affect the public’s health and further develop their professional health policy skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.842. SS/R: Emerging Dimensions of Social Determinants of Health Inequalities: A Transdisciplinary Integrated Approach. 3 Credits.**

Introduces a novel transdisciplinary approach on Social Determinants of Health Inequities (SDHI). Provides an in-depth understanding of macro, meso and micro levels, all of which generate health inequities. Prepares students to examine the changes, causes, and potential policies to address systemic public health and equity-related subjects and the complex interactions between biology, behaviors, society and politics. Integrates a broad range of disciplines, ‘systems thinking’ practices, and methodological pluralism. Reviews research advances, including explanatory case studies and the evaluation of policies and interventions to reduce health inequities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.851. Phase Internship. 1 - 6 Credits.**

Public Health Applications for Student Experience (PHASE), offers students the opportunity to gain real world public health practice experience. PHASE internships require students to synthesize, integrate and apply academic theory in public health practice settings. Through PHASE, students have the opportunity to learn first-hand how public health agencies function and engage in public health decision-making on a daily basis

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.852. Applied Health Policy Experience: Health Policy Internship. 1 - 99 Credits.**

Provides JHSPH graduate students with experience and insight into the public health policy research and development process. Gains insight, while working directly with legislators, into the inner workings of the policy-making process including legal research, stakeholder engagement, and coalition building. Allows interns to provide legislative assistance to the policymaker throughout the legislative session, including legal research and analysis, stakeholder engagement, and writing testimony, bills and amendments.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.308.867. MSPH Seminar in Health Policy. 1 Credit.**

Introduces work undertaken in health policy settings and prepares MSPH students in Health Policy and Management for the field placement requirement in the second year of the program.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.600. Evaluating Quality Improvement and Patient Safety Programs. 3 Credits.**

Prepares students to evaluate Quality Improvement/Patient Safety (QI/PS), projects by developing their competencies in the following areas: 1) Critiquing evaluations of QI/PS projects; 2) Designing a robust evaluation of a QI/PS project; and 3) Conducting a small scale qualitative study.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.605. Health Issues for Aging Populations. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.609. Palliative and Hospice Care: Inequality, Equality and Quality of Care. 2 Credits.**

Addresses the policy problems related to improving access, quality and cost-effectiveness for palliative and hospice care within the current medical system, using case studies and workshop exercises. Also addresses the challenges and opportunities palliative and hospice care face under health reform. Considers questions such as: what communication strategies can be widely applied to help patients understand and choose care in accordance with their goals and values; how palliative care and hospice services should be delivered by accountable care organizations and medical homes; how palliative care can be integrated into the long-term care environment; and what quality measures should be integrated into performance measurement for all providers of the seriously ill.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.616. Introduction to Methods for Health Services Research and Evaluation I. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.617. Introduction to Methods for Health Services Research and Evaluation II. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.620. Managed Care and Health Insurance. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.631. Population Health Informatics. 3 Credits.**

Introduces students to concepts, methods, and issues related to the application of health information technology (HIT) to population health. Emphasizes the population health potential of comprehensive electronic health records (EHRs), personal health records (PHRs), mobile health and telemedicine devices; and consumer focused internet-based based tools. Covers the uses of HIT to define and identify populations and sub-populations of interest, describe the health status and needs of populations, improve the health of populations, and evaluate services provided to populations. Emphasizes the use of HIT within both local, regional and federal public health agencies and population-based private health care organizations such as integrated delivery systems and health insurance plans. Lessons are mainly US oriented but are also applicable to other high and middle income countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.635. Population Health: Analytic Methods and Visualization Techniques. 3 Credits.**

Introduces students to concepts, methods, and issues related to the application of data science to population health. Covers the uses of informatics to define and identify populations and sub-populations of interest, and describe the health status and needs of them. Describes the process of analyzing population health data from checking data quality to developing predictive models of utilization. Examines different data sources / methods to risk stratify a population of interest and compares the advantage and disadvantages of each data source / method. Describes various techniques to visualize data quality, depict the denominator selection process, and illustrate the risk adjustment results for large populations

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.670. Comparative Health insurance. 3 Credits.**

Provides an overview of the organization and financing of health systems in middle and high-income countries – focusing on population coverage, in terms of both how different groups are covered and the benefits package provided. Begins with a conceptual framework of financing flows in the health sector, and proceeds to identify a series of topics and case studies as the subject of specific lectures. Explores in depth the principal models for population coverage – including national health insurance, national health service, social insurance, private insurance, and mixed hybrid models. Provides case studies of health insurance coverage in specific countries, including the United Kingdom, France, Germany, Japan, Taiwan, Chile – with lessons drawn for transitional countries interested in expanding health insurance coverage

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.712. Assessing Health Status and Patient Outcomes. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.716. Advanced Methods in Health Services Research: Analysis. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.720. Applied Econometrics for Health Policy Research. 3 Credits.**

Advanced econometrics course that builds on techniques introduced in the prerequisite courses. Topics addressed include techniques for risk adjustment and provider profiling, advanced topics in instrumental variables analysis, calculating appropriate marginal effects and standard errors, heterogeneous treatment effects, decomposition approaches, and methods of assessing the robustness of various estimates. Students work on independent research projects that provide hands-on exposure to research design and data analysis with Stata.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.730. Patient Safety and Medical Errors. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.731. Patient Safety in Developing Countries. 2 Credits.**

Introduces students to the rapidly evolving field of patient safety in developing countries, focusing on health systems improvement. Explains the role of global organizations, national governments, institutions, local communities, and individuals in improving patient safety in developing countries. Reviews key global patient safety resources that can be utilized to enhance patient safety in developing country health systems. Students learn how to utilize a “problem solving paradigm” to patient safety, conduct a patient safety situational analysis, and develop an action plan for patient safety at the institutional level. Explores the use of patient safety partnerships between hospitals as a model for inter-continental collaboration.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.732. Human Factors in Patient Safety. 3 Credits.**

Provides students with the essential concepts, methods and tools to enable them to design effective patient safety interventions and evaluate their impact.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.750. Applied Research Methods for Health Policy and Management. 3 Credits.**

Helps Tsinghua DrPH cohort students synthesize methods content to conduct a valid statistical analysis applied to a Chinese-relevant data set or topic area. Students develop advanced skills in modeling and methods for conducting health policy, healthcare management, and health services research analysis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.861. Graduate Seminar in Health Services Research and Policy. 1 Credit.**

Provides opportunity to learn about the PhD process, faculty research, discuss issues and concepts relevant to the field of health services research, and learn skills important for academic and professional success in the field of health services research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.864. Quality, Patient Safety, and Outcomes Research Practicum. 3 Credits.**

Provides students in the Quality, Patient Safety, and Outcomes Research Certificate Program with an integrated experience in quality, patient safety, outcomes research, or a combination of the 3 domains in any one of a wide variety of settings in the health service delivery environment. Students are placed based on their individual goals and interests and the preceptors' needs. Students join an active work group and are supervised directly or indirectly by the practicum preceptor  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.871. Health Services and Outcomes for Aging Populations Practicum I. 0.5 Credits.**

Focuses on Home-Based Care and provides an in-depth overview of home-based medical care, skilled home health care, and telehealth. Complements traditional coursework by providing exposure to the real-world settings and organizations that comprise aging services delivery and infrastructure.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.872. Health Services and Outcomes for Aging Populations Practicum II. 0.5 Credits.**

Students work in small groups to apply the concepts learned in Knowledge Translation, I (309.870.11) to a practical case study of a knowledge translation problem.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.873. Health Services and Outcomes for Aging Populations Practicum III. 0.5 Credits.**

Focuses on the importance of interdisciplinary care in the care of older adults. Complements traditional coursework by providing exposure to the real-world settings and organizations that comprise aging services delivery and infrastructure.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.309.874. Health Services and Outcomes for Aging Populations Practicum IV. 0.5 Credits.**

Fourth of 4-term sequence. Focuses on issues associated with provision of long-term services and supports in the community, assisted living, nursing homes, and innovative models of care. Complements traditional coursework by providing exposure to the real-world settings and organizations that comprise aging services delivery and infrastructure.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.311.615. Quality of Medical Care. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.311.720. Tsinghua DRPH Capstone. 2 Credits.**

Helps Tsinghua DrPH students synthesize course content with a specific focus on problem identification and the development of testable hypotheses; how to develop a conceptual model; approaches for conducting a literature review and synthesis. Provides an overview of the DrPH written qualifying examination.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.311.820. Thesis Research HPM-DRPH. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.311.861. Graduate Seminar in Health Care Management and Leadership. 1 Credit.**

Provides opportunity to discuss concepts and issues related to organizational performance improvement, organizational performance indicators, and change strategies. Facilitates preparation for comprehensive exams and the design and conduct of dissertation projects.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.311.865. Tsinghua DRPH Seminar. 1 Credit.**

Provides opportunity to learn about faculty research, discuss issues and concepts relevant to the field of health management and leadership, and learn skills important for academic and professional success in the field. Intended for DrPH students from the Tsinghua cohort.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.311.867. Tsinghua Graduate Seminar. 1 Credit.**

Provides opportunity to discuss concepts and issues related to organizational performance improvement, organizational performance indicators, and change strategies. Facilitates preparation for comprehensive exams and the design and conduct of dissertation projects. Intended for DrPH students in the Tsinghua cohort program.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.600. Managing Health Services Organizations. 4 Credits.**

Presents a framework for understanding and managing health services and health sector organizations. Discusses strategic and organizational management [e.g., health care environment, stakeholders and customers, missions, vision and values, governance, organizational structure and design]; management & performance improvement tools [e.g., budgeting and financial management, logistics, continuous quality improvement, balanced scorecard, logical framework, learning networks and collaboratives]; management role and functions [e.g., leadership style, employee performance, decision-making, human resource management]  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.601. Fundamentals of Management for Health Care Organizations. 3 Credits.**

Discusses how to manage in health care organizations, including management processes, organizational structures, and types of governance and management issues of U.S.-based health care delivery systems. Topics to be examined include introduction to health care systems; managing health care organizations; health care environments, administrative management responsibilities; approaches to performance improvement and financial management concepts.  
Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.602. Applied Methods for Optimizing Performance in Health Care Organizations. 2 Credits.**

Performance Optimization Methods for Health Care Organizations is designed for MHA students who seek an understanding of continuous improvement in healthcare organizations. The content and framework of the course are designed to provide students with a broad exposure to current knowledge, competencies and management tools required for the effective operation of health care delivery systems. Focus is on how to apply continuous improvement tools and methodologies in various health care environments. Provides a detailed explanation of Lean and Six Sigma methodologies with opportunity to apply these skills to real world examples within health care settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.603. Fundamentals of Budgeting and Financial Management. 3 Credits.**

Provides students with an understanding of budgeting as an important management tool. Focuses on budget development, evaluation of the financial status of a department or operating unit and the ability to determine what, if any, corrective actions need to be taken. Includes strategies for measuring and reporting skills. Considers the analytical tools used to support evaluation and decision-making including; volume adjusted variance analysis, benefit-cost ratio analysis, breakeven analysis, process flow analysis, benchmarking, and methods for building cost standards.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.604. Quantitative Tools for Managers. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.607. Quantitative Tools for Managers in Asia. 3 Credits.**

Designed to provide concept and real-world application of quantitative tools (methods) commonly applied in the healthcare industry in Asia.

Topics to be addressed include: facility location/payout, forecasting and financial analysis, re-engineering and utilization (productivity) management and quality matrix and improvement tools. Applications and case studies will focus specifically on the Asia-Pacific rim.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.610. Foundations of Organizational Leadership. 3 Credits.**

Students develop an understanding of the role expectations of the organizational leader and the essential knowledge and skills the role requires. Provides a framework for understanding the process of working effectively with, influencing and leading others. Drawing from a variety of disciplines, emphasizes organizational effectiveness, developing a future vision and direction, leading change and building adaptive organizational cultures.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.617. Fundamentals of Financial Accounting. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.620. Performance Measurement in Health Care. 2 Credits.**

Focuses on performance measurement for hospitals and describes key aspects and challenges of measurement initiatives in the current context of health care reform in general, and payment reform more specifically. Includes the faculty, all senior health care professionals from the trenches, describing the regulatory environment and Joint Commission and CMS requirements. Summarizes key measures used for public reporting and payment such as chart-abstracted clinical process, administrative data based outcomes, satisfaction, and efficiency. Highlights the advantages and disadvantages of each type of measure and discusses appropriate use of analytics and comparison data including patient satisfaction. Covers current public reporting and pay for performance initiatives and associated challenges. Includes emerging initiatives in the context of the electronic medical records, such as e-measures and meaningful use.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.621. Strategic Planning. 3 Credits.**

Focuses on principles of strategic management and competitive analysis to support strategy development for health care organizations. Provides an understanding of how current business and management knowledge is applied to health care organizations to promote future success and competitive advantage. Examining contemporary theory and models, students learn to assess and develop an organization's mission and vision; perform an internal and external strategic assessment; evaluate competitive threats and responses; develop organizational strategies and measures of success; and evaluate the decision-making approaches best able to develop and execute the best strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.623. Financial Management in Health Care I. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.624. Financial Management in Health Care II. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.630. Healthcare Financial Management. 3 Credits.**

Provides managers and professionals, both novice and experienced, with the financially quantitative knowledge needed for planning, controlling and managing in contemporary health care organizations under constantly changing conditions. Provides a foundation in the basic financial management skills as well as their advanced application. Introduces the basic business finance approaches to decision-making and governance. Provides students with a sound conceptual and applied understanding of the role that financial and cost management play in the business setting decision-making process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.633. Health Management Information Systems. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.635. Human Resources in Health Organizations. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.312.650. Non-Traditional & innovative Health Services Partnerships. 2 Credits.**

Introduces innovative, non-traditional partnerships as an integral part of achieving a value-based healthcare system. Examines growing trends in healthcare and basic principles and practices of non-traditional partnerships. Discusses the method of building balanced business models to ensure obtainable milestones and returns for all parties. Presents lessons learned by industry leaders who have experienced establishing partnerships with multi-national corporate, investor, and strategic entities focusing on clinical services, population health and health/IT activities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.651. Principles and Applications of Advanced Payment Models in Population Health Management. 3 Credits.**

Presents an overview of major issues related to the design, function, management, regulation, and evaluation of health insurance and managed care plans and implications for population health management. Provides a firm foundation in basic concepts pertaining to private and public sector health insurance/benefit plans. Includes key topics such as, population care delivery and payment innovations and management techniques, provider payment models, risk-sharing and other incentives for organizational integration, quality and accountability, cost-containment. Reviews innovative payment models and initiatives supporting health care providers and health care organizations in testing alternative care delivery in the context of three core strategies for improving the US health system: improving the way health care providers are paid, improving the way care is delivered, and increasing the availability of information to guide decision-making.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.655. Organizational Behavior and Management. 2 Credits.**

Explores organizational behavior perspectives and theories, which provide the framework for the critical study of management, and the interpersonal skills and knowledge required by managers in the dynamic health sector. Students develop an approach to thinking about health sector organizations and their complexity. Emphasizes current thinking and the application of theory to practice in the areas of management, employee motivation, group behavior and team development, power and influence plus conflict management and negotiation skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.660. Marketing in Health Care Organizations. 3 Credits.**

Introduces students to marketing concepts in health care through readings, guest speakers, small group exercises and individual study. Prepares students to conduct a situational analysis, understanding the market and consumer behavior as well as assessing the capabilities of the organization. Explores primary and secondary market research techniques. Discusses marketing strategy, including positioning and branding, program/service development, pricing, distribution, and promotion. Explains evaluation and measurement methods.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.670. Negotiation in Health Care Settings. 3 Credits.**

Addresses the basic skills needed for effective negotiation of business relationships in health care and other settings. Focuses on understanding and developing a systematic approach to preparing for, structuring, and negotiating key business relationships. Presents basic process and conflict management skills needed for effective negotiation of business relationships in health care. Also explores the ethics of negotiation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.675. Medical Practice Management. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.678. Introduction to Healthcare Quality and Patient Safety: A Management Perspective. 2 Credits.**

Introduces students to the latest thinking on healthcare quality and patient safety improvement through didactic sessions, interactive exercises and case studies that have direct relevance for the public health practitioner, healthcare administrator or clinician. Focuses on the specific domains of healthcare quality and patient safety based on the strategies recommended by the Institute of Medicine report "To Err is Human."

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.693. Introduction to Comparative Effectiveness and Outcomes Research. 3 Credits.**

Introduces students to the motivation and methods of comparative effectiveness research. Reviews the problems faced by decision makers across the US health care system, and the priority topics for investigation. Explains the role of stakeholders, including payors, manufacturers, health care organizations, professional groups, providers and patients. Explains study designs and methods used in effectiveness research, focusing in particular on observational studies. Also describes the policy implications of this research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.700. Leading Organizations. 3 Credits.**

Focuses on the essential principles of personal and interpersonal leadership that can be used in an organizational setting to enhance performance, align and empower personnel, and assure organizational engagement. Applies leadership skills in a hands-on practical way that encourages students to challenge their own beliefs and assumptions about what constitutes leadership. Offers a comprehensive review of contemporary issues and perspectives on leadership. Explores multidisciplinary and systems-oriented approaches as well as classic leadership theory and evolving contemporary beliefs. Includes topics such as development of leadership theories, personal assessment and development, values and ethics, motivation, power, followership, group dynamics, multiculturalism in leadership, conflict resolution, performance excellence, and the change process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.701. Strategic Leadership and Decision Making. 3 Credits.**

Examines how leaders formulate coherent and effective strategies for policy-making in a complex and unpredictable environment, consider planning, organization, persuasion, and adaptation to changing national and international pressures, as well as broader studies of strategic decision-making in the modern world. Considers what it means to be an effective strategist, policy-maker, agenda-setter, and change agent. Assess the difficulties involved with fulfilling these often difficult tasks within and outside of the organizational setting.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.702. Leading Change: Building and Empowering Teams. 3 Credits.**

Examines the design, management, and leadership of teams in organizational settings. Focuses on the interpersonal processes and structural characteristics that influence the effectiveness of teams, the dynamics of intra-team relationships, and sharing of knowledge and information in teams. Participants will understand the theory and processes of group and team behavior to become successful leaders and adept in leading and managing groups and teams.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.703. Learning Organizations & Knowledge Management. 3 Credits.**

Explores concepts of organizational learning, analyzes global research trends in how evidence-of-learning is captured in workplace settings around the world, and applies organizational learning models to foster and support innovative workplaces. Discusses how various factors such as diversity, complexity, crises, and increasingly advanced digital solutions (technology) change the pace in which an organization learns, adapts, and competes. Embraces a system perspective of learning at the organizational level-of-analysis grounded in the premise that innovation and sustainable change is contingent upon an organization's ability to create management structures that apply, analyze, evaluate and convey information, enhance decision-making, and achieve desired results through continuous learning.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.720. Designing a Strategic Plan. 1 Credit.**

Deepens knowledge of designing an organizational level strategic plan, develops an understanding of the frameworks and processes used to effectively create a strategic plan, and applies various industry recognized approaches and tools utilized for strategic planning as learners design a strategic plan. Covers foundational learning concepts and includes models such as Porter's Five Forces Analysis and the Baldrige Excellence Framework.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.810. MHA Residency. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.861. MHA Case Competition. 2 Credits.**

Introduces students to the case competition early in the year as part of their seminar. Provides students with the opportunity to apply what they have learned in the classroom setting to a real-world case study.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.862. MHA Capstone. 1 Credit.**

MHA students synthesize and integrate the knowledge and skills they have acquired throughout the program and their field placement to the examination and analysis of a current healthcare trend and its potential implications for health care services and delivery systems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.867. MHA Seminar. 1 Credit.**

Introduces students to current health care finance and management issues through a series of discussion sessions with program directors and guest lecturers. Prepares students for the program's fourth term case competition and the second year field placement requirement.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.869. Healthcare Consulting Practicum. 2 Credits.**

Students are required to meet with the client (hospital sponsor of the consulting project) to develop an understanding of the project requirements. Prior to beginning the consulting engagement students will a) devise a plan for carrying out the consultancy, b) prepare a scope letter describing the project, the scope of work, deliverables, timeline and fee arrangement

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.873. SS/R: ADVANCED CONFLICT MANAGEMENT AND COACHING SKILLS. 1 Credit.**

Builds upon the strategies and approaches presented in #312.871.97 SS/R - Leadership Skills: Negotiation & Conflict Management in Health Care.

Part One teaches participants how to analyze, prepare for, and conduct a successful conversation or negotiation when emotions are running high. Uses case studies, experiential learning, group discussion, and lecture to introduce the "Difficult Conversation" framework developed by members of the Harvard Negotiation Project and a diagnostic tool for managing conflict. Participants are videotaped while participating in a conflict management simulation. Each participant receives an analysis and critique of her/his taped performance and a copy of their filmed simulation. Part Two equips participants with the skills needed to coach supervisees and colleagues through workplace conflicts and strengthen conflict management capacity in the organization. Develops understanding of and proficiency in the use of a conflict coaching framework by using lectures, case studies, group discussions and experiential learning.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.312.910. LAB for 312.810.**

Lab for PH.312.810

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.601. Economic Evaluation I. 3 Credits.**

Presents an introduction to the theory, methods, and application of economic evaluation in health care. Provides a specific focus on cost-effectiveness analysis, with an emphasis on identifying and measuring outcomes, understanding incremental cost-effectiveness ratios (ICERs), conducting sensitivity analyses, and incorporating time preferences.

Considers decisions about the allocation of funds to different population segments or different types of programs, and to programs with great benefit for a few versus modest benefit for many. Prepares students for advanced topics in Economic Evaluation II-IV.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.602. Economic Evaluation II. 3 Credits.**

Builds on the theory and methods taught in Economic Evaluation I to allow students to gain an understanding of intermediate topics in CEA. Provides students with experience of hands on development of decision trees. Focuses on having students become familiar with best practices in this growing field. Establishes the ability to critically appraise published work and construct simple cost-effectiveness models using Excel and other software. Prepares students for more complex modeling covered in Economic Evaluation III-IV.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.603. Economic Evaluation III. 3 Credits.**

Builds upon the theoretical concepts taught in Economic Evaluation I-II by providing advanced content in the areas of decision analysis, cost-effectiveness, and alternative approaches of modeling research questions for these fields. Include approaches for calculation of costs and effectiveness measures using standard modeling methods. Compares outputs as a result of decision tree and Markov modeling and introduces sensitivity analysis. Includes group projects to produce a well-thought model on a topic of their own choosing in decision analysis or cost-effectiveness.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.604. Economic Evaluation IV. 3 Credits.**

Builds upon the theoretical concepts taught in Economic Evaluation I-II and the methodological skills taught in Economic Evaluation III. Examines advanced methods, as well as areas of controversy with applications to international health. Explores methods for performing cost-effectiveness analysis (CEA) and benefit-cost analysis (BCA) with primary and secondary data. Examines alternatives to CEA, including cost-benefit analysis, stated preference methods, revealed preferences, and multi-criteria decision analysis. Emphasizes an applied experience in conducting economic analysis based on survey data as well as secondary data in a global context. Includes additional applications to adjust CEA to account for equity goals, to project program scale-up, and to account for "behavioral" agents.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.610. Health Economics for Managers. 3 Credits.**

Applies the analytical tools of economics to issues in health care that are especially relevant to managers and leaders of health care organizations. Examines topics including: the use of economic incentives to influence health behavior; asymmetric information and the role of agency in health care; the application of behavioral economics to health care; government as payer and regulator, and equity/ethical considerations; the role of health insurance; and the theory of the firm as it applies to physicians, hospitals, and systems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.620. Introduction to Behavioral Economics: Theory and Practice. 3 Credits.**

Explores the theoretical framework of behavioral economics, and applies that framework to issues in health and healthcare. Addresses elements of the theory of behavioral economics including: prospect theory, System 1/ System 2 thinking, hyperbolic discounting, loss aversion, the endowment effect, framing and anchoring, mental accounting and commitment contracts, heuristics and biases, the power of the default, and pricing strategies. Applies these concepts to human behavior in general, as well as that of patients and physicians.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.641. Introduction to Health Economics. 3 Credits.**

Introduces students to the application of economic tools to the interaction among the many stakeholders in the health care system and the public health system. Intended for those students who want an overview of health economics, but who do not expect to pursue additional courses in the field. Uses a standard health economics text as the main reading; also draws on articles from the popular press and professional journals that illustrate the tools of economics or their application to health care and public health issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.643. Health Economics. 3 Credits.**

Introduces the analytical tools of economics and applies them to issues in healthcare. Topics include: resource allocation in health care; government as payor and regulator; asymmetric information and the role of agency; the market for health insurance; market structure and competitive strategy as it applies to health care organizations; the market for labor in health care; and the market for innovations and technology. Uses mainstream neoclassical microeconomic theory as the basis for analysis, but also explores the implications when the assumptions of this model are violated. Uses a standard health economics text as the main reading, but uses journal articles in the field to examine how the profession is analyzing health care and public health issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.644. Intermediate Health Economics. 3 Credits.**

Building on the basic concepts and applications presented in Health Economics I, students in Health Economics II are exposed to some of the seminal topics in health economics, with a particular focus on the issues of human capital, economics of the household and the demand for healthy and risky behaviors. Topics include: the economic returns of education; economics of the household; the demand for health (Grossman Model); addiction; teen sex; obesity, the statistical value of a life, and fertility. While it will not be the focus of the class, some time will be spent on the dynamic modeling and econometric techniques that are used in the papers that we review. Teaching methods include lectures, group discussion and problem solving exercises, and hands on experiments.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.653. Advanced Health Economics I. 2 Credits.**

Covers seminal publications in health economics and is targeted towards advanced Ph.D. students. Describes theoretical models in health economics for the determinants of health and demand for healthcare services, the foundations for cost-effectiveness analysis, the supply of healthcare services in competitive, monopolistic, and government-regulated markets, and the provision of private and public health insurance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.654. Advanced Health Economics II. 2 Credits.**

Covers seminal publications in health economics and is targeted towards advanced Ph.D. students. Describes theoretical models in health economics for the determinants of health and demand for healthcare services, the foundations for cost-effectiveness analysis, the supply of healthcare services in competitive, monopolistic, and government-regulated markets, and the provision of private and public health insurance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.655. Advanced Health Economics III. 2 Credits.**

Covers seminal publications in health economics and is targeted towards advanced Ph.D. students. Describes theoretical models in health economics for the determinants of health and demand for healthcare services, the foundations for cost-effectiveness analysis, the supply of healthcare services in competitive, monopolistic, and government-regulated markets, and the provision of private and public health insurance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.656. Advanced Health Economics IV. 2 Credits.**

Covers seminal publications in health economics and is targeted towards advanced Ph.D. students. Describes theoretical models in health economics for the determinants of health and demand for healthcare services, the foundations for cost-effectiveness analysis, the supply of healthcare services in competitive, monopolistic, and government-regulated markets, and the provision of private and public health insurance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.685. The Economics of Tobacco Control. 1 Credit.**

Introduces students to the economic tools and analysis used to confront the public health challenges caused by smoking. Reviews the evidence of the health and economic consequences of tobacco use. Emphasizes the rationale for increases in taxes, financial incentives to discontinue tobacco cultivation, and regulatory measures such as bans on smoking in public places and restrictions on access for minors. Provides economic tools and background information for public health specialists, policymakers, the news media, and others interested in using evidence-based policy to prioritize and address public health concerns related to tobacco control.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.790. Introduction to Economic Evaluation. 3 Credits.**

Prepares students to read and interpret cost-effectiveness studies. Introduces the basic economic concepts that are needed in order to understand the recommendations from the United States Panel on Cost Effectiveness in Health and Medicine, such as the distinction between opportunity costs and budgetary costs. Considers review recommendations, particularly as they apply to cost-effectiveness research reports. Discusses the relationship between cost-effectiveness results and other elements of the health care policy decision-making process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.793. Extended Exercises in Cost Effectiveness. 2 Credits.**

Provides students with experience in seven short exercises that explore a variety of aspects of cost-effectiveness analysis. Students learn how to link all the steps together to complete a full cost-effectiveness analysis from start to finish. During the two day course, students work in Microsoft Excel to setup a workbook that will allow them to complete a cost-effectiveness analysis, manipulate the results to explore multiple possible assumptions, and have the opportunity to share their work in a format that is easily accessible.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.861. Public Health Economics Seminar. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.313.865. MHS Capstone in Health Economics. 2 Credits.**

Produce a scholarly paper that provides a meaningful contribution to knowledge of the health economics. Affords the opportunity to work under the direction of a research mentor and presenting research results to a group of peers.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.315.700. Health Information Systems: Design to Deployment. 3 Credits.**

Reviews health information systems, such as patient records, patient monitoring, imaging, public health, educational, bioinformatics and scholarly systems. Teaches the core architectures and technologies of these core systems, focusing on commonalities and differences and design.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.315.703. Leading Change Through Health Informatics. 3 Credits.**

This course will review the health information systems through case studies in the evaluation processes. Presents a framework for design and evaluation of systems based on user needs, functions performed, related information activities, and available technology. Skills taught include the use of measures and methods for qualitative and quantitative evaluation of information systems, including cost, performance, effectiveness and benefit/outcome determination.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.315.707. Introduction to Biomedical and Public Health Informatics. 3 Credits.**

This course will contrast differences in roles, needs, and solutions among major players in the national and commercial health IT and informatics communities. The course will define public health informatics and explain why things do or don't happen in IT at the national and institutional levels. The course will apply available sources of data, information, and knowledge to address healthcare and public health problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.315.708. HIT Standards and Systems Interoperability. 3 Credits.**

Students learn the data, information, and knowledge standards critical to the successful implementation of local, regional, and national health-related information systems. Target competencies are to identify the appropriate level of HITSP standards for an informatics problem, and select the appropriate standard within that level; create use cases and an organizational process to define an interoperability standard for a specific healthcare/regional situation; participate in a national standards-creation process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.315.709. Health Sciences Informatics, Knowledge Engineering and Decision Support. 3 Credits.**

Provides a framework for understanding decision support in the workflow of the health sciences. Focuses on the types of support needed by different decision makers, and the features associated with those types of support. Discusses a variety of decision support algorithms, examining advantages and disadvantages of each, with a strong emphasis on decision analysis as the basic science of decision making. Students are expected to demonstrate facility with one algorithm in particular through the creation of a working prototype, and to articulate the evidence for efficacy and effectiveness of various types of decision support in health sciences and practice, in general.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.315.725. Applied Clinical Informatics. 3 Credits.**

Introduces the field of Applied Clinical Informatics, which is focused on leveraging clinical information systems and technology to improve patient and family-centered care. Provides exposure to a range of clinical workflows as well as patient/caregiver needs and how these may be supported by health information technology. Topics include: Workflow analysis, clinical decision support (CDS), electronic health record (EHR) and patient portal best practices, health information exchange (HIE), integrated laboratory, imaging and pharmacy information, telehealth and digital health strategies, and evaluation. Considers topics in the appropriate context of care continuum, clinical care transitions, patient safety and care quality, regulatory requirements, information security, organizational governance and project management.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.315.727. Database Querying in Health. 3 Credits.**

Introduces core concepts of relational databases using Structured Querying Language (SQL) along with terminologies related to clinical databases used in health information systems. Utilizes the Precision Medicine Analytics Platform with access to de-identified medical records of 70K patients with Diabetes with over 100 million data elements, including ICDs, medications, encounters procedures, symptoms, and vitals. Focuses on answering clinical and research questions and discussion around effective data governance. Analyzes 3-yers of data to look for clinical and population-level management strategies for type 1 and type 2 diabetes. Includes analysis of a thorough data quality evaluation framework as well as identifying predictors for hospitalization and rehospitalization.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.317.600. Introduction to the Risk Sciences and Public Policy. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.317.605. Methods in Quantitative Risk Assessment. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.317.610. Risk Policy, Management and Communication. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.317.615. Topics in Risk Assessment. 2 Credits.**

Uses a case study approach of a selected risk-based public health issue to integrate student's application of the skills in the risk sciences (risk assessment, risk management, and risk communication).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.317.700. Climate Change Adaptation in Public Health: Large World Cities. 3 Credits.**

Provides an overview of the science behind climate change and highlights the particular risks of global mega-cities due to their concentrated populations, urban heat-island effect, frequent proximity to coasts and rivers, and locus of transport and trade. Uses the WHO and UN CDC Guides to Vulnerability for Public Health and the UN Habitat Guide to Vulnerability Assessment for Cities to identify populations at greatest risk from climate impacts. Critically evaluates through case studies actual climate and health adaptive policies as they are implemented in real-life contexts in several large, innovative world cities including San Francisco, London, Rio de Janeiro, Durban, and Copenhagen.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.317.864. Advanced Topics in Climate Change Policy. 2 Credits.**

Focuses on advanced issues at the forefront of climate change and public health policy and practice. Takes a complex-systems view that traverses the boundaries between sectors, spans government levels, and integrates perspectives across public and private actors. Topics to be determined each year according to faculty interest and student need. Uses case studies, policy analysis readings, and discussions to foster student learning.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.603. Applied Microeconomics for Policymaking. 3 Credits.**

Introduces the basic principles of microeconomics by emphasizing applications to the solutions of public problems. Students examine how markets operate and the role of government intervention. Acquaints students with public versus private goods, externalities, information asymmetry and other issues. Provides a theoretical framework for addressing policy problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.615. Program Evaluation for Public Policy I. 3 Credits.**

Introduces the fundamental principles and practices involved in the design, implementation, and analysis of program evaluations. Topics to be considered include the evaluation of ongoing programs and test of new interventions being considered for broader adoption; determining whether programs are 'working'; procedures involved in implementing an evaluation in the field, including potential pitfalls; procedures for collecting and analyzing data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.616. Program Evaluation in Public Policy II. 3 Credits.**

Introduces the fundamental principles and practices involved in the design, implementation, and analysis of program evaluations. Topics to be considered include the evaluation of ongoing programs and test of new interventions being considered for broader adoption; determining whether programs are 'working'; procedures involved in implementing an evaluation in the field, including potential pitfalls; procedures for collecting and analyzing data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.623. Social Policy for Vulnerable Populations in the U.S.. 3 Credits.**

Explores the social determinants underlying poor health outcomes among vulnerable populations in the U.S. and considers policy approaches to address those determinants. Explores examples of vulnerable populations including but not limited to groups facing extreme poverty, homelessness, serious mental illness, addiction, and disability. Examines definitions of vulnerability; the array of social determinants contributing to poor health outcomes among vulnerable populations in the U.S.; current U.S. social policy approaches for vulnerable populations in the areas of healthcare, disability, poverty, housing, and criminal justice policy; and the politics of social policy in the US. Provides students with opportunities for integrating social policy concepts, theories, and frameworks through an in-depth analysis of the sources of vulnerability and related policy approaches to improve health and social outcomes in specific vulnerable populations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.625. Management of Nonprofit Organizations. 3 Credits.**

Provides the necessary tools to effectively manage a nonprofit organization. Emphasizes financial, personnel and operations management, focusing on skills necessary to be an executive running a program within a large institution or heading an independent nonprofit agency. Addresses budgeting (both grant and organizational), reading and interpreting financial reports, grant writing techniques and staff and compensation management. Also examines how to work with the legal restraints and opportunities to maximize organizational effectiveness within the laws and regulations that make nonprofits different from the government and for-profit sectors.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.636. Urban Policy. 3 Credits.**

Explores urban issues through a policy lens. Examines a wide range of urban characteristics and the challenges cities face from fiscal stress and governance to poverty, homelessness, and drugs. Explores policy remedies proposed or tried in the past, how well they have worked, and what other strategies may be tried.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.640. PRACTICAL POLITICS, POLICY AND PUBLIC HEALTH. 3 Credits.**

Explores how one effectively influences policy and the connection between policy and politics. Addresses how the two are related via a practical and hands-on approach, focusing on effectiveness, influencing the legislative process, and practical skills. Addresses how to approach legislators and other policy makers, gain insight into the political process, understand how bills are drafted and amended, develop persuasive arguments, and build strategic political coalitions. A sample of issues, with a focus at the state level, include: insurance regulation, reproductive rights, mental health systems, air/water quality, programs for the disabled, and gun policy. Also considers non-health care issues, including education funding and policy, transportation, criminal justice system and jails, gambling/gaming, building development, and election law.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.318.864. Current Issues in Policy: Special Topics in Advanced Policymaking for DrPH. 3 Credits.**

Provides policy researchers with a set of analytical frameworks to gain a greater understanding of policy issues. Explores all aspects of a topical policy issue from its origins, transformations, and impact on health and social justice. Policy topics are determined each year according to faculty interest, student need, and policy saliency. Uses case studies, policy analysis readings, and discussions to foster student learning.

Some sessions focus directly on translating policy research into policy alternatives while others focus on the political and social environment. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.600. Quality Management in Health Care. 3 Credits.**

Teaches students the basic concepts of quality in health care, and also equips them with approaches and skills to implement sustainable quality assurance programs in the health system. Introduces students to various quality improvement approaches (QC, QA, CQI, TQM), role of standards and norms, use of quality improvement tools, methods of quality assessment, and approaches to operationalize and implement quality assurance programs. Explains the concepts of organization for quality improvement, including Quality Teams (QT) and Quality Control Circles (QCC).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.601. Health Information Management and Decision-Making. 3 Credits.**

The course provides an overview of Health Information Management System, its structure and functions. Identify information needs and indicators in the health systems and public health. Describe uses of information for effective management of health services. Review framework and organizational structure of HMIS. Provide a critical review of current issues problems in information management in the health systems in the context of developing countries. Describes various decision models and reviews decision making process in health care; application of information in performance tracking and analysis; monitoring of services and programs, supervision and impact evaluation. The course emphasizes designing health information systems and uses of IT.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.602. Project Management and Evaluation. 3 Credits.**

Covers basic concepts and principles of project management and project management cycles. Provides learning opportunities for developing project management skills, and translates modern management concepts into project planning and management using a Log Frame Approach (LFA). Describes implementation structure, coordination and supervision mechanisms, and project evaluation methods. Reviews human aspects of project management such as motivating people, team building, and improving personal influence and effectiveness

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.603. Strategic Management. 3 Credits.**

Presents a practical framework for formulating, implementing and controlling organizational and program strategies in public health. Provides an overview of the sub-systems, processes and models in strategic management as applicable to public health and health care organizations. Critically reviews the major environmental trends affecting healthcare organizations. Discusses how to use internal and external environmental analysis to identify the bases of sustained competitive advantage. Presents frameworks for strategy formulation and implementation including SWOT analysis and decision logic.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.606. Health Economics and Cost Effectiveness. 3 Credits.**

Introduces economic concepts and principles for better resource management in the health care sector. Examines the public finance approach to policy questions relating to the role of government and other stakeholders. Acquaints students with the methodologies of both cost and demand analyses. Demonstrates how to make use of such analyses in policy planning and evaluation, including practical skills in cost effectiveness analysis of public health services and programs. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.607. Human Resources Management for Health. 3 Credits.**

Focuses on the skills necessary for managing people in the health organizations and systems. Introduces concepts of human resource management in the context of organizations including organizational characteristics, learning organizations, human resource planning, recruitment and selection, job analysis and evaluation, performance appraisal, career planning, motivation, leadership, team work, and managing employee relations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.608. Finance Management, Accounting and Budgeting. 3 Credits.**

Explains the role of budgeting as a key component of the administrative process. Describes basic financial management concepts and techniques, and provides a foundation for integrating these techniques into health care organizations. Presents strategies for evaluating the financial status of a department or health unit in order to determine whether corrective actions need to be taken. Presents various analytical methods in management decision making, including benefit/cost ratio analysis, variance analysis, and break-even analysis

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.319.610. Principles of Management in Public Health. 3 Credits.**

Introduces the basic principles of management in the context of public health. Covers basic management functions such as planning, organizing, implementation, coordination, monitoring, supervision, leading and controlling. Explores strategic management and decision making tools. Addresses core management areas in public health – planning, human resources management, management information systems, logistics and supply chain, financial management and budgeting, communication, and organizational culture and behavior. Discusses concepts of leadership and motivation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.601. Foundational Principles of Public Health. 0.5 Credits.**

Provides a broad systematic understanding of the executive practice of public health from its inception to modern day. Uses case studies, as well as ethical and public health practice frameworks to provide students with a grounding in “what is public health practice,” why it is important, and why it is contested.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.623. Principles of Negotiation and Mediation for Public Health Professionals. 0.5 Credits.**

Examines the theory and principles of negotiation and mediation. Through readings and didactic instruction, explores negotiation and mediation processes, models and techniques. Investigates verbal and nonverbal communication and persuasion as well as other factors that influence successfully negotiated compromises of complex public health issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.552.624. Applications of Negotiation and Mediation for Public Health Professionals. 0.5 Credits.**

Offers students opportunities to apply negotiation and mediation principles and models to “get to yes” in their public health negotiation simulations. Uses a negotiation and mediation simulation that will enable students to practice the art of negotiating and examine their personal strengths and weaknesses in these processes.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.600. International Travel Preparation, Safety, & Wellness. 1 Credit.**

Prepares students who aim to work and live overseas. Explores the epidemiology of common morbidity and mortality among travelers. Examines key prevention, safety, and travel medicine principles and services to contextualize risks and maintain wellness. Reviews applicable interventions, appropriate vaccines, and personal protection methods to prepare students to respond to expected and unexpected situations. Assists students with personal preparations for travel through country-specific assignments. Challenges students to examine travel health and safety priorities through case studies and discussions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.601. Foundations of International Health. 4 Credits.**

Provides an overview of foundational approaches and issues in International Health, preparing students to gain the skills and attributes needed to work in global public health. Examines conditions faced by disadvantaged populations, primarily in low and middle income countries (LMICs), and pathways to achieving better health outcomes. Applies principles of health equity and social justice in analyzing global health policies and programs, and develops skills to apply different frameworks for diverse types of public health intervention. Students develop and articulate evidence-informed arguments concerning public health strategies in different contexts, and practice communication skills that demonstrate respect for other cultures and perspectives. They use a range of tools to prepare for work in global public health, including how to conduct situational analyses across a range of settings, how to analyze scale-up, sustainability, and equity, and how to move research into practice. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.605. Doctoral Seminar in International Health I. 3 Credits.**

Explores topics of relevance to International Health, in a six-module format. Each module comprises a set of readings which are discussed in class by students working in groups. Each session is led by a group of students with facilitation by course faculty and guest faculty as appropriate to the topic. Modules include (1) Health and International Development (2) Transitions (demographic, epidemiologic, nutritional and migration), (3) Sanitation programs, (4) Disease Eradication Programs, past present and future, (5) Chronic Disease, a new challenge for programs, (6) Primary Health Care, history, evidence and future. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.606. Doctoral Seminar in International Health II. 3 Credits.**

Discusses how to identify a thesis topic, write a proposal, seek funding, understand challenges in execution, and thesis format and write up. Students read five doctoral theses, one from each Department of International Health program, and student groups lead discussions with the former students and their thesis advisors in class. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.608. International and Global Health. 4 Credits.**

Introduces students to an international perspective of health, disease, injury, and health systems. Develops requisite knowledge and understanding of globalization and health, global disease burden and international health scenario. Using case studies, students perform a comparative analysis of disease burden in various countries, health systems and policies, in developed and developing countries, health sector reforms and country experiences. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.621. Public Health Advocacy and Gender: Towards a Gender Transformative Approach. 2 Credits.**

Introduces the linkages of public health advocacy and gender across disciplines and contexts. Assesses the role of public health advocacy in catalyzing change within inequitable and oppressive systems of data collection and healthcare provision. Identifies how public health professionals can integrate public health advocacy into data collection and program design using a gender-transformative approach. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.622. How to Design Gender Transformative Programs. 2 Credits.**

Introduces the practical knowledge and skills needed to design gender transformative programs. Presents commonly used frameworks, evidence-based programs and indicators to understand and measure how gender transformative a program is. Focuses on case studies and hands-on practice. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.623. Applying a Gender Lens to Advance Implementation Research. 2 Credits.**

Are you interested in Implementation Research but unsure how it can be applied to improve gender and health equity? This course will help you generate, promote, and use new knowledge on the intersections of gender and other social variables to influence implementation strategies globally. This is an intermediate course for students with preliminary training and/or professional experience in implementation research (IR). Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.624. Monitoring and Evaluation in Global Health for the Real World: Addressing Gender Inequity for Change that Counts. 3 Credits.**

Presents monitoring and evaluation in global health and gender equity from an applied and practical perspective. Builds skills and learning on health and gender relevant M&E methods, indicators, data and analysis in light of resource, capacity, quality, and time constraints faced by most projects. Differentiates between gender integrated M&E approaches relevant for larger scale reform initiatives undertaken by national or provincial ministries or international agencies, versus those relevant for smaller scale programs typically implemented by NGOs. Encourages critical and innovative thinking on prioritized data and indicator options in line with realistic expectations from the planned intervention or reform. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.220.625. Conducting Gender Situational Analyses for Health Programs. 2 Credits.**

Explores gender situational analysis and its relevance for health research, programs, and policies. Introduces tools, frameworks, and models for the conduct of gender situational analysis and provides opportunities for students to practice conducting a situational analysis, applying tools on a problem or program of interest within a specific context. Explores how findings can be used to create gender responsive health programs. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.701. School-wide 2nd Year DRPH Seminar. 2 Credits.**

Assists 2nd year DrPH students mastering skills related to study design and implementation, as preparation for work on their dissertation proposal. During the course of the year, this seminar series focuses on epistemology, alternative study designs, and how different study designs may best be suited to address different types of research questions. The course builds upon other methods classes and supports students to develop a draft research proposal of their own. While the course is designed to prepare students for their dissertation work, students can complete the course without having decided upon a dissertation topic. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.770. DrPH Proposal Planning Seminar. 1 Credit.**

Provides a grounding in research study design and supports students as they begin to think about their thesis topics and research. Familiarizes students with identifying research questions, developing a conceptual framework, and developing a study design. Focuses on alternative epistemologies and how epistemologies may influence study designs. Builds upon other methods classes and supports students to develop a short, draft research proposal of their own. Prepares students for their proposal work, although students can complete the course without having decided upon a dissertation topic.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.800. MPH Capstone International Health. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.810. Field Placement DRPH Program International Health. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.820. Thesis Research DRPH IH. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.840. Special Studies and Research DRPH Program International Health. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.842. Doctoral Independent Goals Analysis - International Health. 1 Credit.**

Develop a doctoral academic plan through discussions with faculty advisor resulting in the development of a written document called the Individual Development Plan. Review course tracking sheet based on skills and methods student plans to learn. The IDP is a living document that is part of the student's self-assessment and departmental annual review. Supports the student's successful performance in the program and prepares students for their intended future career.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.220.895. MPH Practicum: International Health. 1 - 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.602. Applications in Managing Health Organizations in Low and Middle income Countries. 3 Credits.**

Uses case studies, a simulation, and group-based activities, supplemented by required weekly online lectures and readings, students explore a variety of settings found in low and middle-income countries in which to apply management concepts. Examines: (1) organizational restructuring in response to decentralization, (2) environmental scanning, (3) systems behavior in hospital organizations, (4) multiple approaches to group decision making, (5) managing to achieve agreement in health organizations, (6) preparing, implementing, and communicating a budget that is based on limited resources within a business, (7) performance improvement concepts and tools in a healthcare organization, and (8) the construct of a "balanced score card" for a health organization. Applies these concepts to the activities and assignments in this management skills learning lab.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.603. Research and Project Coordination in Global Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.604. Case Studies in Management Decision-Making. 3 Credits.**

Students analyze problems and develop strategies based on real dilemmas faced by decision-makers. Students formulate positions before class and actively participate in discussion during class. Cases come from both International and U.S. settings, and deal with issues such as: conflict between budget and program offices, working with governing boards, contracting between government and non-government providers, dysfunctional clinics, reforming hospitals, managing local politics, cutting budgets and collaborating in informal organizations. Develops skills in leadership, negotiation, analysis, communication, and human resource management.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.605. History of International Health and Development. 2 Credits.**

Examines the history of western efforts to promote health and nutrition in the "developing world" from the beginnings of tropical medicine to recent efforts of disease eradication. Explores the various economic and political interests, as well as cultural assumptions, that have shaped the development of ideas and practices associated with international health in "developing" countries. Topics include history of international health organizations, strategies, and policies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.606. Training Methods and Continuing Education for Health Workers. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.607. Essential Skills for Women's Leadership in Global Health. 3 Credits.**

Provides a robust understanding of the barriers women face in leadership and guides the development of solutions and strategies for individuals and institutions moving forward. Enhances knowledge about women's leadership in global health including barriers and models/frameworks that have been used to promote women in leadership. Distinguishes various leadership approaches and their implications in different cultural settings, highlighting diversity and intersectionality theories in particular. Builds essential skills including self-awareness, communication, and negotiation. Encourages a solutions-oriented mindset via the development of individual and institutional strategies. Utilizes case studies and discussion exercises that feature diverse organizational and societal contexts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.608. Managing Non-Governmental Organizations in the Health Sector. 3 Credits.**

Familiarizes students with the key competencies required for managing NGOs in the health sector. Though many of the situations described in the lectures are taken from the instructor's experiences in managing international NGOs in developing countries, the material presented is applicable in organizational settings in developed countries as well. Topics correspond to the key responsibilities of NGO or health program directors. Lectures present guidelines, best practices, and management tools for the area of responsibility followed by a discussion of the lecturer's and students' experiences on those topics. Readings, which provide background information, are assigned for each class.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.609. Introduction to Financing in Global Health. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.610. Pharmaceuticals Management for Under-Served Populations. 3 Credits.**

Students analyze problems and develop strategies based on real world drug management issues, including regulations, manufacture, procurement, distribution, safety, policy, financing and the unique aspects of international pharmaceutical trade, the role of the World Trade Organization – Trade-Related Aspects of Intellectual Property Rights (WTO-TRIPS), government, NGOs and individuals in the selection and use of pharmaceutical products. Course materials are drawn from both developed and developing countries so that the student will be knowledgeable about the role of Essential Medicines and the formation of a National Drug Policy. Uses a multidisciplinary approach to provide students with an operational understanding of factors influencing access to and use of pharmaceuticals and other health commodities. Collectively, these materials and approaches are intended to stimulate critical thinking on how to improve access to and the use of pharmaceutical products.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.611. Food Security and Nutrition in Humanitarian Emergencies. 2 Credits.**

Examines food aid, food insecurity, and nutritional deficiencies as they appear in different types of humanitarian emergencies. Discusses profiles of major international relief organizations involved in nutrition and food assistance and common programmatic interventions used in response to food crises. Emphasizes development of practical skills and knowledge that can be applied in field settings. Students learn to appraise and compare content, cost, and logistical considerations associated with large-scale feeding programs, and become familiar with nutrition surveys and curative nutrition programs. Factors contributing to food insecurity are considered and various response modalities, including in-kind assistance and cash-based approaches, discussed.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.612. Confronting the Burden of Injuries: A Global Perspective. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.613. Introduction to Humanitarian Emergencies. 3 Credits.**

Introduces different types of humanitarian emergencies, humanitarian architecture and provides an overview of sectoral focus areas of humanitarian response. Informs students of the environment in which these emergencies occur and how public health responses in various types of emergencies and contexts differ. Explores mechanisms of preparedness, management of response to humanitarian emergencies and long-term recovery.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.614. International Political Science for Ph Practitioners. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.615. Health Emergencies in Large Populations (H.E.L.P.). 5 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.616. Ethics and Global Public Health Practice. 2 Credits.**

Provides a forum for discussion and deliberation about ethical issues in the practice of public health (including the conduct of research) in developing countries. Equips students to identify and analyze critical ethical issues and to consider systematically the ethical responsibilities of all parties involved.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.617. Behavioral Economics in Health Decisions. 2 Credits.**

Prepares students to challenge superficial intuitive judgments that are attractive because they make obvious sense, but which overlook important considerations that demand more analytical assessment. Discusses human behaviors that then come into play in a more careful analysis, which are then examined for their legitimacy and reasonableness in resolving questions that are traditionally considered to be economic in nature. Develops ways to blend relevant behavioral factors with economic perspectives and methods to design balanced action strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.618. Global Health Dynamics in Practice: Exploring power, colonial legacies, foreign aid, leadership accountability, and institutions. 1 Credit.**

Explores the concepts and dynamic practices of power, colonial legacies, foreign aid, leadership accountability, and institutional functions in global health. Draws upon the literature and real-life examples from the Instructor's experiences in global health policy and financing, including at the World Bank, Global Fund, WHO, and UNAIDS. Case studies and guest speakers will catalyze class discussions for joint learning.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.619. Introduction to Global Health Economics. 3 Credits.**

Introduces economics of the business enterprise, the household, and the industry. Topics include supply and demand, price and income elasticity, equilibrium of the firm, and the measurement of poverty and inequality.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.620. Applying Summary Measures of Population Health to Improve Health Systems. 3 Credits.**

Explores the conceptual basis and application of summary measures of population health status. Presents approaches to measuring the burden of disease in populations and their use for guiding resource allocation and planning efficient and equitable health care systems. Lectures, discussions, and group exercises focus on composite indicators, exploring social and ethical value choices, and assessing the burden of disease at national level.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.621. Gender and Health: Foundational Theories and Applications. 3 Credits.**

Provides a broad overview of the field of gender as applied to public health. Discusses the distinction between sex and gender and how they intertwine. Examines the effect of gender power relations on women's, men's, and gender minorities' health, including transgender and cisgender people. Prepares students to apply foundational theories in gender and health to a broad range of health topics. Presents strategies for incorporating gender analysis into health research and interventions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.622. Using Qualitative Methods for Program Planning and Evaluation. 1 Credit.**

Introduces students to the role of qualitative methods in assessing population needs and designing acceptable interventions. Emphasizes the complementarity of qualitative and quantitative methods and how both should be combined for effective program design, implementation, monitoring, and evaluation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.623. Water, Sanitation and Hygiene in Humanitarian Emergencies. 2 Credits.**

Water, sanitation and hygiene (WASH) is an essential component of humanitarian emergency planning and response. This course provides WASH introductory concepts, technical knowledge and practice in humanitarian contexts, including conflict, natural disasters and disease epidemics. Essential cross-cutting issues such as coordination, intersectoral planning and response as well as community and behavioral aspects are provided with examples from recent disasters.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.624. Urban Health in Developing Countries. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.625. Evaluation of District-Level Primary Health Care Implementation in Low-and Middle-income Settings. 3 Credits.**

Prepares students to analyze local contexts and project implementation designs in order to develop evaluation plans that can be practically applied to programs in middle and low-resource settings. Discusses actual experiences of helping implementers design evaluations for district level programs, taking into consideration time and budget limitations. Focuses on developing pre-post evaluation plans that measure adequacy of implementation, based on evaluation conceptual frameworks, following theory of change logic. Explores choosing the proper evaluation methodology (i.e. Qualitative and/or Quantitative). Includes choosing appropriate indicators based on internationally accepted primary health care indicators. Explores alternatives for addressing mortality measurement.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.626. Introduction to Household Surveys for Evaluation of Primary Health Care Programs in Low- and Middle- Resource Settings. 3 Credits.**

Introduces participants to fundamental skills needed to design and manage implementation of household surveys. Presents real world experiences of using the Knowledge, Practice, and Coverage (KPC) tool for household surveys in middle and low-resource settings. Includes constructing a questionnaire from standard KPC modules, indicator selection, sampling plan development, use of parallel sampling, household selection, management and oversight plan, and ethical considerations. Introduces participants to adjustments that can be made so that the survey can be implemented within time and budget constraints.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.627. Issues in the Reduction of Maternal and Neonatal Mortality in Low income Countries. 4 Credits.**

Understands the clinical and social causes of high maternal and newborn mortality and morbidity. Exposes students to the clinical, program and policy interventions that address these issues, and evaluates the strength of the evidence supporting these interventions. Offers practical exercises for students to: 1.) understand the scope and epidemiology of both maternal and neonatal problems, and 2.) design and assess programmatic responses to address them. Upon completion, students will have the knowledge base to be able to contribute to program and policy responses with an informed perspective to avert maternal and newborn deaths in different contexts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.628. Psychological First Aid: Principles and Practice. 2 Credits.**

Examines the psychological principles and practical guidelines for the provision of PFA as a means of fostering resilience in others. Provides in-person instruction in the RAPID model of PFA to students as well as practicing professional in a wide range of disciplines. The ability to assist people in acute distress is an essential aspect of healthcare, disaster relief, education, and leadership in all profession.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.629. Prospective policy analysis for health policy and systems research: methods and applications. 2 Credits.**

Introduces learners to tools and methods to facilitate aspects of real-time policy analysis (from agenda setting, policy formulation, to policy implementation) and supports them to think through and plan to conduct a prospective policy analysis to a current public health problem, as well as to identify ways of engaging with the policy making process for the identified problem.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.630. Tackling the Intersectoral Challenge of Antimicrobial Resistance: Problem Solving Seminar. 3 Credits.**

Examines antimicrobial resistance (AMR) as an intersectoral challenge, one that affects both our healthcare delivery and food systems. As a One Health issue, AMR also has an environmental dimension: up to 80% of some antimicrobials consumed by humans or food animals may be discharged into the environment. The incentives of traditional business models, where a drug company's revenues come from volume-based sales, are at odds with efforts to ensure access, but not excess use of antimicrobials. Some have called AMR an ongoing pandemic; others have noted the opportunity to invest in shared infrastructure, from infection control and prevention to integrated disease surveillance, that might address both future pandemics and AMR. Invites students to tackle this global health challenge by applying strategic planning tools to deepen one's appreciation and find creative solutions to AMR.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.631. Evaluation Methods for Injury Interventions. 3 Credits.**

Prepares students to participate in the design/conduct of LMIC road safety program evaluations using standardized tools from the WHO, and to translate results for advocacy. Introduces the theory and use of these tools/study designs via lectures followed by case studies of how they have been used in LMICs. Students use Epiinfo to compile secondary data and do basic calculations to understand the burden of road crashes in an LMIC and then identify a plausible intervention and propose a study to evaluate its impact. Students work in groups to prepare an advocacy presentation based on a published program evaluation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.632. Introduction to Improving Quality in Public Health Practice. 1 Credit.**

Prepares students to design and implement a program of performance and assessment in public health practice. Examines the historical and theoretical background of public health practice and quality improvement. Presents strategies for developing public health practice improvement strategies that can be implemented in a high or low income setting, in a public or private sector, in a national or a sub-national organization. Includes practical tools that can be adapted for local use. Compares top-down and bottom-up approaches to public health practice quality.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.633. Policy Advocacy in Low and Middle-income Countries: Application for Real World Challenges. 2 Credits.**

Introduces fundamentals of policy advocacy with an emphasis on low- and middle-income countries. Reviews relevant frameworks, presents lessons learned from low- and middle-income countries case studies, and explains approaches for engaging both global and local stakeholders in influencing policy adoption or change. Provides students will skills necessary for developing and presenting an advocacy plan and to strengthen stakeholder engagement.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.634. Stress Management for Relief Workers. 2 Credits.**

Provides an introduction to the need for, strategic principles of, and tactics for the provision of stress management and crisis intervention to relief workers. Emphasizes on providing assistance to others as well as self-care. Provides awareness of emotional stress faced by health workers providing humanitarian assistance in emergency situations. Includes topics signs and symptoms of stress disorders (critical-incident stress), components of critical-incidence management programs, and provision of services to prevent long-term mental health consequences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.635. Global Advances in Community-Oriented Primary Health Care. 3 Credits.**

Introduces students to the origins and recent advances in community-oriented primary health care through case studies from both developing and developed countries. Like hands-on clinical bedside teaching, the course uses real cases to help students develop problem-solving skills in practical situations. Program examples all use community participatory and community-based approaches to address priority health problems. There is a strong focus on equity and empowerment in all cases discussed.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.636. High Performing Organizations in Lmic Settings. 3 Credits.**

Provides an understanding of the core features, characteristics, systems and processes adopted by organizations that lead to high performance in LMIC settings. Introduces the Baldrige Performance Excellence Framework in Healthcare and utilizes a case study approach to share organizational best practices in setting standards, building robust processes and creating a culture of continuous improvement and excellence. Includes a contextual and cultural understanding of the LMIC settings that act as facilitators and/or barriers for high performance in LMIC settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.637. Health Information Systems. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.638. Health Systems Research and Evaluation in Developing Countries. 4 Credits.**

Builds an understanding of the purpose and nature of health systems research and evaluation (HSRE) as a multi-disciplinary endeavor with scope for diverse inferences. Provides a landscape of the range of research questions and associated methodological approaches and study designs available for HSRE within health system building blocks and at various levels of the health system (macro, meso, micro). In addition, explores cross-cutting issues of equity and social justice, digital health applications and scientific rigor. Fosters the ability to develop different research strategies depending on the research question at hand and to read health systems research (HSR) critically.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.639. Health Care in Humanitarian Emergencies. 3 Credits.**

Introduces the provision of basic health requirements for refugees other displaced populations. This includes the health of persons displaced by conflict as well as natural and man-made disasters. Although its main concern is with the health needs of those displaced in low and middle-income countries it also touches on the issue of persons resettled to developed countries. Addresses epidemiologic assessment, control of communicable and noncommunicable diseases, nutrition, mental health needs, establishing and managing health services, reproductive health services, ethical decision making, application of International Humanitarian law, and coordinating activities among agencies in international contexts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.640. Design and Implementation of Incident Management Systems in Low- and Middle-income Countries. 2 Credits.**

Introduces students to the design and implementation of organizational structures, specifically the Incident Management Systems (IMS), established to support health emergency response efforts in low- and middle-income countries. Discusses the functions that enable governments and international agencies to effectively respond to health emergencies, including management, planning, operations, logistics, finance, and administration. Reviews effective and ineffective management components of health emergency response efforts using case studies that include the Ebola virus outbreak in West Africa and the COVID-19 epidemic in India. Focuses on the application of the IMS in the context of some management principles.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.641. Measurement Methods in Humanitarian Emergencies. 2 Credits.**

Gives students an overview of selected field-based methods used in humanitarian emergencies to measure basic health indicators and demographic characteristics of affected populations. Upon completion, students can describe the assessment process in the various phases of humanitarian emergencies. Students are able to describe a variety of methods, both qualitative and quantitative, used in field-based assessments of humanitarian settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.642. Mental Health Aspects of Disaster: Public Health Preparedness and Response. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.643. Armed Conflict and Health. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.644. Econometric Methods for Evaluation of Health Programs. 4 Credits.**

Introduces students to the application of common econometric methods available to address questions of concern to policy makers, administrators, managers, and program participants regarding evaluation of health programs in low and middle-income countries. Students learn to apply econometric methods in their research and to recognize the limitations in applying the same methods in estimating the impact of a policy intervention. Combines a theoretical development of methods and a numerical application involving continuous dependent variables. Emphasizes the correct use of data in framing relevant questions and understanding the importance as well as the limitations of data analysis in order to equip students with the quantitative skills necessary to evaluate policy alternatives.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.645. Large-scale Effectiveness Evaluations of Health Programs. 4 Credits.**

Provides students with an understanding of how to apply systems thinking in public health. Trains students on the fundamentals of systems thinking theory and offers an opportunity to apply key methods and approaches to health policy and health questions. Prepares students to ask relevant research questions and apply a systems thinking lens to describe, understand, and anticipate complex behavior. Examines how systems models can be critically appraised and communicated with others so public health policy makers can exercise a greater degree of wisdom and insight.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.646. Health Systems in Low and Middle income Countries. 3 Credits.**

Explores health systems in low and middle income countries (LMICs), and examines approaches to improving the performance of health systems. Focuses on frameworks, tools, skills, and strategies to understand, influence, and evaluate health systems in LMICs. Identifies key institutions, functions, and performance issues for national and local health systems. By using frameworks and tools, students gain experience in systematically analyzing health systems and methods to plan, implement, and evaluate changes in health systems in a variety of settings, including countries in various levels of demographic, epidemiologic and economic transitions. Covers key controversies in health systems, including issues in monitoring health systems performance, the role of the public sector, dealing with unregulated private health markets, linking priority health programs and health systems, raising accountability in the health system, etc.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.647. Advanced Topics in Economic Evaluation & Modeling for Global Health. 3 Credits.**

Presents evaluation techniques to compare health system interventions in international health. Focuses on addressing existing constraints in health systems development, given key policy goals as quality, equity and efficiency. Presents both qualitative and quantitative approaches to evaluate interventions to better inform policy how to improve system performance and functions. Identifies policy goals, actor groups, system functions and ways to assess improvement strategies related to policy goals using existing systems frameworks. Covers key constraints in systems performance such as: effective prevention and treatment programs, patient compliance, health worker performance, inequitable access, collective financing, choosing priorities, and community-level interventions. Comparative methods draw on a mix of epidemiology, health economics, disease modeling, services research, and qualitative techniques.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.650. Health Policy Analysis in Low and Middle Income Countries. 3 Credits.**

Provides an overview of political frameworks and theories related to policy development and offers practical perspectives on their application to health policy in low and middle income countries (LMICs). Analyzes the political economy of health policy, (ie. how the political environment and country institutions policy development). Introduces the main actors, processes and contextual features that are typical of policy development and implementation in LMICs. Topics encompass national policy and planning frameworks; aid harmonization and alignment; the role of policy networks (particularly civil society actors); policy implementers and their role in shaping policy; and mechanisms for global health policy development. Final sessions focus on practical strategies to strengthen policy processes. Teaching draws upon examples from different diseases, services and health systems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.651. Econometrics I. 4 Credits.**

Introduces students to the application of basic statistical methods to economic analyses. They use econometrics to support or reject theories from economics using empirical observation. Students cover the basic concepts behind linear regression models by studying cases where the dependent variable is continuous and is a linear function of the parameters of interest. Improves students' ability to conduct economic analysis using observational data, as economic studies rarely benefit from the availability of controlled experiments. Exercises provide hands-on experience in implementing well-crafted empirical analysis. Students learn to employ tools and methods and compare the results with respect to those obtained from initial estimations based on very restricted assumptions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.652. Financing Health Systems for Universal Health Coverage. 3 Credits.**

Teaches the financing of health care in low and middle-income countries with the goal of achieving universal health coverage. The course is built around four themes of financing health systems: revenue sources, pooling, purchasing and provision of healthcare. Using this framework students will learn how to evaluate country health financing systems. Progressing through these themes students will learn to use metrics related to health financing, use household surveys to estimate some of these metrics, and also have an in-depth understanding of health financing systems of select countries. At the end of this course students will have a good understanding of health financing for a career in global health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.653. Hospital-Based Injury/Trauma Surveillance in Low- and Middle-income Countries. 3 Credits.**

Examines the high, and growing, global injury burden with a focus on low- and middle-income countries. Establishes the need for and complexities of establishing and maintaining reliable injury surveillance systems in LMIC. Focuses on training students on the fundamentals of an injury surveillance system in LMIC settings— data needs, collection, coding, processing and use, as well as on evaluation of such systems, and how to sustain them. Prepares students to participate in designing and sustaining hospital-based injury/trauma surveillance systems in LMIC to inform health program planning at the local and national level. Uses case studies to compare and contrast injury surveillance systems in different LMIC settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.654. Systems Thinking in Public Health: Applications of Key Methods and Approaches. 3 Credits.**

Provides students with an understanding of how to apply systems thinking in public health. Trains students on the fundamentals of systems thinking theory and offers an opportunity to apply key methods and approaches to health policy and health questions. Prepares students to ask relevant research questions and apply a systems thinking lens to describe, understand, and anticipate complex behavior. Examines how systems models can be critically appraised and communicated with others so public health policy makers can exercise a greater degree of wisdom and insight.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.655. Surgical Care Needs in Low and Middle Income Countries. 2 Credits.**

Explores the components of health systems related to surgical care. Focuses on the global burden of surgical disease and trauma, and deficiencies in surgical capacity in LMICs. Case studies from the US, Sierra Leone and Rwanda illustrate common surgical conditions and needed components for a comprehensive health system. Specific topics include surgical care for Women's Health, obstetrical or gynecological injury, and trauma care. Discusses the importance of planning for surgical interventions in disaster management and conflict, including the difference between war surgery and military surgery. Also addresses the economic cost and benefit of surgery and surgical care in LMICs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.656. Conceptual and Evidential Foundations of Health Equity and Social Justice. 4 Credits.**

Explores the conceptual bases of health equity and the underlying social justice, human rights, and disparity models for defining health equity. Examines strategies for promoting health equity and the strength of evidence supporting these strategies. Translates various causal models for defining health equity into research and practice frameworks. Presents integrative examples applying relevant concepts to identify causes, consequences, and solutions of health inequities in various contexts.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.657. Disease and Program Costing in Global Health Programs. 3 Credits.**

Provides a solid foundation in the key concepts and methods used for costing in global contexts with a focus on practice and policy. Focuses on defining costs and rationales for costing, quantifying the cost, defining the disease case, and identifying cost components that vary by country and settings. Discusses the challenges of costing in low- and middle-income settings and prepares students to design and execute a cost analysis on a global health program and on a disease. Helps students frame cost data and economic evidence for policymaking and advocacy. Includes topics such as taxonomy of costs, perspectives, epidemiological considerations, evaluating data sources, patient/caregiver economic survey design, analysis methods, and dissemination techniques.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.658. Globalization: Challenges and Opportunities for Future Health Systems. 2 Credits.**

Everything in life has positive and negative effects, and globalization is just one example of this reality. This course evaluates how globalization creates challenges and opportunities for health systems and health outcomes in general. Students discuss evidence on globalization and health, and propose strategies to leverage its opportunities and mitigate its risks.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.660. Systems Science in Public Health: Basic Modeling and Simulation Methods. 3 Credits.**

Introduces students to mathematical and computational modeling and simulation methods that can help public health decision makers better understand and improve various systems in public health. Addresses the basic concepts of mathematical and computational modeling and simulation. Covers probability theory, decision analysis, Markov models, compartment models, and systems dynamics models, as well as basics of economic and operational modeling. Introduces TreeAge, and VenSim software. Offers examples of public health systems including both communicable and non-communicable disease control programs (e.g., vaccines, medications, and non-pharmaceutical interventions), dietary and physical activity behaviors and interventions, and healthcare systems and healthcare policy.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.661. Project Development for Primary Health Care in Developing Countries. 4 Credits.**

Allows participants to design a Primary Health Care (PHC) project in a low or middle-income country. Students learn how to navigate needs and limitations, and utilize resources available. Focuses on project design, project implementation and evaluation. Students select one of several Request for Proposals (RFA) for a specific situation, conduct a needs assessment, create a problem statement, set goals and objectives, and a theory of change for this proposed project. Students learn how to address community participation, human resources and their training and supervision, project information, approaches to sustainability, logistics of service delivery, project budgeting and financial management, monitoring, and evaluation, and finally close out of a project. At the conclusion, students develop a proposal ready for submission to a donor that embodies their PHC project design responsive to the RFA.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.662. Health, Equity, and Economic Development. 3 Credits.**

Explores how economic development affects global burden of disease and human capital. Focuses on the relationship between economic growth, health, human capital achievement, and socioeconomic inequalities in health. Divided into three parts; the first part examines the effect of wealth on health, as well as, how better health influences human capital and income. The second part examines socioeconomic inequalities in health, primarily focusing on theories of how income inequalities affect health, and the measurement of socioeconomic inequalities in health. Finally, the third and last part examines policy strategies to improve investments in human capital and reduce income inequalities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.663. Globalization and Health: Framework for Analysis. 3 Credits.**

Evaluates in depth the influence of globalization on population health across the four main dimensions of globalization (economic, political, cultural and environmental). Teaches the use of analytical tools to observe the impact of globalization on population health using Global Burden of Disease data.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.664. Prevention of Unintentional Injuries in American Indian Communities. 2 Credits.**

Introduces the basic skills and knowledge required to address the injury burden in the Native American Community. Based upon the nine Core Competencies for Injury and Violence Prevention, provides students with opportunities to practice these skills through application sessions. Prepares students to enter a network of injury prevention colleagues with a specific interest in the prevention of injuries in the Native American community.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.665. Early Childhood Intervention in Tribal Communities. 2 Credits.**

Examines a constellation of economic, social, historical and cultural challenges to American Indian families that potentially compromise optimal early child development. Reviews opportunities for tribal grantees to assess needs and develop early childhood intervention strategies funded through the Affordable Health Care Act. Explores methods and theoretical approaches to early childhood development and intervention research in tribal contexts. Considers optimal systems of early childhood care in low resource settings. Examines unique aspects of tribal research and culture, emphasizing the importance of community-based and community-engaged approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.666. Introduction to American Indian Health Research Ethics. 2 Credits.**

Introduces students to the ethics of human subject research specific to working with American Indian communities. Also introduces ethical theory and principles, followed by a brief history of research ethics in Indian Country. Topics covered in lectures and moderated discussions include the importance of health research in Indian Country, informed consent for research participation, role and function of institutional and ethic review

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.667. An Interdisciplinary Approach to Understanding the Health of Native Americans. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.668. COVID-19 & Infectious Disease Outbreaks in Native American Communities. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.669. American Indian Health Policy. 2 Credits.**

Examines the historical, social, political, legal and economic factors and values that have influenced the development and implementation of health policy pertaining to American Indian and Alaska Natives. Focuses on the four substantive areas that form the analytic basis for many of the issues in health policy and management: economics and financing; need and demand; politics/ethics/law; and quality/effectiveness.

Discusses the unique relationship between the U.S. federal government and American Indian tribes. Addresses key policy and advocacy issues impacting Tribal communities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.670. Collecting, Analyzing and Using Public Health Data in Native American Communities. 3 Credits.**

Introduces Native American tribal health leaders, health professionals, health paraprofessionals and others interested in Native American health concerns to the basic concepts of epidemiology and biostatistics. Designed for persons who may not have previous formal training in epidemiology or biostatistics, but may be working to determine or to address tribal priorities for health care, or working in, or interested in clinical research or public health within tribal communities. Prepares students for the core epidemiology and biostatistics courses offered by the School of Public Health. Teaches participants how to collect, analyze and use community data to address public health problems. Participants are asked to work on datasets from tribal communities to apply the principles taught during the course. Individuals do not have to be Native American nor work with Native American communities to participate in the course since the concepts can be translated to many public health settings; however,

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.671. Introduction to Quantitative and Qualitative Research for American Indian Health. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.672. Introduction to Data Management Using American Indian Health Data. 2 Credits.**

Introduces Native American tribal health leaders, health professionals, health paraprofessionals, and others interested in Native American health concerns to the basic concepts of data management. Designed for persons who may not have previous formal training in data management but may be working to determine or to address tribal priorities for health care, or working or interested in clinical research or public health within tribal communities. Designed to prepare students for the core courses on data management methods offered by the School of Public Health. Introduces students to basic principles and methods of data management using examples pertinent to American Indian health. Individuals do not have to be Native American, nor work with Native American communities, to participate in the course since the concepts can be translated to many public health settings; however, the examples and assignments will be drawn from Native American settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.673. Mental Health in American Indian Communities. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.674. Donor Transition and Sustainability: Implications for the Future of International Health. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.676. Migrant Health Policy in LMICs. 2 Credits.**

Discusses the experience of several low- and middle-income countries that have become recipients of migrants in the last 10 years. Addresses the challenges for health systems, the lessons learned from the processes of inclusion in the health system, and the need for articulation of politics with institutional action. Considers the particularities of low- and middle-income countries, and especially their health systems, to respond to migratory phenomena, and how their response is different from that of high-income countries. Reviews case studies from several countries and utilizes comparative policy analysis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.221.677. How to Deliver Primary HealthCare Using a People-Centered Approach. 1 Credit.**

Exposes students to the history of integrated people-centered health services, possible interventions to achieve integration, and considerations for planning at the sub-national level. Looks at how low and middle-income countries are undergoing epidemiologic, demographic, and economic transitions, at the same time as their health systems are facing an increase in the burden of disease, with the emerging prevalence of chronic conditions. Covers the COVID-19 pandemic which has exposed the weaknesses and fragmentation in primary healthcare systems across the world. Reimagines primary health care requiring a shift from fragmented health services toward people-centered integration. Answers the question: "How do we change health services to be more integrated?"

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.678. Introduction to Social Accountability in the Health Sector of LMICs. 2 Credits.**

Provides a robust understanding of social accountability strategies used in health systems, their theoretical underpinnings, and major critiques. Looks at social accountability strategies in health systems involving a wide range of interventions to build citizen power and hold health systems to account (e.g., citizen monitoring through health committees, public information systems, and community scorecards). Engages with practitioners on real-world examples and applies learnings to current health system issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.679. Introduction to Design and Implementation of Digital Health Programs in Lmic Settings. 2 Credits.**

Provides an understanding of different types of digital interventions in healthcare. Reviews existing "global goods" and tools that are helpful in planning digital programs. Examines effective implementation strategies to make digital programs effective using case studies. Reviews critical team skills needed for implementation and scale. Explores emerging analytic methodologies to monitor digital programs. Prepares students to become effective decision-makers and digital health leaders.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.681. Global Health Entrepreneurship: Foundations of Launching a Global Health Non-Profit. 3 Credits.**

Teaches how to think about possibilities to make a difference in the global health community. Looks at how organizations like Medicine Sans Frontiers, Gates Foundation, and other smaller but impactful NGOs and Foundations had their roots in a team of public health-minded individuals who learned the business of global health and created organizations that fit their vision of how to make a difference in the world. Guides students through the process of idea conception, team and partner building, global health ethics, marketing/branding, finance and other fundamental pieces of creating, building and maintaining a successful global health start-up. Prepares students to conceptualize, design, build and manage sustainable and innovative global public health initiatives specifically focusing on critical and often missed topics such as marketing, budgeting / financial management, fundraising, legal and governance issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.682. The Role of the Private Sector for Sustainable Development in Global Health. 3 Credits.**

Unpacks the role of the private sector in achieving health goals.

Addresses the question of whether or not the private sector is helping achieve SDGs through social enterprises, impact investors, and commercial health providers. Provides a practical understanding of private sector engagement in the health sector and will review market-based approaches and investments, which are meant to accelerate the progress of LMICs towards their 'Journey to Self-Reliance'. Uses case studies, in keeping USAID's private sector engagement policy at the heart of the course, to expand on the concept and provides pragmatic insights into the interests of development donors, banks, impact investors, corporations, foundations, and entrepreneurs in this space. Uses a cross-cutting theme of learning exchange and debate on success stories and failures from across LMICs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.683. Global Health Entrepreneurship: For-Profit Entrepreneurial Management. 3 Credits.**

Provides intellectual frameworks for the special issues associated with healthcare startups in resource-challenged settings. Offers methods for self-assessment and development of business models and plans, techniques for technology assessment and strategy, develops a foundation for capitalization and partnering strategies, and creates a basis for best practices in company launch and plan execution. Provides an intellectual and practical framework for those students interested in exercising their entrepreneurial energy to solve problems in global health with a particular focus on establishing for-profit enterprises in resource-poor environments or Low- to Middle-Income Countries (LMICs).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.685. Modeling and Simulation for Health Workforce Analysis. 2 Credits.**

Introduces modeling tools and statistical techniques to simulate health workforce scenarios. Equips students to analyze the impact of health workforce policies and programs on population health. Focuses on the production, training, distribution, and retention of health workers for primary care in low- and middle-income countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.688. Social and Behavioral Foundations of Primary Health Care. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.690. Strengthening Primary Health Care Across the World: Problem Solving Seminar. 3 Credits.**

Uses interactive case-based and problem-based strategies to provide a 360 degree perspective on the challenges that typically undermine PHC strengthening, from articulating the relationship between PHC and the rest of the health system to measuring the impact of PHC. Equips students to develop pragmatic strategies that can address inequity in health systems, and promotes inclusion within public health programs through the use of primary health care strategies. Addresses multiple aspects of PHC strengthening from building coalitions to support primary health care, to engaging communities in the delivery of PHC services, to the use of implementation research to fine tune PHC strategies. Focuses on genuine country experiences and problems this seminar draws upon relevant bodies of theory from health systems, social and behavioral theory, social epidemiology, social justice and political science to craft practical strategies to strengthen PHC across the world.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.691. Human Resilience: Public Health Perspectives. 2 Credits.**

Examines the nature of human resilience while focusing on how it may be fostered within organizations, communities, and individuals. Focuses upon building resilience systems while touching upon fostering individual resilience. Builds "cultures of resilience" by discussing building organizational and community cultures of resilience drawing not only upon social and community psychology, but also management and leadership tactics that may be employed to foster such cultures in healthcare, public safety, international aid organizations, and communities in general. Fosters resilience in others, developing essential leadership skills.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.692. Reforms in Primary Health Care Across Low-and Middle-Income Countries. 2 Credits.**

Looks at primary health care (PHC) reforms that are key to achieving health systems resilience. Teaches how to implement PHC reform, tackle bottlenecks in the reform process, learn strategies to evaluate and course correct during the reform process, and sequence and scale up effective PHC reforms in your context. Explores priority actions in strengthening primary health care including PHC financing, models of service delivery, and health systems integration with a focus on the reforms process. Walks through and critiques practical strategies to reform primary health care by focusing on country experiences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.695. Seminar in Humanitarian Health. 0.5 Credits.**

Introduces important and evolving issues in global humanitarian health from various perspectives including experts, practitioner, policymakers and academics. Examines trending issues such as new emergencies, politics, human rights, humanitarian architecture, leadership, cash transfers, innovative financing among others. Prepares students to explore practicums, internships, develop capstone projects, and apply to careers in the humanitarian health field.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.700. Public Engagement Practices for Scientists (Peps) in International Settings. 2 Credits.**

Introduces the fundamentals of PEPS and its importance for public health professionals. Explores applications of quantitative and qualitative methods from other public health disciplines to assess and improve PEPS. Analyzes different frameworks to plan, implement, and assess PEPS, with a focus on low income, global settings. Provides opportunities to practice designing and evaluating PEPS within five engagement goal areas: (1) increasing scientist to scientist engagement, (2) increasing uptake of interventions, (3) increasing evidence-informed public health policy, (4) increasing minority populations into public health science workforce, and (5) increasing capacity of public health science workforce. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.701. Applications to Gender Analysis Within Health Research and Interventions. 2 Credits.**

Introduces gender analysis as an integral part of health research and interventions. Focuses on teaching students on how to incorporate gender analysis into health research and interventions. Explores: (1) theoretical approaches to gender and health, including intersectionality, masculinities, and non-binary approaches; (2) how gender and gender relations affects health needs, risks, experiences, and outcomes; and (3) ways in which gender analysis can be incorporated into health research and interventions, including the use of gender frameworks and questions, gender assessments, and transformative approaches. Examples will cover a range of international settings, with a focus on low-and-middle income country settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.705. Monitoring and Evaluation of Health Systems Strengthening in Low and Middle income Countries. 3 Credits.**

Covers the essentials of monitoring and evaluating health systems strengthening in LMICs. The class analyzes the development of theories of change, and their application to the design of monitoring and evaluation systems, as well as alternative approaches to evaluating equity impacts. The development of monitoring indicators, use of quantitative techniques and the integration of M&E into health systems decision making will all be addressed.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.710. Designing Innovation and Access for Technologies in Global Health. 3 Credits.**

Familiarizes students with policy analysis tools to help position innovation of technologies or institutions for transformative potential. Demonstrates the application of principles of design guided by public policy and public health concerns to adapt such innovation in resource-limited settings. Considers technologies that are potentially transformative for improving health and narrowing disparities—making water potable, cook stoves more efficient and less polluting, and point-of-care diagnostics more available in local clinics. Examines the context of what makes innovation potentially transformative. Enables students to apply key policy tools such as stakeholder, value chain and market analyses as well as systems thinking, and consider how to structure and critique prize competitions, innovative financing approaches, and public-private partnerships.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.711. Managing District Health Systems in Low and Middle Income Countries. 3 Credits.**

Provides a broad understanding of the application of basic principles of health management and leadership at the sub-national level. Focuses on strengthening of district health systems by managing health services through planning and program development and generation and management of resources. Acquaints strategic approaches in effective service delivery with emphasis on forecasting, problem analysis, managing change, supportive supervision and skills development. Discusses issues in implementing and evaluating national health programs, translating national health priorities into action. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.712. Leadership & Management in Humanitarian Health. 2 Credits.**

Examines an array of leadership & management models. Applies theories and models to multiple humanitarian contexts. Assesses students' leadership & management styles, and how they may affect humanitarian work. Discusses organizational structures and design as well as culture, and how they can affect humanitarian response. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.722. Quality Assurance Management Methods for Developing Countries. 4 Credits.**

Presents the principles and practice of total quality management methods for health systems in developing countries. Emphasizes integrated district-level health systems management; fostering a genuine team approach in the face of an authoritarian tradition; central importance of community governance; interventions performed according to standards and in an equitable fashion; introducing a measurement-based approach to problem solving, emphasizing analysis of service delivery process and outcome; and developing operational research as an integral component of the management system. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.725. Commercial Determinants of Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.801. Health Systems Program Seminar I. 1 Credit.**

Familiarizes Health Systems students with ongoing faculty research and activities, professionals and organizations in the field of international health, and provides a forum for discussion for current topics in health systems and international health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.802. Health Systems Graduate Seminar 2. 1 Credit.**

Familiarizes Health Systems students with ongoing faculty research and their areas of research, professionals and organizations in the field of international health, and provides a forum for discussion for current topics in health systems and international health. Focuses on topics like injuries, evaluation of health programs, health systems strengthening, universal health coverage, among other topics. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.803. Health Systems Graduate Seminar 3. 1 Credit.**

Familiarizes Health Systems students with ongoing faculty research and their areas of research, professionals and organizations in the field of international health, and provides a forum for discussion for current topics in health systems and international health. Focuses on topics like globalization and health, social determinants of health, primary health care, health security, among others.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.804. Health Systems Graduate Seminar 4. 1 Credit.**

Familiarizes Health Systems students with ongoing faculty research and their areas of research, professionals and organizations in the field of international health, and provides a forum for discussion for current topics in health systems and international health. Discusses topics on evidence and public health knowledge, connection between animal and human health, humanitarian health, health financing, among others.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.810. Health Systems Practicum. 1 - 22 Credits.**

Complements and reinforces the didactic portion of the MSPH program. Provides students with an opportunity to apply the knowledge gained during the first year, to develop skills in management of health programs in low- and middle-income countries according to individually designed learning objectives, and to work as part of a team in an applied research or practice project. Students are placed in a variety of professional settings, which may include: government, non-government organizations (NGOs), multi-lateral, private, and/or for-profit sector. Provide opportunity for feedback for student performance and placement experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.820. Thesis Research Health Systems. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.830. Postdoctoral Research Health Systems. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.840. Special Studies and Research Health Systems. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.850. MspH Capstone Health Systems. 2 - 16 Credits.**

Offers students an opportunity to integrate and apply program skills and competencies to a public health problem in a format that approximates a professional practice experience. Fosters students' ability to produce scholarly papers that provide a meaningful contribution to knowledge of the health of underserved populations. Guides students' development of tangible evidence of expertise that addresses specific applied topics relevant to international health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.861. Doctoral Seminar in Health Systems. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.862. Doctoral Seminar in Health Systems II. 1 Credit.**

Prepares first-year PhD students in the Health Systems program area to develop and defend their research proposal. Practices formulating a research question, conducting a systematic literature review, and drafting, presenting, and critiquing research proposals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.863. Doctoral Seminar in Health Systems III. 1 Credit.**

Prepare second-year PhD students in the Health Systems program area to develop and defend their research proposal. Practices drafting a research proposal, presenting and critiquing research proposals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.864. Doctoral Seminar in Health Systems IV. 1 Credit.**

Prepares second-year PhD students in the Health Systems program area to develop and defend their research proposal. Practices drafting a research proposal, presenting and critiquing research proposals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.221.945. Large-scale Effectiveness Evaluations of Health Programs Lab.**

A complimentary lab course to 221.645.01 LARGE-SCALE EFFECTIVENESS EVALUATIONS OF HEALTH PROGRAMS. This lab will be used to have in-depth discussions and also have students apply some of what they have learned in lectures through structured exercises.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.630. Nutrition, Infection and Immunity. 3 Credits.**

Provides an overview of the relationships between nutrition and immune function, with a focus on established and emerging public health problems. Reviews assessment methods for immune function in the context of public health nutrition research. Discusses the impact of the immune response on nutrient metabolism, nutritional status, and interpretation of biomarkers. Examines the deleterious effects of malnutrition on host barrier defenses and innate, humoral, cell-mediated immunity, and mucosal immunity. Presents case studies on the synergistic and antagonistic interactions between the immune response and malnutrition. Provides self-study materials covering the basic tenets of immunology and nutritional status assessment, for students with limited background in immunology or nutrition.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.641. Principles of Human Nutrition in Public Health. 4 Credits.**

Prepares students for integrating the biology of nutrition in solving public health problems globally, with application to public health research, policy and practice. It summarizes the history of nutritional sciences as related to public health and provides an integrated overview of the physiological functions of energy, macronutrients and micronutrients that influence health, and risk for disease. Topics include dietary sources and nutrient requirements, absorption, metabolism, and function. The course covers advances in the use of novel assessment techniques and biomarkers in the diagnoses of deficiency and nutritional status, and describes the dynamics of the nutrition transition occurring globally and dietary underpinnings of overweight and non-communicable disease risks. Also covers emerging topics linking nutrition, immunity, gut health and the microbiome.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.642. Assessment of Nutritional Status. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.644. Cellular Biochemistry of Nutrients. 3 Credits.**

Students learn biochemical processes of cellular macromolecules, such as DNA, RNA and protein synthesis, with particular emphasis on the function of essential nutrients in these processes. Covers biochemical aspects of carbohydrate, protein, and fat metabolism, and introduces essential concepts of molecular biology, such as structure and function of intracellular organelles and fundamental cellular processes. Topics also include nutritional and hormonal regulation of gene expression and concepts of detoxification to give the nutrition student a full appreciation of the relevance of nutritional biochemistry studies and cells to population perspectives. The course structure consists of core lectures led by faculty.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.647. Nutrition Epidemiology. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.649. International Nutrition. 3 Credits.**

Presents major nutritional problems that influence the health, survival, and developmental capacity of populations in low and middle-income settings. Covers approaches implemented at the household, community, national, and international levels to improve nutritional status. Explores the degree to which malnutrition can be prevented or reduced prior to achieving high-income populations or certain economic development, through targeted public and private sector interventions that address the causes of malnutrition.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.651. Nutrients in Biological Systems. 2 Credits.**

Provides in-depth review of the metabolism of major macro- or micronutrients and their functional roles in a variety of biological systems. Focuses on biochemical or molecular mechanisms of how nutrients influence health and disease at the cell, tissue, organ, and regulatory network levels. Discusses emerging nutritional -omics studies and biomarkers to provide a global view of complex interactions between nutrients and genes, proteins, metabolites, and gut microbiota.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.652. Nutrition in Disease Treatment and Prevention. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.653. Food Technology and Health. 3 Credits.**

Discusses nutritional, chemical, physical, and technological perspectives of food, food ingredients, food quality, food safety, and the regulation thereof. Focuses on the core constituents of foods, and examines the non-nutritional (phytochemical, flavor, pigment, texture and fragrance) constituents of whole foods and food products and their impact on health. Evaluates food delivery and production systems, and specific eating patterns. Students evaluate dietary patterns and develop dietary strategies for specific individual, family, and community dietary needs based upon knowledge of ingredient nutrient composition and ethnic food consumption issues and trends.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.654. Food, Culture, and Nutrition. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.655. Nutrition and Life Stages. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.657. Food and Nutrition Policy. 2 Credits.**

Examines the policy making process underlying large-scale governmental, bilateral, and multilateral agency policies and initiatives that directly or indirectly affect 1) the availability and quality of food and 2) the health and nutrition status of populations. Draws examples from the United States as well as low and middle income countries. Includes discussions led by faculty and guest lecturers with diverse experience in developing and implementing food and nutrition policies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.658. Critical Thinking in Nutrition. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.659. Critical Thinking in Nutrition II. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.660. ADVANCED NUTRITIONAL EPIDEMIOLOGY. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.661. Designing Healthy Diets. 2 Credits.**

Examines the factors influencing dietary patterns and food choices in the U.S. and internationally. Focuses on modifying recipes, calculation of nutritional information for foods and recipes, and on planning, analyzing and evaluating dietary choices and patterns using the Nutrition Data System for Research (NDSR) software program and food composition tables, so that they meet guidelines for overall health and wellbeing. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.662. Obesity in Public Health. 3 Credits.**

Examines obesity as a public health problem, (including prevalence, trends and disparities as well as the health, psychosocial, and economic consequences of obesity and its associated co-morbidities). Explores physiologic, psychological, economic, and cultural drivers of food consumption. Identifies key issues and approaches for current and future public health and environmental approaches to obesity

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.664. Food insecurity and nutrition: Partnering with community organizations to make change. 2 Credits.**

Provides the opportunity to learn about community-based public health efforts to improve food security and diet quality and factors that influence food choices across the socio-ecological framework. Works with a community organization that provides community outreach services aimed at addressing food insecurity, improving diet quality, or addressing other nutritional needs of the population(s) they serve. Assesses the food environment and food access landscape for the population the organization they work with serves, and familiarize themselves with other organizations also serving that population. Gains practical experience developing innovative program elements to advance food access and nutrition services while accounting for real world considerations organizations face.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.665. Planning for Food Systems and Public Health. 3 Credits.**

Introduces urban and regional planning as an integral part of addressing structural determinants of food and nutrition disparities. Examines the network of actors, infrastructure, resources, power relationships, and local government policies that influence health inequalities in food systems in communities of the US and globally. Includes topics related to food security such as land use, food production, gentrification, environmental sustainability, conflict and trauma, and mobility and transportation. Encourages students' critical thinking in how to reimagine and reshape food and community systems for social, economic, and health equity.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.671. Developing Skills in Clinical Nutrition I: Medical Terminology & Laboratory Value Assessment. 0.5 Credits.**

Strengthens clinical nutrition knowledge and competencies in order to streamline the transition to the clinical practicum at JHBMC. Focuses on gaining fluency in medical terminology and strengthening knowledge in the area of medical testing relevant for assessing and addressing nutrition problems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.672. Developing Skills in Clinical Nutrition II: The Nutrition Care Process (NCP) and Nutrition Focused Physical Exam (NFPE). 0.5 Credits.**

Introduces the nutrition care process (NCP) and the nutrition-focused physical exam (NFPE). Teaches the different components of the exam and applies them in the Johns Hopkins Simulation Lab through activities. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.673. Developing Skills in Clinical Nutrition III: Nutritional Counseling Across the Life Span. 1 Credit.**

Introduces the topic of nutritional counseling (considering behavior change theories, communication theory, motivational interviewing) and provide exposure to experiences and best practices through lecture and discussion with practitioners working in different contexts and with different patients/clients. Follows the sequence of Nutrition and Life Stages to the extent possible in order to integrate the physiological, social, and behavioral transitions of life stages with nutrition and health concerns and the role of nutrition counseling in prevention and/or treatment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.674. Developing Skills in Clinical Nutrition IV: Expanded Studies. 1 Credit.**

Expands and enhances the case study learning in 222.652.81 "Nutrition in the Prevention and Treatment of Disease" taken concurrently, as a learning opportunity in medical nutrition therapy (MNT) in preparation for the Dietitian practicum. Prepares students for the transition to clinical decision-making and MNT. Includes cases chosen by the dietetic leadership at JHBMC with that goal in mind. Builds on and integrates information learned in the earlier classes in this series as well as material learned in other core nutrition coursework.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.679. Food Insecurity and Nutrition: Partnering with Community Organizations to make change. 2 Credits.**

Provides students the opportunity to learn about community-based public health efforts to improve food security and diet quality and factors that influence food choices across the socio-ecological framework.

Works with a community organization that provides community outreach services aimed at addressing food insecurity, improving diet quality, or addressing other nutritional needs of the population(s) they serve.

Assesses the food environment and food access landscape for the population the organization they work with serves, and familiarize themselves with other organizations also serving that population. Gains practical experience developing innovative program elements to advance food access and nutrition services while accounting for real world considerations organizations face.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.810. Human Nutrition Practicum. 1 - 22 Credits.**

Complements and reinforces the didactic portion of the MSPH program. Provides students with an opportunity to apply the knowledge gained during the first year, to develop field, laboratory, or clinical skills related to nutrition research or programs according to individually designed learning objectives, and to work as part of a team in an applied research or practice project. Students are placed in a variety of professional settings, which may include: government, non-government organizations (NGOs), university projects, and multi-lateral, private, and/or for-profit sector. Practicum locations exist in the US and typically most regions of the world. Provide opportunity for feedback for student performance and placement experience

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.815. Human Nutrition - Registered Dietitian (RD) Program Practicum. 1 - 16 Credits.**

Provides a combination of didactic instruction, competency-based learning activities and supervised experiential learning at clinical facilities, community and public health organizations. Learning experiences include lectures/presentations, group discussions, peer learning and case-based scenarios in preparation for applying knowledge in the practice of dietetics. The practicum engages the student, the practicum site, and the faculty/preceptors in shared responsibility for the provision and acquisition of competencies across a broad spectrum of dietetic practice settings including clinical, food service and community nutrition, culminating in an 8-week public health nutrition experience. Led by the Johns Hopkins Health System Clinical Nutrition Department, the practicum extends from June (following the first 4 terms of coursework) to March of the next calendar year (3rd term of the subsequent academic year).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.820. Thesis Research Human Nutrition. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.830. Postdoctoral Research Human Nutrition. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.840. Special Studies and Research Human Nutrition. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.850. MspH Capstone Human Nutrition. 2 - 16 Credits.**

Offers students an opportunity to integrate and apply program skills and competencies to a public health problem in a format that approximates a professional practice experience. Fosters students' ability to produce scholarly papers that provide a meaningful contribution to knowledge of the health of underserved populations. Guides students' development of tangible evidence of expertise that addresses specific applied topics relevant to international health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.860. Graduate Nutrition Seminar. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.222.861. Doctoral Seminar in Proposal Development. 1 Credit.**

Facilitates doctoral students in the development of research ideas and their dissertation proposals. Includes the following topics that will vary by term: how to develop a research idea, and components of a solid research proposal – background, design, methods, sample size, analysis, writing to different audiences, research designs in nutrition, ethical review, funding sources and requirements, budgeting, staff management, thesis and manuscript preparation, and professional development.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.600. Application of Spatial Analysis Tools to Inform Decision-Making in Lmics. 4 Credits.**

Applies spatial analysis tools relevant for policy decision-making in resource-poor settings. Analyzes the concepts and techniques of Geographic Information Systems (GIS) and Exploratory Spatial Data Analysis (ESDA) with a global health focus. Introduces both descriptive and analytical functions of GIS along with additional spatial and geographic concepts including: cartographic communication automated mapping characteristics map projections geocoding coordinate systems the nature of spatial public health data and spatial statistical methods.

Provides students with an opportunity to gain hands-on experience in the use of ArcGIS QGIS Geoda SatScan and Geographically Weighted Regression for spatial data analysis and mapping.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.603. Controlling Infectious Disease-1851 to the Present. 3 Credits.**

Discusses advanced topics in the field of global health exploring the development of the first international sanitary conferences to responses to present day public health emergencies of international concern. Acquaints students with the colonial roots of international health, the rise of disease eradication strategies and contemporary responses to global epidemics. Introduces students with the histories and roles of several global health institutions such as the World Health Organization, the Pan-American Health Bureau, the World Bank and others. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.615. Digital Health Strategies to Control COVID19. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.620. Domestic Immigrant Health Issues and Emerging Diseases. 2 Credits.**

Focuses on diseases prominent in domestic immigrant populations. Areas of emphasis are epidemiology, diagnosis, clinical presentations, pathophysiology, strategies for treatment and control, and effects on immigrant populations. Principal diseases covered include diarrheal diseases, tuberculosis, HIV/AIDS, Cysticercosis, Chagas, and Malaria. Covers how the U.S. handles emerging diseases such as Ebola, Nipah, and Zika (e.g., Ebola in volunteers, etc). Examines special topics such as the effects of climate change on infectious disease. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.621. Design and Implementation of Global Digital Health interventions. 3 Credits.**

Provides an understanding of different types of digital interventions in healthcare. Reviews existing "global goods" and tools that are helpful in planning digital programs. Examines effective implementation strategies to make digital programs effective using case studies. Reviews critical team skills needed for implementation and scale. Explores emerging analytic methodologies to monitor digital programs. Prepares students to become effective decision-makers and digital health leaders. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.622. Design and Implementation of Global Digital Health Interventions II. 3 Credits.**

Reviews necessary components of the digital health ecosystem that need to be addressed in order to develop and implement a successful digital health intervention. Provides an understanding of the different methods used to develop digital health interventions, including user-centered design. Explains the frameworks for the monitoring, evaluating, and reporting evaluation of digital health programs and interventions. Provides hands-on experience in developing digital data collection tools. Reviews components of successfully scaled digital health programs using both case studies and established guidelines. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.626. Special Topics in Global Digital Health. 1 Credit.**

Offers a series of seminars on global digital health-related topics - including ethical, legal, and social issues of global digital health, behavioral economics and digital applications, innovative methods in digital health, among others. Includes leading digital health experts at JHU, from other institutions, organizations, government agencies, and industry. Provides the student with an understanding the global digital health context, covering scientific, social, economic, political, and ethical dimensions of the context. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.630. The Practice of Public Health Through Vaccine Case Studies: Problem Solving Seminar. 3 Credits.**

Presents several historic vaccine case studies highlighting challenges in emerging science, program design and evaluation, management, policy and communication. Examines decision-making surrounded by scientific uncertainty, controversy and competing public health priorities. Explores the challenges of developing policy and practice decisions within the constraints of emerging and uncertain science. Challenges students to make policy decisions and develop programmatic and communication strategies in real world settings. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.632. Methods for Planning and Implementing Evaluations of Large-Scale Health Programs in Low and Middle income Countries. 4 Credits.**

Prepares students to design, implement, and analyze large-scale evaluations of health programs, focusing on low and middle income settings. Provides students with the skills to conduct household surveys, assessments of provider readiness and quality of care, and documentation of contextual factors, as well as overall planning, design, and analysis of program evaluations. Focuses on adaptation, development, and refinement of project-specific tools; sampling and sample size calculations; and various analytical methods appropriate for program evaluations. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.640. Identifying and Mitigating Misinformation to Improve Trust in Public Health. 2 Credits.**

Examines misinformation and its role in influencing behaviors generally, and health behaviors specifically. Relies on literature from a wide range of disciplines and perspectives, such as communication, political science, and sociology. Exposes individuals to the harms of misinformation on health outcomes, and uncover key approaches used in mitigating misinformation efforts. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.660. Tropical Medicine and Parasitology. 4 Credits.**

Provides a broad overview of select tropical medicine and public health issues. Highlights specific tropical diseases and case studies stressing diagnosis, treatment, and implementation of preventive and control measures. Introduces students to clinical tropical medicine and travel medicine. Includes specific topics: the etiology, biology, epidemiology, and clinical presentation of enteritides, intestinal protozoa and helminths, cysticercosis and hydatid disease, hepatitis, viral and arboviral infections, and malaria. Includes practical lab experience in parasitology and diagnosis. Prepares students working with current and emerging health problems in developing countries. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.662. Vaccine Development and Application. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.663. Infectious Diseases and Child Survival. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.664. Design and Conduct of Community Trials. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.667. Chronic Diseases in Low and Middle income Countries: Prevalence and Epidemiology. 4 Credits.**

Introduces students to the major transitional diseases in low and middle income countries. Lectures detail specific chronic diseases, stressing such areas as significance, prevention, diagnosis and management. Includes both traditional lectures as well as case studies. Gains basic foundation of the epidemiology and challenges in the management of chronic diseases in low and middle income countries, which prepares them to work with research programs and international organizations. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.668. Chronic Diseases in Low and Middle income Countries: Study Design and Metrics. 4 Credits.**

Provides public health students and medical researchers with the necessary skills to engage in study design and conduct, analytic methods, and use of metrics to help conduct research on chronic diseases in low and middle income countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.672. Data Mgmt Methods in Health Research Studies. 5 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.680. Global Disease Control Programs and Policies. 4 Credits.**

Presents the history, social and political context, organization, technical content, funding and evaluation of current, major, global initiatives for disease control. Emphasizes programs focused on health problems of the developing world and includes, initiatives for vaccines and immunization, non-communicable diseases, safe motherhood and reproductive health, malaria, Neglected Tropical Diseases, HIV, emerging infectious diseases, TB, tobacco control, nutritional interventions and injury control. Also examines the process of policy formulation and resource allocation to international health and disease control.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.682. Clinical and Epidemiologic Aspects of Tropical Diseases. 4 Credits.**

Focuses on infectious diseases that disproportionately affect those in developing countries. Some of these are major killers, others are neglected tropical diseases not covered in other courses. Discusses the epidemiological and clinical aspects of each disease, including diagnosis and treatment. Introduces students to the major infectious diseases that are prevalent and of public health importance in tropical and developing countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.684. Vector-Borne Diseases in the Tropics. 4 Credits.**

Focuses on vector-borne diseases prominent in tropical infections. Emphasizes global epidemiology, diagnosis, clinical presentations, pathophysiology, and treatment of microorganisms as well as characterization and control of vectors. Integrates clinical cases and pathology through laboratory sessions. Covers principal diseases including malaria, African and American trypanosomiasis, leishmaniasis, filariasis, yellow fever, dengue, hemorrhagic fevers, Bartonella, Lyme, Rickettsial, plague and toxoplasmosis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.685. Tuberculosis, HIV and Other Chronic Infections in the Tropics. 4 Credits.**

Covers the history, clinical presentation, epidemiological factors, new diagnostic techniques, treatment, and control of tuberculosis. Addresses pathophysiology, clinical presentation, ecology, and effects of HIV/AIDS on developing countries, their populations, and resource utilization. Includes additional topics such as other chronic infections that have global public health importance. Emphasizes integrating policies addressing TB, HIV/AIDS, other infections and poverty in resource-poor settings and how these interactions influence control strategies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.686. Child and Public Health in the Tropics. 4 Credits.**

Introduces students to the major global causes of child mortality and the strategies and interventions to reduce child mortality. Includes specific topics: malaria, HIV, measles, pneumonia, diarrhea, neonatal disorders and nutritional deficiencies. Additional topics may include maternal mortality, eye diseases, demography and anthropometry. Focuses on and emphasizes a theme through the different lectures, with the tension and balance between horizontal approaches to child survival, such as Integrated Management of Childhood Illness (IMCI), and vertical programs such as disease eradication programs. Discusses several papers published as part of the Lancet Child Survival and Lancet Neonatal Survival series, and gain hands-on experience applying different child survival strategies using the Lives Saved Tool (LiST).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.687. Vaccine Policy Issues. 3 Credits.**

Examines current domestic and international policy issues in vaccine research, development, manufacturing, supply, licensure, delivery, and utilization. Includes topics: priorities for funding vaccine research and development, ensuring an adequate supply of safe and effective vaccines, vaccine financing and new vaccine introduction decision-making, ethics, and compulsory vaccination. Emphasizes the identification of important vaccine policy issues and the formulation and evaluation of policies to address these issues. Presents the roles, responsibilities, and policy positions of key immunization stakeholders via guest lectures by a wide array of experts who have worked for/with important vaccine stakeholders (e.g., UNICEF, The Bill and Melinda Gates Foundation, US Government, and GAVI Alliance). Learns skills including developing a Policy Paper. Includes readings relevant scientific papers and publications of U.S. and international agencies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.223.688. Intestinal Infections in the Tropics. 4 Credits.**

Provides an overview of the epidemiology, presentation, and effects of microbial, protozoan, and viral intestinal infections, including Salmonella, Shigella, cholera, typhoid, rotavirus, amebiasis, dysentery, H. pylori, Campylobacter, Cryptosporidium, Cyclospora, and Giardia. Addresses clinical presentation, life cycle, distribution, prevention, and treatment of intestinal helminthes, including Ascaris, Trichuris, Strongyloides, and hookworm. Addresses interactions between parasites, diarrhea, and malnutrition along with treatment, prevention and control strategies, and oral rehydration therapy. Covers Cysticercosis and hydatid disease. Includes laboratory sessions and practical lab experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.689. Biologic Basis of Vaccine Development. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.690. The Design and Analysis of Cluster Randomized Trials. 2 Credits.**

Covers the major concepts and methods in the design and analysis of trial in which the unit of randomization is a group of participants. Focuses on design: discusses unmatched, matched, stepped wedge, and other approaches, with particular attention paid to randomization and sample size considerations. Presents a variety of methods for the analysis of these correlated-outcomes studies. Includes special aspects of infectious disease interventions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.705. Good Clinical Practice: A Vaccine Trials Perspective. 4 Credits.**

Acquaints students with the regulatory and ethical standards of conducting trials in accordance with FDA Code of Federal Regulations and ICH GCP Guidelines. Provides students with background and resources needed to conduct clinical trials in healthy populations. Students complete a project based on a real-world vaccine trial focusing on logistical and operational components of protocol design, informed consent process, recruitment considerations, human subjects protection including adverse event assessments and reporting. Additional concepts include the responsibilities of ethical review committees, principal investigators, and sponsors; investigational product management and preparation; data collection methods; quality assurance and quality control (QA/QC). Contributors to the course have experience conducting clinical trials research in various settings. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.801. Global Disease Epidemiology and Control Program Seminar 1. 1 Credit.**

Introduces students to the diverse projects and research activities led by faculty in the Global Disease Epidemiology and Control (GDEC) program. Presents key institutes and centers working to improve international health and introduces faculty-led case studies to identify challenges in ongoing research and practice initiatives. Examines and reflects on the history of prevention and control activities using the book, "A History of Global Health," by Randall M. Packard as a framework. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.802. Global Disease Epidemiology and Control Program Seminar 2. 1 Credit.**

Introduces students to skills and resources for career development within the field of international health. Provides an opportunity for students to focus in on these skills such as giving presentations, tailoring their resume to a public health audience and developing their publication profile. Prepares students for the practicum application process. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.803. Global Disease Epidemiology and Control Program Seminar 3. 1 Credit.**

Explores a variety of tools and methods applied by GDEC faculty to conduct public health research with a focus on hands-on skills building. Specific sessions address: data sources, including datasets that are publicly available; development of a basic statistical plan; use and interpretation of modeling tools; field data collection; data visualization strategies, and data management considerations. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.804. Global Disease Epidemiology and Control Program Seminar 4. 1 Credit.**

Prepares students for the activities and requirements of the second year of the MSPH program including the practicum and beyond. Presents best practices and workshop for conducting a strategic literature search. Explains the role and resources of the Institutional review Board (IRB) Explores the continuum of qualitative to quantitative research and programs. Explores practicum and capstone requirements and documentation. Establishes second year MSPH milestones within CoursePlus Portfolio. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.810. Global Disease Epidemiology and Control Practicum. 1 - 22 Credits.**

Complements and reinforces the didactic portion of the MSPH program. Provides students with an opportunity to apply the knowledge gained during the first year, to develop skills in epidemiologic and data analysis skills applied to diseases of importance in low and middle income countries according to individually designed learning objectives, and to work as part of a team in an applied research or practice project. Students are placed in a variety of professional settings, which may include: government, non-government organizations (NGOs), multi-lateral, private, and/or for-profit sector. Provide opportunity for feedback for student performance and placement experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.820. Thesis Research Disease Control. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.830. Postdoctoral Research Disease Control. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.840. Special Studies and Research Disease Control. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.850. MspH Capstone Global Disease Epidemiology and Control. 2 - 16 Credits.**

This course is offered so that MSPH students who are working on their capstone (formerly MSPH essay) can register for credits with their academic advisors. This allows the Department and academic advisors to better track 2nd year MSPH students on their progress towards completing degree requirements. This also allow 2nd year students to more formally block time off in their academic terms to complete their capstone.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.860. Global Disease Epidemiology and Control Program Seminar 2. 1 Credit.**

Introduces students to skills and resources for career development within the field of international health. Provides an opportunity for students to focus in on these skills such as giving presentations, tailoring their resume to a public health audience and developing their publication profile. Prepares students for the practicum application process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.861. Global Disease Epidemiology and Control Program Doctoral Seminar. 1 Credit.**

Creates a focused, small group environment for the entering PhD students, which actively engages them in relevant, challenging content necessary for success in the PhD program. Seminar supports and extends beyond those topics taught in the classroom setting. The doctoral student education does not merely consist of successful completion of required courses—each student is expected to become a leading scientific expert during the years spent at JHU. It provides an opportunity to engage with senior faculty and move meaningfully toward selection of a dissertation topic and the skills necessary to successfully complete the PhD.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.866. Special Topics in Program Evaluation in International Health. 1 Credit.**

Acquaints students with current or on-going examples of large scale evaluations, and the practitioners or organizations that are the key players in implementation and evaluations of maternal and child health programs in low and middle income countries. Provides students with the skills to articulate current methodological issues around program planning, implementation and evaluation. Discusses key publications related to program implementation and evaluation. Introduces student to the various roles and responsibilities of a public health expert in the field of program evaluation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.223.867. Special Topics in Vaccine Science. 1 Credit.**

Offers a series of seminars (4 per term) on research and access of vaccine against infectious diseases of global importance including COVID-19, emerging infections, childhood illnesses, and other important vaccine-preventable illnesses. Covers scientific, social, economic, political, and ethical dimensions of vaccine research, development and access. Includes leading vaccine experts at JHU, and from other institutions, organizations, government agencies and industry present seminars. Provides the student with an understanding of the pathways leading to development and utilization of vaccines with public health impact.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.605. Indigenous Health. 2 Credits.**

Examines Indigenous Health through a public health lens. Critically evaluates the historical, social, cultural, and political determinants of Indigenous health utilizing various Indigenous theoretical frameworks. Provide students with an understanding of Indigenous research methodologies and prevention/interventions programs employed to promote and strengthen the overall health status of Indigenous populations globally.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.612. Indigenous Perspectives on Environmental Health. 2 Credits.**

Examines real-world examples and approaches to environmental health issues in Indigenous communities and presents challenges for implementing Indigenous-centered approaches to address current issues. Discusses the role and influence of Tribal and federal policy on Indigenous environmental challenges. Identifies appropriate frameworks and approaches used by Indigenous communities to address environmental challenges. Analyzes the current understanding of the relationship between the environment and Indigenous health approaches.

Applies Indigenous-based frameworks from this course to address environmental health challenges facing Indigenous communities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.620. Grant Writing for Public Health Practice. 2 Credits.**

Addresses a critical component of public health research and practice: locating and applying to opportunities for funding to support our work. Explores diverse mechanisms for funding public health-related research and programming. Prepares masters and doctoral students to interact with funding officials, respond to calls for proposals, and write effective proposals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.630. The Obesity Epidemic Problem Solving Seminar: What We Can Learn from Native American Communities. 3 Credits.**

Provides an overview of trends in obesity in the US, examines use/limitations of data from national surveys and describes how the epidemic varies geographically, by race/ethnicity and socio-economic status. Lectures and activities survey the complex, multi-faceted set of factors that contribute to the obesity epidemic and propagate disparities. Case studies in Native American communities, where some of the highest obesity rates exist, illustrate the importance of community collaboration and inclusion of culture in developing public health programs and policies. This class analyzes how the integration of knowledge, cultural norms and values, and engagement of multiple stakeholders is critical to shaping effective programs and policies. Course prepares students to identify and assess communities with obesity risk factors and propose culturally sensitive strategies to decrease obesity and eliminate underlying health disparities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.689. Health Behavior Change At the Individual, Household and Community Levels. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.690. Qualitative Research Theory and Methods. 3 Credits.**

Introduces practical skills for conducting qualitative research in domestic and international settings. Provides an overview of theoretical foundations of qualitative research and different methodologies for qualitative inquiry, including programmatic qualitative research, grounded theory, ethnography, phenomenology, narrative analysis, and case studies. Enables students to develop, interpret, and evaluate three common qualitative data collection methods: in-depth interviews, focus groups, and observation. Emphasizes understanding the basic principles and techniques critical for conduct, including question formation, tool design, sampling, data generation, ethics, and quality. Critically assesses the use of qualitative methods in the published health literature. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.691. Qualitative Data Analysis. 3 Credits.**

Combines lecture, hands-on exercises, and work with individual datasets to guide students through several approaches to managing and analyzing qualitative data in the context of both international and domestic public health research. Offers instruction in how to create efficient and accessible qualitative databases, apply different coding and other analytic strategies to different types of qualitative data, write analytical memos, and present qualitative results in forms appropriate for different target audiences, both academic and programmatic. Provides a brief introduction to the use of computer-aided qualitative data analysis software (CAQDAS).

**Corequisite(s):** Must also enroll for PH.224.991

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.692. Methods in Formative Research and Human Centered Design for Intervention Development. 4 Credits.**

Examines how to conduct formative research and human-centered design and apply its findings in the design, implementation, and evaluation of public health interventions. Prepares students with conceptual and methodological understanding that can be applied across a diverse range of public health traditions from social science to clinical research including implementation science, program evaluation, community diagnosis, and translational research. Presents and explores method case studies and the use of the data collected to develop tailored, more effective behavioral and community interventions, implementation models, and valid and reliable measurements. Discusses cross-cutting issues in study design, community entry and involvement, data sharing and use, as well as staff development and supervision. Examples presented and analyzed include HIV and malaria prevention and control, *Aedes aegypti* control, and global maternal and child health care-seeking programs and services.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.694. Mental Health Intervention Programming in Low and Middle-Income Countries. 3 Credits.**

Introduces students to mental illness symptoms and syndromes found across contexts and the variety of strategies used to treat such symptoms. Discusses mental health services as an integral part of global health program development. Addresses methods of adapting and developing interventions in low-resource countries and humanitarian contexts, as well as research designs used to evaluate these interventions. Challenges students to use critical and creative thinking skills throughout to discuss the issues involved in this relatively new field. Focuses on cross-cultural challenges in conducting mental health research in these settings. Topics covered include an overview of mental health issues in low-resource countries and humanitarian contexts; cross-cultural challenges; developing, modifying and disseminating prevention and intervention strategies; and the interplay between mental health and related topics such as nutrition, fitness and diabetes; HIV; substance abuse; and violence.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.697. Qualitative Research Practicum I: Partnerships and Protocol Development. 2 Credits.**

Places students in teams collaborating with a local community-based organization or JHU faculty member to develop a qualitative research project. Introduces key topics in qualitative research including conducting field research, developing study protocols and data collection instruments, and interacting with qualitative research participants and collaborators. Addresses the practical aspects of qualitative study design (e.g. choosing between data collection methods, resolving logistical challenges, and operationalizing an iterative research design) as well as the practical aspects of ethical review (including the JHSPH IRB and school ethical review processes). Prepares students to develop the components needed to begin the qualitative research project conducted in 224.698.01: Qualitative Research Practicum II: Collecting Qualitative Data and 224.699.01: Qualitative Research Practicum III: Analyzing and Writing Qualitative Findings (NOTE: concurrent or prior enrollment required).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.698. Qualitative Research Practicum II: Collecting Qualitative Data. 2 Credits.**

Enables students to begin data collection and analysis for a qualitative research project in collaboration with a local community-based organization or JHU faculty. Discusses the informed consent process, common problems in qualitative data collection (interviews, focus groups, observation) and strategies for addressing them, how to make iterative changes to data collection methods, and different approaches to transcription and translation. Includes a debriefing with qualitative data collectors.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.699. Qualitative Research Practicum III: Analyzing and Writing Qualitative Findings. 2 Credits.**

Enables students to complete data collection, analysis and write-up of results from a qualitative research project in collaboration with a local community-based organization or JHU faculty. Discusses common challenges in qualitative research including analysis of qualitative data, writing qualitative papers and reports, presenting qualitative findings, and ethical issues related to fieldwork and authorship.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.801. Building Resilience During Times of Uncertainty: An Evidence-Based Guide to Strengthen Your Personal Agency. 1 Credit.**

Draws content from positive psychology, neuroscience, and mindfulness to teach the science and practice of building positive mental habits and fostering personal agency. Through a series of interactive sessions that review the scientific basis for these concepts as well as self-reflective exercises, students experience a personal journey to understand where they are now, where they would like to be and the mental tools to get there. Exposes students to several cognitive strategies and practical tools that can help navigate daily challenges, increase positive emotions, decrease stress and plan for the future.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.810. Social and Behavioral Interventions Practicum. 1 - 22 Credits.**

Complements and reinforces the didactic portion of the MSPH program. Provides students with an opportunity to apply the knowledge gained during the first year, to develop skills in the development, implementation, and evaluation of social and behavioral global health interventions, according to individually designed learning objectives, and to work as part of a team in an applied research or practice project. Students are placed in a variety of professional settings, which may include: government, non-government organizations (NGOs), multi-lateral, private, and/or for-profit sector. Provide opportunity for feedback for student performance and placement experience

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.820. Thesis Res Soc & Beh Interv. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.830. Postdoctoral Research Social and Behavioral Interventions. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.840. Special Studies and Research Social and Behavioral Interventions. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.850. MspH Capstone Social and Behavioral Interventions. 2 - 16 Credits.**

Offers students an opportunity to integrate and apply program skills and competencies to a public health problem in a format that approximates a professional practice experience. Fosters students' ability to produce scholarly papers that provide a meaningful contribution to knowledge of the health of underserved populations. Guides students' development of tangible evidence of expertise that addresses specific applied topics relevant to international health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.860. Social and Behavioral Interventions Program Seminar I: Applied Social Science & Global Health. 1 Credit.**

Discusses the history and philosophy of social sciences in public health. Students read the book "Global Health: Why Cultural Perceptions, Social Representations, and Biopolitics Matter" by Mark Nichter. This book serves as a starting point for a series of discussions on why a thorough understanding of the historical, cultural, social and economic context is important in global public health practice; how globalization affects global burden of disease, health equity, and relationship with the social and physical environment; and the role of applied social science theory and methods in shaping and evaluating social and behavioral interventions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.861. Social and Behavioral Interventions Program Seminar II: Participatory Approaches and the Role of Community. 1 Credit.**

Provides an overview of participatory methods as they apply in international health, and discusses the role of community in social and behavioral international health interventions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.862. Social and Behavioral Interventions Program Seminar III: Intervention Case Studies. 1 Credit.**

Discusses intervention case studies examining formative research, implementation process, or monitoring and evaluation aspects. Relevant readings illustrating one or more of these aspects are provided by the SBI faculty, advanced students or other guests who will be leading each of the sessions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.863. Doctoral Seminar in Research Methods in Applied Medical Anthropology I. 4 Credits.**

Discusses and explores advanced topics in qualitative methods, including participant observation, interviews and focus groups, content analysis, discourse analysis, and online ethnography. Discusses theories in medical anthropology that are particularly useful in the design and analysis of international health interventions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.864. Doctoral Seminar in Research Methods in Applied Medical Anthropology II. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.866. Social and Behavioral Interventions Doctoral Proposal Development Seminar. 2 Credits.**

Guides students through the process of developing a dissertation proposal for the doctoral degree in SBI. Introduces the proposal requirements and provides information about the oral defense, including forming committees. Sessions include discussions of students' projects to help define the scope of a dissertation, understand how to use conceptual frameworks, approach the literature review, research methods, and analytic plan. Also discusses research ethics. Students work with the faculty instructor and in pairs and/or small groups to critique each others' proposals during the process of developing their own proposals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.990. LAB for IH 224.690.**

lab for PH.224.690

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.224.991. LAB FOR IH PH.224.691.**

Lab for PH.224.691

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.600. Racism and Public Mental Health. 1 Credit.**

Presents a multi-level understanding of the effects of racism on mental health among historically marginalized racial and ethnic populations.

Prepares students to gain introductory knowledge of racism, from a historical and empirical perspective, as a fundamental cause of mental health disparities. Addresses and discusses the personal and vicarious influence of racism on specific psychiatric disorders such as depression, anxiety, schizophrenia, and suicidal thoughts and behaviors.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.602. The Epidemiology of Substance Use and Related Problems. 3 Credits.**

Presents an overview of the epidemiology of drug and alcohol dependence and its relevance to public health. Reviews trends in estimates of prevalence and incidence of drug and alcohol use and problems related to use. Examines factors that might influence subgroup variation and health disparities in drug use outcomes using a dynamic approach that addresses changes over time and across the life course. Explores the universe of suspected causal influences and mechanisms ranging from genetic to societal influences using a model in which transitions in stages of drug involvement are influenced by interactions between individual susceptibility and social environmental factors. Presents research methodology and recent innovations in drug and alcohol epidemiologic research. The goal of this course is further understanding of the usefulness of epidemiology for shedding light on the natural history of drug and alcohol use and the relevance of epidemiologic research to basic and clinical research

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.603. Psychiatric Epidemiology. 3 Credits.**

Reviews descriptive and analytic epidemiology for major mental disorders. Examines issues of classification and nosology of psychiatric disorders, operational case definitions and measurement techniques, prevalence and incidence rates, natural history, risk factor research and plausible explanations for credible risk factors. Considers aspects of psychiatric epidemiology that illustrate important problems and concepts in epidemiology generally.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.604. Seminars in Research in Public Mental Health. 1 Credit.**

Integrates academic training with current research in public mental health, including etiological, epidemiologic and intervention research for mental and behavioral disorders across the lifespan. Features presentations by researchers from JHU and other research and practice institutions on the results of state of the art investigations of mental and behavioral health problems and issues of public health significance, emphasizing experimental design and methodology for analysis and discussion.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.605. Doctoral Seminar in Public Mental Health. 1 Credit.**

Explores and critiques public mental health research and practice, emphasizing key constructs and methods with department faculty through presentations, readings, and group discussions. Develops professional development skills for careers in public mental health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.606. Digital and Mobile Health Research in Public Mental Health. 3 Credits.**

Introduces students to digital and mobile health (mHealth) research in mental health. Covers a wide range of digital health topics and studies on mental and behavioral health conditions. Topics will include using digital health for research participant recruitment, assessment and data collection, as well as mental and behavioral health intervention development and delivery. Offers hands-on experience in digital and mobile health study design and data collection. Provides students a comprehensive overview over of the digital and mobile health field in mental health and encourages creative thinking about how these research methods can be applied.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.607. PREVENTION of MENTAL DISORDERS: PUBLIC HEALTH InterVENTIONS. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.608. School-Based Preventive Interventions and Research. 1 Credit.**

Participants will have an an understanding of school-based prevention and research including the theoretical frameworks supporting schools as a context to address public health; the barriers and challenges to implementation of evidence-based interventions in schools; methodological implications of school-based research; and sources of funding for conducting school-based research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.609. Climate Change and Mental Health: Research, Practice, and Policy Perspectives. 3 Credits.**

This course will introduce mental health concepts of disorder, distress, well-being, and resilience in the context of climate change. Online course sessions will be structured around three pillars: 1) climate change exposures and their impacts on mental health and well-being, 2) social and environmental justice in climate change and mental health, 3) resilience, psychosocial adaptation, and action. Lectures will be given by research, policy, and mental health practice experts. Research findings on direct and indirect mental health and psychosocial impacts of chronic and acute climate change exposures will be presented. Sessions will explore inequalities in climate change impacts on mental health with examples provided from across local and global social and economic contexts. Individual and community-level resilience, psychosocial adaptation, and areas of priority action will be defined, highlighted, and discussed.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.610. Knowledge for Managing County and Local Mental Health, Substance Use, and Developmental Disability Authorities. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.611. Writing Publishable Manuscripts for the Social and Behavioral Sciences. 2 Credits.**

Provides training in the preparation of manuscripts for submission to peer-reviewed journals, with a focus on empirical papers and systematic reviews. Develops students' ability to serve as reviewers and critically evaluate the written work of peers. Covers topics relevant to effective communication and dissemination of ideas, including journal selection, preparation of cover letters, and responses to reviewers. Incorporates student critiques of other students' works in progress and writing accountability group (WAG) activities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.612. Introduction to Behavioral and Psychiatric Genetics. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.613. Mental Health and the Gut. 2 Credits.**

Explores the strong, bidirectional communication between the gastrointestinal tract and the brain. Reviews the role of the microbiome in shaping brain health, the link between gastrointestinal symptoms and mental health, and new and seminal research on the brain-gut connection in specific psychiatric disorders such as schizophrenia, depression, and autism spectrum disorders. Students will learn to read and critique literature on this subject, and will learn the basics of how to design and analyze a study on the microbiome and mental health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.614. Advanced Latent Variable Modeling: Matching Model To Question. 3 Credits.**

Reviews concepts, key assumptions, and published applications of advanced latent variable methods commonly used in psychology or mental health research including growth mixture models, latent class analysis with covariates and distal outcomes, and latent transition analysis. Acquaints students with the current state of science related to latent variable methods, which is a quickly advancing field, and gives students the tools they need to build an appropriate latent model for their research question. Topics include growth mixture modeling, latent class regression, latent transition analysis, multi-level models, and measurement invariance. Presents students with examples from psychological, mental health, and developmental datasets with applications in the behavioral and social sciences. Students will apply lessons from didactic lectures in assignments and class projects.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.615. Mental and behavioral health: from birth to early adulthood. 1 Credit.**

Introduces students to the field of developmental psychopathology and its fundamental concepts and theoretical perspectives, including sensitive periods and the role of early experiences, risk, and resilience, and developmental pathways. Addresses factors that contribute to the development of psychopathology, including temperament, genetics, neurobiological processes, and social influences at the family, peer, and neighborhood levels. Discusses the contributions of individual-specific and contextual factors on the development of internalizing, externalizing, and substance use disorders across the childhood, adolescent, and emerging adulthood years.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.617. Psychopathology for Public Health. 3 Credits.**

Examines the major mental disorders, emphasizing the current thinking regarding their essential features and their assessment in public health research. Class sessions include lectures by the instructor and by experts in particular disorders. Reviews best-practice non-pharmacological and pharmacological approaches to the treatment of disorders, and commonly-utilized measures in public health and clinical contexts, including self- and informant-report measures, clinician-administered scales, and structured interviews.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.618. Mental Health in Later Life. 2 Credits.**

Recognizes the social ecological model, social determinants of health tenants and the life course perspective as tools to understanding adolescent health. Explores the influences of contexts, such as neighborhoods, education and families, on adolescent health and well-being. Examines empirical work to consider the role of context in prevention and interventions aimed at adolescents.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.619. Psychiatric Genomics. 3 Credits.**

Addresses the rapidly changing landscape of the study of complex genetics diseases. Students explore the current state of the quantitative issues in complex disease genetics, so that they can translate their experiences into research practice. Analyzes genome-wide association scans, epigenetics, and next-generation sequencing, as well as approaches to power calculation, including the use of simulation. Students study the current literature as well as examples from real data sets. In addition to learning the analytic techniques, students also become familiar with the assumptions and limitations of these approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.620. Qualitative and Quantitative Methods for Mental Health and Psychosocial Research in Low Resource Settings. 3 Credits.**

Introduces mental health as an integral part of global health research, including using qualitative and quantitative methods to conduct needs assessments and to monitor and evaluate interventions. Presents and critiques qualitative strategies for integrating local cultural perspectives into research models. Examines qualitative and quantitative methods of adapting psychiatric assessment tools for use cross-culturally and presents challenges for developing interventions for use in low-resource contexts. Encourages use of critical and creative thinking skills throughout to discuss the issues involved in this important area of study.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.621. Mixed Methods for Research in Public Health. 2 Credits.**

Introduces students to the field of mixed methods research, which can be thought of as research in which investigators combine quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study or program of research. Focuses on applications in mental health services research. Acquaints student with the logic of inquiry, which includes the use of induction (discovery of patterns), deduction (testing theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding results). Explores which questions lend themselves to mixed methods research. Discusses mixed designs and methods, and writing. Students critique mixed methods manuscripts and proposals, and can outline a mixed methods study based on their own program of research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.623. Brain and Behavior in Mental Disorders. 3 Credits.**

Examines the onset and clinical symptoms of mental disorders over the life course of the developing and aging brain to illustrate neurobiological systems involved in thinking, feeling, and acting. Increases understanding of behavioral disorders, their assessment, neurobiological underpinnings, and systemic influences. Reviews some common disorders, discussion (1) clinical and case studies; (2) definitions and diagnostic methods; treatment, epidemiologic evidence regarding etiology, and (3) challenges to examining brain-behavior relationships across disorders.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.625. Mobile Mental Health Research: Planning and Conducting Ecological Momentary Assessment. 1 Credit.**

Introduces mobile health (mHealth) approaches and methods to study human health behavior and mental health in near real-time and everyday life. Provides a brief overview of Ecological Momentary Assessment (EMA) studies and critical study design considerations. Gives students hands on experience setting up a small EMA study using freely available online software and smartphone apps.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.626. Propensity Score Methods in Non-Experimental Research in Mental Health. 1 Credit.**

Discusses the importance of the careful design of non-experimental studies, and the role of propensity scores in that design, with the main goal of providing practical guidance on the use of propensity scores in mental health research. Covers the primary ways of using propensity scores to adjust for confounders when estimating the effect of a particular "cause" or "intervention," including weighting, sub classification, and matching. Examines issues such as how to specify and estimate the propensity score model, selecting covariates to include in the model, and diagnostics. Draws examples from school-based prevention research, drug abuse and dependence, and non-randomized treatment trials, among others. Primarily emphasizes non-experimental studies; however, also discusses applications to randomized trials.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.628. Gaps and Opportunities in Public Mental Health: A Systems Approach. 3 Credits.**

Acquaints students with mental health systems and the development of a comprehensive approach to the delivery of services to a variety of vulnerable populations living in difficult conditions in the community. Topics include a survey of the variety of current mental health services and evidence-based approaches, the impact on services of governance, organization and financing of services including a primer on Medicaid and Medicare, the link between poverty and mental health and the use of jails as mental asylums, the development of a competent workforce and an introduction to international community mental health issues. Features discussion and problem solving and involves a high degree of interaction between the participants as well as several field trips.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.629. Mental Health in General Medical Settings. 1 Credit.**

Provides an overview of barriers to mental health care. Introduces evidence-based models of integrated physical and mental health care. Describes an array of mental health interventions that can be delivered in general medical settings (e.g., screening, brief intervention, case management, etc.), and evaluates the evidence supporting the use of such interventions. Explores integrated care in special settings (e.g., low- and middle-income countries, substance use care, emergency department).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.630. Stigma and Mental Health: Issues and Interventions. 1 Credit.**

Provides a broad understanding of the interrelationship between stigma and mental health. Focuses on health consequences of stigma for individuals living with mental health disorders. Introduces students to intervention strategies for reducing mental health-related stigma at different health systems and ecological levels, with a focus on the role of mental health service users in stigma reduction. Prepares students to incorporate anti-stigma approaches into their own work.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.632. Grant Writing: NIH and Other Funding Sources. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.634. Stigma and Public Health: Issues and Interventions. 3 Credits.**

Provides a broad understanding of the public health impact of stigma and discrimination related to a variety of identities and health conditions. Introduces students to frameworks for understanding stigma (including intersectionality), strategies for characterizing and measuring stigma, and intervention approaches for reducing stigma and discrimination at different ecological levels with the goal of improving health equity, access to quality healthcare services, and promoting psychosocial wellbeing.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.635. Conflict Resolution Skills in Mental Health. 1 Credit.**

Examines the dimensions of conflict in the mental health field including, but not limited to assessing one's personal conflict style; dynamics and elements of negotiation; power disparities; conflicting parties' positions, needs, and interests; Mediation—stages, behaving as a mediator, facilitating agreements; dealing with impasse; techniques to re-frame disputes; dealing with high emotions; ethical dilemmas; conflict coaching; and designing conflict prevention and resolution systems in mental health agencies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.636. Methods for Handling Missing Data in Psychosocial Research. 1 Credit.**

Since analyses that use just the individuals for whom data is observed can lead to bias and misleading results, students discuss types of missing data, and its implications on analyses. Covers solutions for dealing with attrition (non-response) and missingness on individual items. These solutions include weighting approaches for unit non-response and imputation approaches for item non-response. Emphasizes practical implementation of the proposed strategies, including discussion of software to implement imputation approaches. Examples come from school-based prevention research as well as drug abuse and dependence. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.637. Causal Mediation Analysis. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.638. The Science of Narrative: Why Storytelling Is Important to Research. 1 Credit.**

Introduces the basic components of storytelling. Examines the science within the narrative arts. Challenges students to present the art within public health sciences. Emphasizes critical perspective on how nuances and merits of public health research should be expressed to relevant audiences, including community members and policymakers. Explores why storytelling is a powerful modality for conveying uncommon knowledge and insight in a manner that appreciates common experiences. Prepares students to combine data and narrative while acknowledging both as essential to effective public health advocacy. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.639. The Intersection of Mental and Physical Health. 3 Credits.**

Addresses the epidemiology, consequences, measurement, and implications for health service delivery of co-morbidity of mental and physical disorders. Employs a conceptual framework that emphasizes the potential psychological, behavioral, social, and biological mechanisms through which mental and medical illness interact to cause disability and death. This model has implications for development of new service delivery models that integrate the care of mental health disorders into the care of medical conditions such as cancer, cardiovascular disease, and diabetes. Students interact with investigators and clinicians in lecture format, examine case studies, and generate a paper related to a medical-psychiatric co-morbidity of their choosing.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.640. Childhood Victimization: A Public Health Perspective. 3 Credits.**

Examines childhood victimization across a wide spectrum of victimizations, including sexual and physical abuse, peer and sibling assaults, witnessing domestic violence and verbal abuse and neglect. Acquaints students with the epidemiology of childhood victimization, reviews existing victim and perpetrator-focused interventions, and explores established emerging prevention strategies. Reviews legal policies aimed at reducing childhood victimization, their strengths and weaknesses, and challenges to the notion that childhood victimization is, or can be, effectively addressed solely or primarily via criminal justice interventions

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.641. The Epidemiology of Substance Use and Related Problems. 1 Credit.**

resents an overview of the epidemiology of substance use and substance use disorders within a public health framework. Initially we review how drugs are classified and regulated and then we examine trends in estimates of prevalence of use and use disorders. Covers the most common drugs of abuse, including alcohol, tobacco/nicotine, cannabis, opioids, and cocaine. Included are lectures from those with expertise in specific drugs or areas of study within substance use epidemiology. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.642. Manuscript Writing for the Social and Behavioral Sciences. 1 Credit.**

Trains students to prepare manuscripts for submission to peer-reviewed journals with a focus on empirical papers. Discusses topics relevant to effective communication and dissemination of ideas, including journal selection.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.643. The Science of Narrative: Intersectionality of Storytelling and Public Health. 2 Credits.**

Introduces the basic components, concepts, and frameworks of storytelling. Examines the science within the narrative arts. Challenges students to present the art within public health sciences. Emphasizes critical perspective on how nuances and merits of public health research should be expressed to relevant audiences, including community members and policymakers. Explores why storytelling is a powerful modality for conveying uncommon knowledge and insight in a manner that appreciates common experiences. Explores approaches that capture narratives for health research and practice. Prepares students to combine data and narrative while acknowledging both as essential to effective public health advocacy. Encourages a re-imagining of public health's epistemology, pedagogy, and methodology.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.646. Autism Spectrum Disorder in Public Health. 2 Credits.**

Since the number of children with an autism spectrum disorder (ASD) has increased dramatically over the past two decades and is now a major public health issue, students learn about the state of the science of autism epidemiological and etiological research, and the emerging questions for Public Health. Students also learn about prescriptive epidemiology, genetics, environmental risk factors, and prognosis of ASD, as well as long-term outcomes.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.330.647. Childhood Victimization: An Overview of Public Health Efforts. 1 Credit.**

Examines childhood victimization from a public health perspective. Familiarizes students with public health strategies used to address three related domains: detection and prevention, treating victims, and offender interventions. Challenges students to critically examine policy and practice, using cases such as the Penn State sex abuse scandal. Uses small group break-out sessions to help familiarize students with the public health approach to violence prevention. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.648. Child and Adolescent Psychopathology. 1 Credit.**

Reviews, in detail, the current and historic role of government as funder, regulator, and provider of mental health services in the United States. Highlights a number of critical dimensions of public mental health programs, including, but not limited to, the organization of services for children, adults, and aging adults; substance abuse services; specialty services designed to enhance long-term recovery support and community integration; supported housing; and integrated behavioral health and primary care. Focuses on the role other public agencies, working in parallel and integrated with public behavioral health agencies, such as Social Services, Social Security, Corrections, Juvenile Justice, Public Health, and Medicaid. Features an overview of public agencies, peer (current and former mental health clients) operated services. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.649. Investigating Behavioral Health Outbreaks and Epidemics. 1 Credit.**

Introduces outbreak investigation, with a focus on outbreaks and epidemics of behavioral health problems such as substance use, mental health, violence, and neurocognitive disorders. Provides hands-on experience through a practice investigation that uses examples and data from a real outbreak of lung injuries linked to use of e-cigarettes. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.650. Methods in Implementation Science. 3 Credits.**

Introduces methods, research designs and evaluation approaches that can be used to study implementation science questions. Includes an introduction of methods such as mixed-methods, measurement validity and reliability, randomized and non-randomized designs, and simulation studies using examples from mental and behavioral health settings. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.651. How to Derive a Polygenic Risk Score. 2 Credits.**

Explores what polygenic risk scores are, and what they have revealed to date about human genetic mental health outcomes, with computer laboratory exercises to step-by-step develop the tools needed to create and analyze these scores with genetic study data. Includes creating summary statistics and descriptive figures. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.655. Applying the DHHS Healthy People 2020 Model of Health Determinants. 1 Credit.**

Presents the model of health determinants, and focuses on the effects on population health and community and personal wellbeing. Explores the health determinants model introduced by the US. Department of Health and Human Services Healthy People 2020 Committee. Discusses the model which links negative social and physical determinants of health, such as abuse, lack of social support, or poor-quality living conditions, with trauma responses, and then with behavioral and health conditions. Discusses population health as an approach to understanding and intervening in this system to prevent trauma and subsequent illness. Examines the dimensions of wellbeing to reflect subsequent health status. Introduces and explores the model and several areas of application.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.657. Statistics for Psychosocial Research: Measurement. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.658. Mental Health and Psychosocial Support in International Humanitarian Settings. 2 Credits.**

Explores key issues in the development and evaluation of mental health and psychosocial support interventions with populations affected by humanitarian crises, such as natural disasters and armed conflicts. Discusses such questions as: 'how do populations in diverse socio-cultural settings define mental health in the context of humanitarian crises?'; 'How can we build on existing resources and practices that promote mental health in humanitarian crises?'; 'What is known from epidemiological and intervention studies about common mental health problems and effective interventions in humanitarian settings?'. Challenges participants to reflect on translating science to practice, and vice versa. Course methods entail a mix of multimedia presentations and case discussions, focusing on real-world experiences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.659. Current Issues in Military Mental Health. 1 Credit.**

Explores issues in mental health affecting U.S. military personnel and veterans over more than a decade of war. Presents an overview of the epidemiology of mental disorders and suicide within military populations. Critically reviews existing epidemiological studies and the current military psychiatric epidemiology literature. Introduces military mental health data systems used for surveillance and research. Discusses challenges in prevention and service delivery. Explores the significance of traumatic brain injury. Reviews evolving practices in deployment mental health screening. Addresses controversial topics including the practice of polypharmacy, multiple deployments, recruitment, retention, and separation policies, and the role of the all-volunteer force. Examines current issues in the care of military veterans, including homelessness, suicide, and substance abuse.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.660. Grant Writing for the Social and Behavioral Sciences. 3 Credits.**

Targets the development of effective research proposals in public mental health, including the identification of research questions, factors related to significance and innovation, study design, and analytic approaches. Reviews of research proposals and articles address issues such as topic selection, sample selection, measurement, and analytic strategies. Reviews strengths and weakness of proposals and studies and considers recent advances in epidemiologic and statistical methods as alternative approaches for addressing research questions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.661. Social, Psychological, and Developmental Processes in the Etiology of Mental Disorders. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.662. Public Mental Health. 2 Credits.**

Provides an overview and framework for the full spectrum of public mental health. Presents key concepts in public health applied to mental and behavioral health and disorders. Discusses the causes and consequences of mental health disorders, the frameworks for understanding the origins of these disorders, strategies for treatment and prevention, and issues related to health services and policy for mental and behavioral health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.663. Mental and Behavioral Clinical Practice Exposure. 2 Credits.**

Introduces students to the mental health/behavioral care clinical settings. Acquaints students with the therapeutic relationship that exists between clinician and patient. Presents opportunities for shadowing and research partnerships with clinicians. Provides access to potential clinical data sets for exploration and analysis. Emphasizes practical hands-on experience over didactic secondary exposure. Challenges student notions of the psychiatric patient and their care, while destigmatizing both the illnesses and the treatment processes. Encourages creative hypothesis generation grown from observation of solvable challenges experienced in the field. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.664. Introduction to Mental Health Services. 3 Credits.**

Examines issues in mental health care utilization, including definition of need for mental health care, concerns about the treatment gap in the community, treatment seeking and barriers to care (most importantly stigma and financial barriers) and treatment seeking models and predictors of mental health treatment-seeking in community settings. Introduces students to the study of delivery of mental health care, including historical trends in the delivery of mental health care in the US, the mental health care system's governance and financing, quality and outcomes of mental health care and mental health services for children and older adults and treatment services for substance disorders. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.665. Climate Change and Mental Health. 1 Credit.**

Introduces mental health concepts of disorder, distress, well-being, and resilience that warrant consideration in the context of climate change. Structured around chronic and acute climate change exposures, including rising temperatures, rising sea levels, and disasters, such as floods, hurricanes, and wildfires. Explores mental health impacts of particular climate change exposures with examples from across high-, middle-, and low-resource contexts. Includes discussion of social inequalities on the impacts of climate change on mental health. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.666. Sleep and Public Health. 1 Credit.**

Provides a foundation of knowledge concerning the basics of sleep, how sleep changes across the lifespan, how it is measured, its links to physical and mental health, important sociodemographic sleep disparities, and implications for public health and policy. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.667. Mental Health and the Law. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.668. Complex Systems Thinking in Aging Research: Fundamentals and Methods. 1 Credit.**

Trains students on the fundamentals of systems thinking. Considers key aging-related health outcomes from a systems science lens. Examines basic systems models (dynamic models, agent-based models, social network models). Examines application of systems thinking on evaluating health programs and policies. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.669. Epidemiology of Major Mental Disorders. 2 Credits.**

Presents an overview of the epidemiology of anxiety and mood disorders, schizophrenia and associated syndromes, affective psychosis including bipolar disorder, and dementia and related syndromes. Prepares students who have basic knowledge of the clinical features of the syndromes, but will touch briefly on issues of assessment in the context of epidemiology. It includes the fundamentals of descriptive epidemiology for each syndrome (prevalence, incidence, natural history); consequences of the syndromes for impairment, disability, and general health; and an assessment of risk factors for the syndromes, including a discussion of the genetic epidemiology of the syndromes. Examines the special conceptual challenges for the field of epidemiology which are presented by the mental disorders. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.670. Creating Trauma Informed and Healing Policies and Practices. 1 Credit.**

Provides a broad overview of the challenges presented by traumas including COVID-19 and violence. Reviews how trauma, including COVID-19 and violence, impacts clients, patients, participants in programs or community activities, and those leading these services, supports, and activities. Describes policies and practices that are healing and trauma-informed. Examines opportunities and challenges for creating more healing and trauma-informed organizations, programs, and policies and the challenges encountered. Prepares students to positively impact their own programs, organizations, and activities and to provide consultation to others interested in creating more healing and trauma informed policies, practices, and activities. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.671. Traumatic Pasts but Hopeful Futures: Resilience and Positive Youth Development in the Context of School-Based Mental Health. 1 Credit.**

Introduces research on resilience and youth development that addresses adolescent mental and behavioral health for at-risk youth using the definitions, theories, and measurement of resilience. Focuses on how a framework of positive youth development can inform school-based, universal interventions to build youth resilience, promote self-efficacy, and reduce disparities in youth mental health. Includes discussion of how we can use these frameworks to address mental and behavioral health inequities are exacerbated by the COVID-19 epidemic and protests against structural racism and police brutality.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.672. Evaluation of Mental Health Service Systems. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.673. Prevention Research in Mental Health. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.674. Suicide As A Public Health Problem. 3 Credits.**

Introduces students to the following content areas with regard to suicide: history and theories; epidemiology; etiological factors and mechanisms; clinical phenomenology and comorbid disorders; assessment of suicidal behaviors; special populations; preventive and treatment interventions; ethical issues on the conduct of research on suicidal populations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.675. Suicide Prevention: Problem Solving Seminar. 3 Credits.**

Explores the following suicide-related topics: history, frameworks and theories; epidemiology, etiological factors and mechanisms; national and local suicide data sources; policy and preventive interventions; high-risk populations; common barriers and challenges to implementing and sustaining suicide prevention. Introduces leadership and management competencies including organizational change and strategic plans. Presents strategies for designing systems-level interventions. Engages students in interprofessional team approaches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.676. Intersectionality in Public Mental Health. 2 Credits.**

Outlines the pathways to health inequities and posits potential solutions and offers upstream strategies to prevent inequities. Presents key concepts of intersectionality. Discusses the application of intersectionality to research, programs, and policy related to concepts of public mental health inclusive of violence prevention and response.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.677. Translation of Mental Health Research Into Field-based Public Health Interventions. 2 Credits.**

Provides a broad overview of how evidence-based mental and behavioral health interventions are being interwoven into education, health, and community programs in the United States and around the world in order to prevent or intervene with issues of interpersonal violence and trauma-related disorders and promote well-being and mental health resiliency. Introduces examples for different populations across the lifecourse and in different US and global contexts. Addresses challenges of integrating and scaling up interventions in non-clinical settings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.680. Promoting Mental Health and Preventing Mental Disorders in Low- and Middle-income Countries. 3 Credits.**

Focuses on research and intervention approaches in low- and middle-income countries in the field of mental health prevention and promotion. Particularly emphasizes populations exposed to adversity, and challenges students to bridge the gap between research and practice in this area.

Discusses the determinants of mental health, and how they can be targeted: at different life stages and different socio-ecological levels (e.g., family, school, and neighborhood). Addresses such questions as 'What is resilience, and how can it be promoted?', 'How can interventions prevent depression in women exposed to intimate partner violence?', and 'How do poverty, violence and malnutrition impact mental health?'. Uses real-world examples, and follows a case method approach.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.681. Mental Health and Psychosocial Needs of Refugees After Resettlement in High Income Countries. 1 Credit.**

Provides a broad understanding of the refugee resettlement process and presents data on the epidemiology of mental health and psychosocial problems among refugees resettled in high income countries like the U.S. Introduces methods for measurement and evaluation of these problems and prepares students to be able to design mental health studies among this population. Explores mental health treatment options and service utilization among resettled refugees in high income countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.685. Introduction to Screening for Behavioral Health Conditions. 1 Credit.**

Describes the application of screening to different behavioral health conditions across the life course. Reviews key psychometric properties of screening tools. Introduces the desired diagnostic, treatment, and health-related outcomes of screening. Discusses possible harms and drawbacks of behavioral health screening for different stakeholders. Encourages critical thinking when reading empirical research.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.688. Public Health and the Good Life. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.690. Applications and Analysis of Epigenetic Data in Public Health Research. 1 Credit.**

Presents applications of epigenetic measurement in public health research. Begins by providing a rationale for such work, then describing measurement tools, from single-site methylation typing, to array-based methods, and whole-genome sequencing. Study design options, quality control analyses, and association analyses will then be presented. Examples based on both mental and physical health outcomes will be used.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.698. Strategies for Success: Public Mental Health Career Development and Beyond. 1 Credit.**

Provides MHS students with the structure, resources, and support needed to start building a career in Public Mental Health. Explores career options, resume development, interview skills, networking, and salary negotiation through lectures and small-group activities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.700. Public Health Approaches in Autism and Developmental Disabilities. 3 Credits.**

Examines public health approaches to the assessment, etiology, services, and policy issues related to autism and developmental disabilities. Introduces the state of the science of autism and developmental disabilities epidemiology, and emerging questions for Public Health. Includes presentations and discussions of current information on descriptive epidemiology, genetics, environmental risk factors, and prognosis of ASD. Presents research on long-term outcomes in individuals with ASD. Provides an overview of research progress to date and points to challenges as we work to learn more about this enigmatic neurodevelopmental disability.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.800. MPH Capstone Mental Health. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.802. Seminar on Aging, Cognition and Neurodegenerative Disorders. 2 Credits.**

Addresses age-related cognitive and neuropsychiatric disorders that are of particular importance with the rapid expansion of the aging population. Focuses on the major domains of cognition and comparison of the age-related changes that occur in each cognitive domain. Includes emphasis on contrasting the major neurodegenerative disorders related to age and describing the clinical presentation and pattern of cognitive change in each condition. Participants address current strategies for maximizing cognitive function with age and treatment strategies for the primary neurodegenerative disorders. Examines and identifies gaps in knowledge and research approaches to fill these gaps. Explores concepts of cognitive systems, animal and imaging models, and neuropathological changes associated with aging and with disease.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.805. Seminar on Statistical Methods for Mental Health. 1 Credit.**

Discusses recent advances in statistical methods in mental health. Includes student and faculty presentations as well as discussions of recent articles in the literature. Includes topics: missing data, longitudinal data analysis, causal inference, and measurement.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.811. MHS Thesis in Mental Health: from Proposal to Publication I. 1 Credit.**

Students are required to conduct a systematic review of the literature or a data-driven paper in partial fulfillment of the Master of Health Science (MHS) degree in the Department of Mental Health. Students will be provided with basic research and organizational skills needed for successful completion of the MHS project. Topics include: conducting a systematic review or literature review for data driven papers, selecting an appropriate research design, and interpreting findings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.812. MHS Thesis in Mental Health: from Proposal to Publication II. 1 Credit.**

Students are required to conduct a systematic review of the literature or data-driven paper in partial fulfillment of the Master of Health Science (MHS) degree in the Department of Mental Health. Emphasis is placed on revision and dissemination of the final project. Topics include: Selecting an outlet for dissemination (e.g., journal submission, conference presentation) and writing assignments (e.g., cover letter, abstract for conference).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.820. Thesis Research Mental Health. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.830. Postdoctoral Research Mental Health. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.840. Special Studies and Research Mental Health. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.895. MPH Practicum: Mental Health. 1 - 4 Credits.**

The MPH Practicum is a mentored, hands-on practical public health experience, which involves meaningful participation and interaction with public health professionals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.330.990. Computer Lab: Epigenetic Data in Public Health Research. 1 Credit.**

Offers hands-on computer lab experience analyzing epigenetics data using quality control and statistical association analyses presented in the course, 330.690 Applications and Analysis of Epigenetic Data in Public Health Research. Real and simulated data will be used to demonstrate software that will implement particular programs. Software applications will primarily use the R statistical environment and packages in BioConductor.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.600. Introduction to the Biomedical Sciences. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.601. Vector-Borne Disease Control. 3 Credits.**

Addresses various vector-borne disease control strategies that target any of the complex interactions between the pathogen, vector and host. Emphasizes on malaria, dengue and other arboviral diseases, as well as Chagas, leishmaniasis and schistosomiasis. Discusses some examples of control strategies such as current and future prophylactic, therapeutic and transmission-blocking vaccines and drugs, vector control, and vector-targeted pathogen transmission control. Addresses interactions between control methods and factors that influence efficacy.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.603. Biology of the Next Pandemic. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.604. Academic and Career Essentials. 1 Credit.**

Introduces participants to methods for building skills and mindsets needed to complete their thesis and future scientific writing projects. Supports participants in developing a research question, writing a project outline, writing thesis drafts, communicating with reviewers, and formatting the thesis with references. Emphasizes learning how to give and receive helpful feedback. Acquaints participants with the benefits of building peer support networks. Builds career development skills including conducting job searches, CV/resume writing, effective communication, writing a personal statement, and interviewing. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.606. Major Global Infectious Diseases: Prospects for Control. 2 Credits.**

Provides in-depth information on the basic pathogenic mechanisms of selected infectious diseases that continue to be of major public health importance worldwide, with an emphasis on underlying problems for development of effective public health interventions. Includes topics: HIV/AIDS, malaria, tuberculosis, measles, as well as infectious disease hazards that may become important in the future. Obtains a working knowledge of the biology of these diseases, including prospects for their effective management and control at both the individual and public health level, and of basic human immunology and vaccinology. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.607. Methods in life sciences, literature and practice. 2 Credits.**

Focuses on understanding laboratory research technologies and applying this knowledge to evaluate current scientific literature. Achieves these goals through in-depth small group discussions with a range of faculty expertise, weekly assigned reading, short projects, short writing assignments or other activities. Includes both faculty and student leaders for each session; some sessions held in Core facilities. Includes topic areas: molecular biology, genomics, protein structure and strategies to evaluate the literature (primarily term 1), microscopy technologies, image analysis, flow cytometry and lab notebook archiving (primarily in term 2), cell biology, organelle dynamics, cell signaling, data management and experimental design (primarily term 3). Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.611. Principles of Immunology I. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.612. Principles of Immunology II. 3 Credits.**

Introduces biological concepts of immunology; molecular nature of antigens; molecular basis for antibody and T-cell receptor structure and diversity; complement; hypersensitivity reactions; cellular basis for the immune response; cell-mediated immunity; adhesion molecules and coreceptors cell activation; cytokines and other soluble mediators; major histocompatibility complex (MHC) antigens; tumor immunology; transplantation immunobiology; mechanisms of resistance to microorganisms; tolerance; autoimmunity; and immuno-deficiency. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.613. Techniques in Molecular Biology. 3 Credits.**

During five days of intensive hands-on laboratory instruction, students develop skills in the use of modern laboratory investigative tools in the area of molecular biology. They learn how to perform polymerase chain reaction (PCR) DNA amplification, quantitative PCR, DNA and protein gel chromatography, Western blotting, transformation of bacteria, and expression of heterologous proteins by bacteria. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.615. Critically Reviewing the Scientific Literature. 2 Credits.**

Unlike the typical literature review course, focuses specifically on literature that is flawed in the approach or methods used to examine a scientific question and examines how well the conclusions drawn are justified by the data. Oral discussions of assigned literature are accompanied by weekly 2-3 page written reviews, which provides opportunities for students to get feedback on their writing skills, as well as their critical reading skills. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.623. Fundamental Virology. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.624. Advanced Virology. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.625. Scientific Grant Writing. 2 Credits.**

Covers the critical components of a scientific grant application, common errors in grantsmanship and how to avoid them, grant application review criteria, ethics related to grant writing and reviewing, and identification of funding sources. Students prepare a short (5-page) draft proposal and a revision of this proposal following review. Proposal topics are selected by the students and developed with the instructor. Students also prepare critiques of other students' anonymous, instructor-edited proposals for discussion in class. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.627. Pathogenesis of Bacterial Infections. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.631. Immunology, Infection and Disease. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.633. Autoimmune Diseases of the Endocrine Glands. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.635. Biology of Parasitism. 5 Credits.**

Presents a biological basis of parasitic lifestyles with concurrent laboratory including host responses and parasite evasion of host defense mechanisms, transmission, epidemiology, diagnosis, clinical manifestations, pathology, treatment, and control of the major helminthic and protozoan infections of man. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.636. Evolution of Infectious Disease. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.650. Vector Biology and Vector-Borne Diseases. 3 Credits.**

Presents the principles of transmission of human and animal pathogens by insects, mites and ticks. Covers basic arthropod biology with special attention to biological properties of vectors and their interactions with pathogens, basic components of arthropod disease cycles and principles of pathogen transmission dynamics. Special topics include emerging pathogens, vector genetics, traditional and next generation control strategies and venomous arthropods.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.653. Molecular Biology Literature. 2 Credits.**

Discusses over two sessions the assigned paper from historic or current scientific literature. Covers only the methodologies and how they work in the first session, the second covers the scientific advancements achieved with these methods. Includes both student and faculty discussion leaders for each session.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.654. Current Literature in Microbial Immunity. 1 Credit.**

Current Literature in Microbial Immunity is designed primarily for Master's level students to provide an overview of the current state of research relating to topics in microbial immunity.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.655. Pandemics of the 20Th Century. 1 Credit.**

Provides students with an overview of protein bioinformatics including computational and experimental approaches. Introduces amino acid and protein physical properties as well as the alignment and evolution of protein sequences. Presents protein structure and methods of structure determination as well as the use of protein databases and software for visualizing proteins and generating publication quality figures. Discusses methods for secondary and tertiary protein structure prediction including homology modeling. Also covers methods for modeling small/molecule-protein interactions within the context of rational drug discovery and design. Finally, introduces students to experimental and computational aspects of mapping protein interaction networks.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.656. Malariology. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.657. Vector Biology and Disease Ecology Literature. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.658. Advanced Malariology. 2 Credits.**

Presents current controversies and issues in malaria research and control in format of topical lecture and discussion each week. Weekly topics include Epidemiology, Pathogenesis, Mosquitoes, Drugs, Diagnostics, Vaccines, Elimination and Control and Economics of Different Interventions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.663. Biological Response to Biomaterials. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.665. Biological Basis of Aging. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.700. How Do We Know? - Theory, History, and Practice of Science. 3 Credits.**

Examines the nature and philosophical foundations of science using an interdisciplinary approach that emphasizes critical thinking and storytelling; discusses the principles of good scientific practice – rigor, reproducibility and responsibility (the 3R's) - by exploring revolutionary discoveries in the life, public health and natural sciences; elaborates the relationship between theory, practice and serendipity in scientific discovery, and concludes with a discussion of the role of scientists in society.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.701. Anatomy of Scientific Error. 3 Credits.**

Examines sources of error in scientific practice (misconduct or honest mistakes, methodological or systematic errors). Presents real-world examples to analyze errors that cause problems in science across the disciplines. Introduces methodological and mathematical approaches to error reduction. Explores the review- and retraction mechanisms for journal articles and grants as methods of science self-correction. Discusses historic and contemporary cases where errors constitute sources of innovation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.704. Critical Dissection of the Scientific Literature: Taking the Scalpel to Journal Articles. 3 Credits.**

Challenges the classical format of a journal club by preparing students to critically evaluate literature across the science disciplines. Acquaints students with concrete applications of the 3 R's of good scientific practice: rigor, responsibility, and reproducibility. Discusses techniques for effective research literature analysis and evaluation. Emphasizes in-depth understanding of journal article preparation, data evaluation, and the context of conclusions and discussion points within a given research field.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.705. Fundamentals of Quantitative Reasoning in the Biomedical and Health Sciences. 3 Credits.**

Provides a broad introduction to interdisciplinary, scientific reasoning using current problems from science and society. Explores the fundamentals of basic probability and statistics using real-world datasets from a variety of basic science disciplines. Introduces data analysis and visualization in the natural and biomedical sciences. Explains the importance of computational and quantitative methods for hypothesis testing in science, technology, and daily life.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.707. Evidence-Based Teaching in the Biomedical and Health Sciences: Foundations. 3 Credits.**

Acquaints students interested in teaching in biomedical and health professional settings with the foundations of how adults learn as well as the science of learning. Explores practical applications of evidence-based teaching techniques most relevant to the biomedical and public health professions. Discusses a variety of assessment techniques, and their alignment with learning objectives and educational strategies using state of the art course design.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.708. Evidence-Based Teaching in the Biomedical and Health Sciences – Practice. 3 Credits.**

Provides students interested in gaining hands-on teaching experience with opportunities to plan and develop classroom materials on self-selected topics and deliver them in an interdisciplinary classroom setting, mentored by professional educators. Explores evidence-based instructional and assessment strategies to meet identified learner needs in the life and health sciences. Introduces students to a growing community of educational practitioners and scholars across the JHSPH departments and JH divisions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.709. Evidence-Based Mentoring. 3 Credits.**

Examines the literature on evidence-based mentoring. Introduces participants to authentic mentoring situations taken from real-life cases, enriched by practitioner interviews. Discusses responsibilities, reciprocities, and trust-building in mentor-mentee relationships. Emphasizes and nurtures mentorship practices based on self-responsibility, personal growth, active listening, social intelligence, mutual support, goal setting, ethics and equitable leadership, and cultural sensitivity. Focuses on collaborative, reflective practice with the goal of developing one's own, unique mentorship philosophy. Acquaints participants with the benefits of mutual peer support through an inclusive community of practice.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.710. Communication Practice for Health Science Professionals. 3 Credits.**

Introduces students to current trends in presentation design and delivery. Focuses on narrative-oriented thinking to improve information dissemination. Emphasizes clarity and simplicity in communication practice in multiple settings, targeting both lay and interdisciplinary expert audiences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.711. Principles of Neuroimmunology. 3 Credits.**

Briefly covers the role of specific cells of the central nervous system (CNS), immune functions of CNS cells, and trafficking of leukocytes into the CNS, both in health and disease. Subsequently, it discusses various immune cells, e.g. monocytes, T cells, B cells, inflammatory molecules such as cytokines, chemokines, metalloproteinases, and prostaglandins in more detail, focusing on their role in either protecting from neurological disease or in causing CNS disease pathologies, including cognitive dysfunction. Presentations from experts in the field address topics and diseases, such as multiple sclerosis (MS), the blood brain barrier (BBB), HIV and other neurotropic microbes in eliciting neurological disease and emerging neurotropic infections.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.712. Clinical Immunology. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.713. R3 Writing Seminar for Graduate Students. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.714. Data Visualization Practice for Non-Expert Audiences. 1 Credit.**

Introduces students to Gestalt principles of visual perception and pre-attentive processing in service of creating data visualizations in Excel and presenting in PowerPoint to non-expert audiences. Utilizes multiple chart and graph types in Excel to create diverse visualizations for the general public. Focuses on storytelling in design and visualization techniques in service of creating effective data-driven presentations for non-expert audiences. Concepts around data visualization in Excel are transferrable to other platforms (e.g., Tableau).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.715. Unleash Your Writing Superpower: Crafting Clear, Concise and Persuasive Prose. 3 Credits.**

Introduces a system of planning, organization, writing and revision. Emphasizes the importance of defining the message, audience and purpose for any piece of writing. Illuminates the basic elements of good writing. Focuses on clear, concise and persuasive writing. Explores the use of rhetoric and storytelling to maximize a piece of writing's impact. Emphasizes best practices in various forms of writing.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.717. Graduate Immunology: the Immune Response. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.720. Communications Primer for the Public Health Sciences. 1 Credit.**

Acquaints students with the basics of effective oral and written communications in the form of brief exercises. Focuses on clarity and simplicity in presentation practice across disciplines and cultures to emphasize central messages. Introduces students to writing succinctly for advocacy using "compelling writers strategies" for opinion pieces and short speeches.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.730. Civility, Inclusion, and Professionalism in the Workplace. 1 Credit.**

Discusses how to create an inclusive and welcoming workplace atmosphere. Emphasizes culturally sensitive and respectful communication. Familiarizes participants with workplace expectations, acceptable behaviors, and general professional deportment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.800. MPH Capstone Molecular Microbiology and Immunology. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.801. Topics in Immunology I. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.802. Topics in Immunology II. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.810. Field Placement Molecular Microbiology and Immunology. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.811. Field Studies in Ecology and Behavior. 3 - 6 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.812. The Performance of Leadership: Foundations. 2 Credits.**

Explores leader and leadership as one's natural self-expression through the ontological/phenomenological model in which ontology is the study or science of the nature and function of being (as in "being a leader"), and phenomenology is the method of direct access used to study and research the nature and function of being (as in being's impact on "exercising leadership effectively"). Introduces a new conversational domain and transformative learning paradigm for leadership. Encourages discovery through discussion, exercises, and assignments. Prepares students to develop the skills necessary to create positive, effective, and sustainable change.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.815. The Business of Academic Biomedical Research. 1 Credit.**

Addresses topics related to business aspects of academic biomedical research, and focuses specifically on organizational, managerial, political, strategic and economical characteristics of academic biomedical research. Prepares students for a career in academic biomedical research by discussing essential features for success, other than the actual science.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.820. Thesis Research Molecular Microbiology and Immunology. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.821. Research Forum in Molecular Microbiology and Immunology. 1 Credit.**

Prepares students for their future careers by creating a forum in which they can practice the essential skills of scientific communication. Focuses on the oral presentation of research findings resulting from laboratory investigations or literature review to faculty and fellow students. Examines the students' ability to condense and communicate background, hypotheses, experimental design, result presentation, and data analysis in a timed presentation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.822. Seminars in Research in Molecular Microbiology and Immunology. 1 Credit.**

Integrates academic training with current research in microbiology, immunology, and infectious diseases. Presents results of state of the art investigations of microbial diseases of public health significance, emphasizing experimental design and methodology for analysis and discussion by researchers from JHU and other biomedical research institutions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.829. Summer Thesis Research. 12 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.830. Postdoc Research MMI. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.840. SS/R: Mol Microbiology & Imm. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.844. Causation. 3 Credits.**

Acquaints students with the central concept of causation across the biomedical and public health disciplines. Discusses how cause and effect relationships govern today's research and evidence-based decision-making based on the social, physical, political, and economic determinants of health. Compares how fields and sub-disciplines in biomedicine and public health approach causation using research case examples that illustrate major morbidity and mortality-related health problems. Examines strategies to mitigate the limitations of causal inference.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.848. Community-Based Practice Through Civic Engagement. 2 Credits.**

Examines a participatory, online service-learning approach to enable students regardless of geographical location to engage in real-world, community-based, educational projects. Acquaint students to work with Baltimore-based community organizations through critical reflection on issues of equity and professional practice. Emphasizes the application of professional skills to real-world issues. Discusses the limitations and ethical aspects inherent to civic engagement work. Prepares students to develop evaluation plans and materials for the organizations' identified programs. Emphasizes translation of experiences with Baltimore Community-based organizations into local contexts. Focuses on building reciprocal partnerships that reach beyond "consultancy."

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.851. Laboratory Rotations. 4 - 8 Credits.**

All departmental Sc.M. and doctoral students spend one and three terms, respectively, participating in the research activities of departmental faculty's laboratories. Students select appropriate rotations in consultation with their academic advisors and the departmental Graduate Program Committee.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.855. Pandemics of the 20Th Century. 1 Credit.**

Focuses on major pandemics in the human population that have occurred in the 20th century: the 1918 influenza pandemic; the emergence of HIV; the severe acute respiratory distress syndrome (SARS) outbreak of 2002-03; and viral hepatitis (hepatitis B and C viruses). For each pandemic, discussion groups cover a clinical-, public health- and pathogen-oriented reading topic in order to give students a broad understanding of the overall importance of each, as well as to compare and contrast the key aspects of each disease. Focuses on acute and chronic diseases, as well as diseases with different routes of transmission and incubation times between infection and disease. Provides a comprehensive overview of how each pandemic emerged, what key factors dictated spread in the population, and how each pathogen induced disease.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.260.895. MPH Practicum: MMI. 1 - 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.260.935. Lab for MMI 260.635. 3 Credits.**

Laboratory sessions examine living and preserved parasites, gross pathology, histopathology, and vectors. Journal discussions based on research papers and topics of fundamental importance to parasitology will involve student participation in a seminar format.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.601. Seminars in Public Health. 2 Credits.**

Introduces the basic principles of the practice of public health at the local, regional, national, and international levels. Uncovers relevant public health topics through a combination of presentations by experts, discussions, and lectures. Focuses on the core competencies required for the effective assessment and improvement of the health and well-being of communities. Explores the public health approach to describing the health of a population, including the importance of understanding the social and cultural context surrounding every community. Covers a broad spectrum of population-based, prevention-oriented issues relevant to public health in the private and public sectors of both domestic and international communities, including global health promotion, disease prevention, health care delivery systems, environmental issues, and the spectrum of factors influencing the health status of populations and communities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.602. Seminars in Public Health: Advanced Topics. 2 Credits.**

Expands upon the 1st term of Seminars in Public Health to focus on how to effect public health change. Uses a combination of expert presentations and engaging discussions to explore topics including identification of key stakeholders, acknowledging competing governance priorities, and gathering support for population-level interventions. Explores the dissemination of public health messages, understanding key aspects of speaking to a range of stakeholder audiences and utilizing available communication tools. Focuses on examples of successful advocacy for change, and key lessons learned. Encourages students to utilize the public health approach discussed over the two terms to refine their future career goals.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.611. Professional Development Workshops: Effective online Searching. 2 Credits.**

Introduces and explores online sources for finding high-quality, full-text research articles. Also prepares students to use advanced search techniques efficiently within these sources and to manage references using tools such as RefWorks, EndNote, Zotero and Mendeley. Finally, students learn about tools available to use to stay current on topics related to the public health field.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.612. Professional Development: Writing for Results. 2 Credits.**

Professional Development: Writing for Results: Introduces a systematic approach to writing— from planning and organization to revision and completion. Emphasizes the importance of defining the message and understanding the audience and purpose. Examines the basic elements of good writing. Focuses on clarity, concision and style. Explores the use of rhetoric and storytelling to maximize a piece of writing's impact. Emphasizes best practices in various forms of writing, including emails, memos, reports, proposals and op-eds.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.701. Introduction to Epidemiology. 4 Credits.**

Introduces principles and methods of epidemiologic investigation of diseases. Illustrates methods by which studies of the distribution and transmission of diseases in populations (including disease outbreaks and epidemics) can contribute to an understanding of etiologic factors and modes of transmission. Covers various study designs, including randomized trials, case-control and cohort studies, as well as risk estimation and causal inference. Discusses applications of epidemiology to solving public health problems, such as identifying sources and strategies for control of disease outbreaks, applying research findings to policy and practice, and program evaluation. Explores quantitative and analytic methods including life tables, disease surveillance, measures of morbidity and mortality, and measures of diagnostic test accuracy.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.702. Intermediate Epidemiology. 4 Credits.**

Expands knowledge beyond introductory level epidemiologic concepts and methods material using examples from the published literature. Emphasizes interpretation and the ability to critically evaluate issues related to populations/study design, measurement, population comparisons and inference, including modern cohort study designs; advanced nested designs; novel techniques for exposure assessment; interpretation and utility of measures of impact; sources of bias and methods for their prevention; descriptive and analytical goals for observational study inference; the counterfactual model for defining exchangeability, cause, and confounding; and synthesis of inferences from observational studies as compared with randomized clinical trials.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.709. Statistical Concepts in Public Health 1. 3 Credits.**

Provides students with a broad overview of Biostatistical methods and concepts used in the public health sciences. Emphasizes the interpretation and conceptual foundations of statistical estimation and inference. Covers summary measures, measures of association, confidence intervals, p-values, and statistical power.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.710. Statistical Concepts in Public Health 2. 3 Credits.**

Provides a broad overview of biostatistical methods and concepts used in the public health sciences, emphasizing interpretation and concepts rather than calculations or mathematical details. Develops ability to read the scientific literature to critically evaluate study designs and methods of data analysis. Introduces basic concepts of statistical inference, including hypothesis testing, p-values, and confidence intervals. Topics include comparisons of means and proportions; the normal distribution; regression and correlation; confounding; concepts of study design, including randomization, sample size, and power considerations; logistic regression; and an overview of some methods in survival analysis. Draws examples of the use and abuse of statistical methods from the current biomedical literature.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.711. Public Health Statistics I. 4 Credits.**

Provides students with a broad overview of Biostatistical methods and concepts used in the public health sciences. Emphasizes the interpretation and conceptual foundations of statistical estimation and inference. Covers summary measures, measures of association, confidence intervals, p-values, and statistical power. The software package R will be incorporated into the course learning experiences, and students will be able to use R for a portion of each of the four class homework assignments.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.600.712. Public Health Statistics II. 4 Credits.**

Employs a conceptual framework to highlight the similarities and differences between linear, logistic and Cox Proportional Hazards methods, in terms of usage and the interpretations of results from such models. Provides details for these regression approaches in the "simple" scenario, involving relating an outcome to single predictor. Following this overview of simple regression, explores the use of multiple regression models to compare and contrast confounding and effect modification, produce adjusted and stratum-specific estimates, and allow for better prediction of an outcome via the use of multiple predictors. Offers a brief introduction to linear spline models and propensity score methods for adjustment. T

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.731. Spatial Analysis for Public Health. 4 Credits.**

Introduces the field of spatial analysis for public health. Examines concepts through the use of ArcGIS Geographic Information System (GIS) mapping software as a tool for integrating, manipulating, and displaying public health related spatial data. Covers GIS topics including mapping, geocoding, and manipulations related to data structures and topology. Introduces the spatial science paradigm: Spatial Data, GIS, and Spatial Statistics and uses selected case studies to demonstrate concepts along the paradigm. Focuses on using GIS to generate and refine hypotheses about public health related spatial data in preparation for follow up analyses.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.732. Spatial Data Technologies for Mapping. 4 Credits.**

Examines technologies for collecting, obtaining and creating spatial data. Considers technologies including GPS, tablets, tracking devices, cell phones, Google Earth, remote sensing applications, and the Internet. Integrates spatial data from the aforementioned technologies into ArcGIS for spatial analysis. Introduces other GIS related software applications such as ArcGIS Online, QGIS and R. Explores relevant properties of spatial data such as format, metadata, and spatial data accuracy. Covers additional topics and concepts that reinforce the spatial science paradigm: Spatial Data, GIS, and Spatial Statistics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.733. Applied Spatial Statistics. 4 Credits.**

Introduces statistical techniques used to model, analyze, and interpret public health related spatial data. Casts analysis of spatially dependent data into a general framework based on regression methodology. Covers the geostatistical techniques of kriging and variogram analysis, point process methods for spatial event and case control data, and area-level analysis. Focuses on statistical modeling and topics relating to clustering and cluster detection of health related events. Provides an introduction to the public domain statistical software R, to be used for analysis. Reinforces skills and concepts related to the spatial science paradigm: Spatial Data, GIS, and Spatial Statistics.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.734. Spatial Applications. 4 Credits.**

Focuses on further developing and integrating components of the spatial science paradigm: Spatial Data, GIS and Spatial Statistics. Provides an opportunity for students to gain a working knowledge of resources for conducting spatial analysis (e.g., literature, software, and data). Expands students' abilities to design and conduct spatial analysis by providing data for reproduction, and in some cases, extension of analyses from existing studies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.805. Spatial Analysis Journal Club. 2 Credits.**

This course will involve reading and critically evaluating the application and interpretation of spatial statistical methodology in published public health literature. Focus will be on understanding how the epidemiological/public health objectives translate into spatial statistical analyses. Literature reviews will also include outlines detailing spatial statistical methods and analyses that can be applied as an extended and/or alternative analysis.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.840. Special Studies and Research in Spatial Analysis for Public Health. 1 - 10 Credits.**

Prepares students to identify and research central and emerging issues in Spatial Analysis for Public Health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.880. Spatial Analysis integrative Activity. 4 Credits.**

This course will involve the research, analysis and writing of a complete and independent spatial analysis project. Intermediate outlines, hypotheses and objectives produced in previous classes will be finalized. No new material will be covered. The finalized project will follow journal article format including an abstract, and introduction/background, methods, results and conclusion sections. The final project will represent an integrated and synthesized assessment of the spatial science paradigm (Spatial Data, GIS, Spatial Statistics) applied to a relevant public health problem.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.931. Spatial Analysis Lab 1. 2 Credits.**

Expands on GIS concepts and skills previously learned with more hands-on practice with epidemiological applications. Focuses on translating an epidemiological problem or getting into a set of spatial objectives that align with our spatial science paradigm. Surveys and summarizes the literature on spatial applications in public health. Prepares students to design a protocol to help identify a public health problem and accompanying data for their MAS Integrative Activity.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.601.932. Spatial Analysis Lab 2. 2 Credits.**

Applies spatial concepts and skills towards identifying a public health project that can be the focus of the MAS Integrative Activity. Prepares students to translate projects into a set of spatial objectives that align with the spatial science paradigm. Details out the mechanisms and processes needed for collecting, creating and/or obtaining necessary supporting data for the chosen project.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.631. Essentials of Population Health Management. 3 Credits.**

Population health refers to outcomes for a group of individuals. Acquaints students with key concepts related to maintaining the health and wellness of populations. Examines the importance of determinants of health, including medical care, public health, genetics, personal behaviors and lifestyle, and a broad range of social, environmental, and economic factors. Explores this broad view of the determinants of population health and its impact on organizations that may not think of themselves as being in the business of health, such as housing organizations, employers, schools, and others who make decisions and create environments that can help or hinder good health. Population health management (PHM) has emerged as an important strategy for healthcare providers and payers. This course examines the challenges and opportunities to improving health within and across populations, as well as models of value-driven accountable care.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.651. Principles and Applications of Advanced Payment Models in Population Health Management. 3 Credits.**

Presents an overview of major issues related to the design, function, management, regulation, and evaluation of health insurance and managed care plans and implications for population health management. Provides a firm foundation in basic concepts pertaining to private and public sector health insurance/benefit plans. Key topics include population care delivery and payment innovations and management techniques, provider payment models, risk-sharing and other incentives for organizational integration, quality and accountability, cost-containment. Innovative payment models and initiatives supporting health care providers and health care organizations in testing alternative care delivery and payment models are reviewed in the context of three core strategies for improving the US health system: improving the way health care providers are paid, improving the way care is delivered, and increasing the availability of information to guide decision-making.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.671. Collective Impact: Developing and Leading Community Partnerships to Improve Population Health. 3 Credits.**

Identifies the elements necessary to create a culture of collaboration. Following deliberate, evidence-based methods, evaluates components of cultural transformation. Examines strategies related to building infrastructure for collaboration, including application of the Collective Impact Framework.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.681. Applications in Accountable Care: Assessing Quality and Effectiveness of Population Health initiatives. 3 Credits.**

This course examines approaches by health plans, employers, and providers to evaluate population health management initiatives, define and measure quality from a population perspective, and assess the impact of Delivery System Reform and multi-payer alignment on outcomes examine new approaches to outcome and cost measurement. By focusing on the role of value measurement as part of a strategic agenda to transform quality and costs, participants will learn how to enable systematic improvement in the care delivery process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.691. Managing Health Across the Continuum: Contemporary Models and Applications of Care Coordination and Management. 3 Credits.**

Understanding gained from the evolution of care management models has prompted the need for a more comprehensive approach to managing the health of populations. The continuum of care refers to the concept of managing individuals with various levels and intensity of health services from prevention to chronic disease management and end of life care. In order to manage health across the "community" continuum, health management strategies need to align with data collected from Community Health Needs Assessments and other sources to target identified health risks across the continuum. This course incorporates concepts from various models (e.g. Triple Aim) and provides a framework to transform care delivery. It examines the concepts and strategies of care management, analyzes strategies aimed at primary and secondary prevention, and evaluates models and efforts to expand care management accountability into the community.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.701. Applied Concepts and Foundations of High Performance for Population Health. 3 Credits.**

Provides students with an understanding of the core features, characteristics, values, culture, and systems that lead to high performance for population health. Introduces evidence-based approaches such as the Baldrige framework that allow organizations to address performance gaps and develop robust processes and a culture of continuous improvement and excellence to improve the health of populations. Utilizes a case study approach to share best practices within population health that lead to sustained high performance. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.711. Health Behavior: Improving Health Through Health Education/Promotion. 3 Credits.**

Provides students with an overview of the field of health education/health promotion and an opportunity to develop skills in needs assessment and program planning. Reviews the importance of health behavior as a contributor to current public health problems, as well as the role of health education and health promotion in addressing these problems. Learns how to use planning frameworks (PRECEDE/PROCEED and Social Marketing) for conducting needs assessments and designing health promotion programs. Introduces theories of health behavior change and their applications to health behavior change interventions described. Presents examples of health education and health promotion programs from health care and community settings. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.721. Organizing for Public Health: A Systems Approach. 2 Credits.**

Systems thinking, (ST), is a holistic approach to analyzing how components of complex systems interact and adapt. Through systems thinking we can understand how societies organize themselves to achieve collective health goals and how different actors contribute to policy outcomes. Provides students with an understanding of how to apply ST in public health. Trains students on the fundamentals of ST theory and offers an opportunity to apply key methods and approaches to health policy and health questions. Prepares students to ask relevant research questions and apply a ST lens to describe, understand, and anticipate complex behavior. Examines how systems models can be critically appraised and communicated with others so public health policy makers can exercise a greater degree of wisdom and insight. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.731. Population and Consumer Health Informatics. 3 Credits.**

Introduces students to concepts, methods, and issues related to the application of health information technology (HIT) to population health. Emphasizes the population health potential of comprehensive electronic health records (EHRs), personal health records (PHRs), mobile health and telemedicine devices; and, consumer focused internet-based tools. Covers the uses of HIT to define and identify populations and sub-populations of interest, and describe the health status and needs of populations. Emphasizes the use of HIT within both local, regional and federal public health agencies and population-based private health care organizations such as integrated delivery systems and health insurance plans. Lessons are mainly U.S. oriented but are also applicable to other high and middle income countries. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.741. Behavioral Economics and Risk: Value-Based Payment Methods and incentives. 4 Credits.**

Provides students with tools from mainstream and behavioral economics that can be used for managing population health. Demonstrates the value – and limitations – of these approaches for influencing the decision-making of providers and the health behaviors of individuals, with particular attention to value-based payment methods and incentives. Examines the influence of payment design on provider and patient behaviors and applies concepts of behavioral economics to evaluate and propose essential elements of effective payment models and incentives designed to improve health and reduce costs. Draws on articles from the popular press and professional journals that illustrate how these approaches have been applied in experimental and real situations. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.751. The Built Environment: Influences and Challenges to Improving Population Health. 3 Credits.**

Focuses on describing the relations between the urban and suburban built environments in the U.S., with emphasis on land use and transportation infrastructure, access to healthy food, access to green space and recreational opportunities, and exposures to air pollution and noise that accompany these community designs all of which have been shown to have an impact on community health. Explores the use of Health Impact Assessments for assessing the programs and policies that do not traditionally evaluate public health outcomes. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.761. Value-Based Concepts of Socially-Responsible Leadership. 3 Credits.**

Focuses on the essential principles of personal and interpersonal leadership that can be used in and across organizational settings to enhance performance, align and empower relevant stakeholders, and assure multisector organizational engagement. Provides students with opportunities to learn and apply leadership skills in a manner that encourages them to challenge their own beliefs and assumptions about what constitutes leadership. Offers a comprehensive review of contemporary issues and perspectives on leadership including multidisciplinary and systems-oriented approaches as well as classic leadership theory and evolving contemporary beliefs. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.602.880. Population Health Management integrative Activity. 4 Credits.**

Emphasizes the research, analysis, and writing of a complete and independent population health management strategy. Prepares students to draw upon the relevant evidence-based concepts of population health and population health management provided through the curriculum. Covers no new material. Focuses on the finalized project, in the format of a consulting report to senior leadership and will contain an executive summary in addition to, introduction, background, assessment and analysis, findings, and recommendation sections. Challenges students to produce a final project paper that will represent an integrated and synthesized assessment of population health management paradigm of Know-Engage-Manage as applied to a defined community. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.651. Case Studies in Quality and Patient Safety. 2 Credits.**

• Provides an understanding of the approaches undertaken by US and international health care organizations (HCOs) to institute quality and patient safety initiatives in patient care • Explores the extent, relevance and impact of the HCO's structure and strategy on quality and patient safety functions, • Introduces the Baldrige Performance Excellence framework to assess the quality and patient safety functions, • Describes the quality and safety domains using case studies of different HCOs in the US and international settings, • Emphasizes how the internal HCO culture and external HCO environment serve as facilitators or barriers for implementing quality and patient safety initiatives, and • Highlights key HCO roles senior- and middle-level management play both at the institutional and departmental levels to enable effective practical implementation of quality and patient safety initiatives, including resource allocation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.701. Introduction to Quality of Care for Practitioners. 4 Credits.**

Introduces quality issues, including quality assessment and assurance performed by clinicians, health systems, professional societies, and government and other third party organizations who pay for care. Provides a basis to evaluate the effectiveness of quality assessment and assurance activities. Describes different approaches to quality improvement and evaluation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.702. Quality Improvement Tools. 3 Credits.**

Describes, demonstrates and trains in the use of key tools used at leading institutions to improve quality of care and patient safety. These will include the Comprehensive Unit-based Safety Program (CUSP), Plan Do Study Act (PDSA), Translating Research into Practice (TRiP), Human Factors Analysis and Classification System (HFACS), Systems Engineering Initiative for Patient Safety (SEIPS), Lean Six Sigma, Management Discussion & Analysis (MD&A), Safer Matrix, briefings, debriefings and TeamSTEPS®. Presents a framework and strategies for the successful implementation of quality improvement interventions, including specific approaches, methods, structures and resources to promote uptake of the components of an intervention. Learners will gain first hand experience through role playing, individual and group exercises and simulations with each of the techniques.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.711. Science of Patient Safety. 4 Credits.**

Provides an introduction to the science of safety and how it relates to problems with patient safety in health care. Explores the extent, nature and impact of safety problems. Introduces definitions for key concepts including error, adverse event, and harm. Provides a framework for understanding factors that cause, mitigate, and prevent errors and patient harm. Emphasizes the role of both individuals and systems in improving patient safety. Explains the importance of achieving a culture of safety, and the concept of high reliability in health care organizations. Points to roles that involve the practical application of this knowledge.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.721. Leadership for Change and Patient Safety and Quality Improvement. 3 Credits.**

Describes, demonstrates and builds competence in leadership to support organizational quality and safety, and support transformational change. Explores organizational theory and frameworks for leadership and management. Explains the importance of vision, mission, and strategies for organizations. Describes organizational culture and articulates the role of exploring values and creating a shared vision in developing a culture of patient safety. Explains the roles of top managers, technical leaders and unit managers in safety improvement. Demonstrates the use of analytics in leading and management safety and quality improvement. Describes practices to engage leaders and staff to improve patient safety. Introduces topics including conflict management, negotiation, transparency, managing transitions, and innovation in health care. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.731. Measurement and Evaluation in Quality and Safety. 4 Credits.**

Provides an overview of principles of good measurement and introduces applied evaluation methods for real world patient safety and quality improvement efforts that seek to implement evidence-based healthcare. Familiarizes students with important factors that influence success or failure in improvement efforts. Discusses implementation concepts and social and cultural phenomena and how to measure them. Prepares students to conduct initial data gathering, analysis and reporting in the Measurement Lab course.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.751. Infection Prevention in Healthcare Settings. 2 Credits.**

Introduces hospital epidemiology, infection prevention and antimicrobial stewardship as core components of quality care, including standards and indicators, appropriate strategies and indicators to measure hospital-acquired infection in the U.S. and internationally, key methods for preventing the transmission of infection in healthcare facilities and components and benefits of antimicrobial stewardship programs. Provides a basis to plan effective hospital epidemiology, infection prevention and antimicrobial stewardship activities.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.880. Patient Safety and Healthcare Quality integrative Activity. 4 Credits.**

This course will involve the research, analysis and writing of a complete and independent quality and patient safety improvement project. Concepts around the science of quality of medical care, patient safety and measurement will be heavily utilized. No new material will be covered. The finalized project will follow journal article format including an abstract, introduction/background, Literature review, methods, results and conclusion sections. The final project paper will represent an integrated and synthesized assessment of the quality and patient safety paradigm (Q&PS problem—Evidence—Intervention—assessment) applied to a relevant setting within the healthcare delivery process.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.603.931. Measurement Lab in Quality & Safety. 2 Credits.**

Familiarizes students with different data sources and measurement methods to assess health care quality and patient safety. Data sources include both secondary data, including from administrative claims, medical records, and malpractice claims, and primary data including from cohorts, surveys, direct observation and clinical monitoring. Introduces different methods to measure structure, process and outcome, including both quantitative and qualitative data. Describes methods to analyze these data including techniques related to risk adjustment.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.601. Public Health Humanitarian Emergencies. 4 Credits.**

Introduces different types of humanitarian emergencies, humanitarian architecture and provides an overview of sectoral focus areas of humanitarian response. Informs students of the environment in which these emergencies occur and how public health responses in various types of emergencies and contexts differ. The course explores mechanisms of preparedness, management of response to acute and prolonged humanitarian emergencies as well as long-term recovery.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.603. Ethics in Global Health Practice. 2 Credits.**

Equips students to identify and analyze critical ethical issues in global health practice. It provides a forum for discussion of and deliberation about these issues, enabling students to explore a range of possible solutions. Students will practice using central concepts and frameworks of public health ethics to consider systematically the responsibilities of public health professionals in real-world global health cases.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.604. Global Epidemiology Policies and Programs. 3 Credits.**

Presents the history, social and political context, organization, technical content, funding and evaluation of current, major, global initiatives for disease control. Emphasizes programs focused on health problems of the developing world and includes, initiatives for vaccines and immunization, non-communicable diseases, safe motherhood and reproductive health, malaria, Neglected Tropical Diseases, HIV, emerging infectious diseases, TB, tobacco control, nutritional interventions and injury control. Also examines the process of policy formulation and resource allocation to international health and disease control.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.621. Design and Planning of Primary Health Care Projects. 4 Credits.**

Help participants to design a Primary Health Care (PHC) project in a low or middle-income country consider its implementation and evaluation. Selects one of several Request for Proposals (RFA) for a specific situation, conduct a needs assessment, create a problem statement, set goals and objectives, and a theory of change for this proposed project. In the course you will learn how to address community participation, human resources and their training and supervision, project information, approaches to sustainability, logistics of service delivery, project budgeting and financial management, monitoring, and evaluation, and finally close out of a project. Develops a proposal ready for submission to a donor that embodies your PHC project design responsive to the RFA at the conclusion.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.641. Disaster Preparedness. 2 Credits.**

Introduces public health emergency preparedness concepts and procedures that are relevant for natural disasters, technological disasters, terrorism, and emerging threats such as infectious disease outbreaks and pandemics. Describes the roles of various agencies and organizations engaged in emergency preparedness and response and global health security. Describes the interactions across these agencies and organizations that help to ensure public health and safety. Provides an overview of methods to address different types of public health emergencies, including both planning and response perspectives with a focus on recent domestic and international public health emergencies and their consequences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.651. Introduction of Water, Sanitation and Hygiene in Emergencies. 2 Credits.**

Introduces water, sanitation and hygiene (WASH) concepts, technical knowledge and practice in emergencies, including natural disasters and humanitarian emergencies. Addresses the importance of intersectoral collaboration among all sectors with an emphasis on WASH, health and nutrition. Focuses on community and behavioral aspects using examples from recent disasters. Describes the roles and coordination frameworks of all actors including Government, United Nations, international and national non-governmental organizations, and donors. Illustrates monitoring and evaluation various WASH methodologies and practices.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.701. Assessment Approaches in Humanitarian Settings. 3 Credits.**

The goal of the course is to give students an overview of selected field-based methods used in humanitarian emergencies to measure basic health indicators and demographic characteristics of affected populations. Upon completion, students will be able to describe the assessment process in the various phases of humanitarian emergencies. Students will also be able to describe a variety of methods, both qualitative and quantitative, used in field-based assessments of humanitarian emergencies. These include: qualitative assessments, quantitative surveys, population estimation, and site planning.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.715. Health Needs and Service Provision in Humanitarian Emergencies. 3 Credits.**

Addresses the health needs and the provision of health care to populations affected by disasters. Discusses such areas as who provides humanitarian assistance and how it is paid for. Explores strategies for assessing health needs. Considers a variety of topics including the use of information, water and sanitation, reproductive health, food and nutrition, and the provision of health services.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.721. Securing Food Assistance and Nutrition in Humanitarian Emergencies. 2 Credits.**

Introduces food security, including the components of food security, causes for the deterioration of food security in humanitarian emergencies and nutritional deficiencies in humanitarian settings. Provides an overview of food and nutrition standards, nutrition surveys and response programming, including organizations involved in nutrition and food assistance and common programmatic interventions and policies used in response to food crises. Topics covered include food assistance strategies, including in-kind assistance, cash transfers and livelihoods programming, as well as preventative and curative nutrition programs. Focuses on recent and past food and nutrition crises to illustrate important concepts and utilizes a field-based approach to guide discussions and consider applications of concepts to real life humanitarian crises.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.731. Management and Leadership in Humanitarian Health. 2 Credits.**

Examines an array of management and leadership models. Applies management and leadership theories and models to multiple humanitarian contexts. Assesses students' management and leadership styles and how they may affect humanitarian work. Discusses organizational structures and design as well as culture, and how they can affect humanitarian response.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.741. Human Rights in Humanitarian Emergencies. 2 Credits.**

The goal of the course is to give students an introduction to human rights as an analytical framework, a tool, and a source of ethical guidance in humanitarian emergencies. The focus is on how human rights violations may cause, and shape the context of, humanitarian emergencies and how an examination of human rights frameworks and rights-based programs can guide researchers and practitioners to make ethical decisions in their work.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.751. Mental Health and Psychosocial Support in Low-Resource Humanitarian Emergencies. 2 Credits.**

Explores key issues in the development and evaluation of mental health and psychosocial support interventions with populations affected by humanitarian crises, such as natural disasters and armed conflicts. Discusses such questions as: 'how do populations in diverse socio-cultural settings define mental health in the context of humanitarian crises?'; 'How can we build on existing resources and practices that promote mental health in humanitarian crises?'; 'What is known from epidemiological and intervention studies about common mental health problems and effective interventions in humanitarian settings?'. Challenges participants to reflect on translating science to practice, and vice versa. Course methods entail a mix of multimedia presentations and case discussions, focusing on real-world experiences.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.771. Social & Cultural Basis for Community and Primary Health Programs. 3 Credits.**

Introduces students to the social and cultural aspects of global health programming at community, organizational, and policy levels. Utilizes social and behavioral theories to understand change processes and health program implementation with a particular focus on low- and middle-income countries, and underserved populations. Identifies the factors that promote and inhibit community involvement in PHC program development and implementation. Provides a foundation for planning appropriate Primary Health Care (PHC) programs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.604.880. Humanitarian Health integrative Activity. 4 Credits.**

Requires students to synthesize knowledge and skills in humanitarian health on a project topic that demonstrates mastery program competencies. Completes a project on a selected aspect of humanitarian health, using one of a variety of formats including: 1) literature review; 2) program/operational plan; 3) program evaluation; 4) policy analysis; 5) research proposal; or 6) research report using data from a de-identified public data set. Presents results in the form of a final paper and an oral presentation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.605.621. Tobacco Prevention and Control. 3 Credits.**

Introduces tobacco control strategies, policies, and practices to provide an understanding of what is being done to address this public health problem. Provides a historical context in which to understand the consequences of smoking and tobacco use. Provides a framework to understand how tobacco control has evolved and includes practical approaches for tobacco prevention, control, cessation, advocacy, surveillance, and evaluation being implemented in the U.S. and in other countries. Discusses the transnational tobacco companies and their role in undermining actions to control tobacco use. Examines international tobacco control issues and the Framework Convention on Tobacco Control (FCTC) using lectures, case studies, and discussion.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.605.651. Strategic Communication Planning. 4 Credits.**

Focuses on the step-by-step design, implementation, evaluation, and critique of communication programs designed to change behavior relevant to tobacco control. Allows students to create actual health communication campaigns guided by P-Process worksheets. The course will explore the concept of stages applied to tobacco control – strategic defensive, stalemate, strategic offensive and consolidation. At the individual level, the course will sharpen approaches to specific audience segments such as non-smoker unlikely to smoke, non-smoker likely to smoke, occasional smoker and established smoker.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.605.671. Tobacco Regulatory Science. 4 Credits.**

Presents an overview of tobacco product regulation, including cigarettes, smokeless tobacco, shisha, and emerging nicotine delivery systems, such as e-cigarettes. Provides students a working knowledge of tobacco regulatory frameworks, including the Framework Convention of Tobacco Control (Articles 9 and 10), and national policies, including the Family Smoking Prevention and Tobacco Control Act. Students learn about past regulatory successes, including fire-safe cigarettes, flavor and menthol bans, and emerging strategies to limit nicotine content.

Prepares students to search industry patents to understand how product innovation is protected and presented. Examines the tobacco industry's tactics to counter tobacco regulation by critically assessing media stories.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.605.701. Leadership in Tobacco Control. 2 Credits.**

Through lectures, discussion, and exercises, students develop an understanding of the role of the tobacco control leader in policy development and implementation and the essential knowledge and skills this role requires. The course provides a framework for understanding the process of working effectively with and leading others and emphasizes the role of the leader in leading change and developing a vision for the future of tobacco control.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.605.735. Quantitative Methods for Tobacco Control. 4 Credits.**

Quantitative Methods for Tobacco Control teaches students about the quantitative methods that are most often used in tobacco control and tobacco-related research. Topics to be covered will include study designs and methods commonly used in tobacco control research, including methods to assess the burden of tobacco-related disease and evaluate prevention and cessation interventions. Students have the opportunity to apply these new skills in interpreting and presenting quantitative data. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.605.745. Qualitative Methods for Tobacco Control. 3 Credits.**

- Reviews the methods and rationale for incorporating qualitative approaches into tobacco control research.
- Explores the main principles of qualitative research and consider how these principles shape the questions to which qualitative methods can best be applied in tobacco control research.
- Introduces applied research techniques used in tobacco control, including observational studies, focus group discussion, in-depth interviews, and documents analysis.
- Describes techniques to analyze qualitative data collection and disseminate findings.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.605.751. Implementation: Making Change Happen in Tobacco Control. 3 Credits.**

Provides an introduction to implementation science in the context of tobacco control. Identifies the challenges associated with tobacco control policy/program implementation and highlights how implementation science can address them. Discusses commonly used implementation frameworks and emphasizes implementation determinants, strategies, and outcomes that may help guide implementation efforts. Examines key implementation topics in the context of tobacco control including industry interference, enforcement and compliance.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.606.601. Fundamentals in Global Health Practice. 4 Credits.**

Global health requires practitioners to be well versed in understanding health systems, the controlling disease, and improving the health of mothers and children, and vulnerable populations. This course provides an introduction to these issues. Students will have an opportunity to apply these skills by analyzing the health situation in select low and middle-income countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.606.651. Seminars in Health Management Information Systems for Low- and Middle-Income Countries. 1 Credit.**

Covers basic components of health information management systems (HMIS) in low-and middle-income countries (LMICs) including vital registration, routine service data, health surveys and surveillance systems. Offers an overview of the use of HMIS data for decision making in LMICs. Describes processes for collecting data through HMIS in LMICs and considers challenges to the quality of HMIS in LMICs with an eye toward strengthening these systems.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.607.701. Health and Safety Preparation for Global Health Assignments. 1 Credit.**

Whether you've traveled before or not, living and working internationally can be challenging. Learn how best to prepare and make the most of your time. Explores health and wellness concerns for travelers.

Examines key prevention, safety, and travel medicine principles and services to contextualize risks and maintain wellness. Reviews applicable interventions, appropriate vaccines, and personal protection methods to prepare students to respond to expected and unexpected situations. Assists students with personal preparations for travel through country-specific assignments. Challenges students to examine travel health and safety priorities through case studies and discussions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.607.704. Essential Medicines, Commodities and Supplies Needed for Community Level Primary Health Care Interventions. 2 Credits.**

Primary health care programs in low and middle-income countries require essential health commodities be made available at the community level.

Logistic systems need to be developed to ensure that commodities are adequately estimated and delivered. In addition, systems for safely maintaining and monitoring stocks are needed at the community level.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.607.711. Applying Evaluation to More Effectively Reach Communities Through Primary Health Care. 3 Credits.**

Presents fundamental concepts and approaches for evaluating primary health care programs in low- and middle- income countries. Prepares students to analyze real-world programs so that they can make basic decisions resulting in evaluation designs that can be practically applied. Discusses actual experiences of working with implementers to design evaluations that balance methodological rigor with restraints of time and budget. Includes fundamental concepts such as choosing indicators, objectives and appropriate study designs; working with implementers who may not be evaluation experts; and understanding context.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).



**PH.607.721. Urban Primary Health Care in Low and Middle-income Countries. 3 Credits.**

Presents emergent public health issues related to the rapid growth of urban population in low- and middle-income countries. Explores the inadequacy of conventional health services for meeting the needs of the urban poor. Presents selected cases studies as examples of primary health care approaches that effectively addressed the public health consequences of rapid urbanization.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.607.724. Applying Household Surveys to Primary Health Care Programs. 3 Credits.**

Introduces participants to fundamental skills needed to design and manage implementation of household surveys. Presents real world experiences of using the Knowledge, Practice, and Coverage (KPC) tool for household surveys in middle and low-resource settings. Includes constructing a questionnaire from standard KPC modules, indicator selection, sampling plan development, use of parallel sampling, household selection, management and oversight plan, and ethical considerations. Introduces participants to adjustments that can be made so that the survey can be implemented within time and budget constraints.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.607.735. Planning Training and Learning Programs for Community Health Workers. 4 Credits.**

Discusses the skills required for planning, designing, and evaluating training and learning programs for CHWs. Explores how training and learning needs are determined by CHWs, their communities, and national contexts. Provides students with an opportunity to design a training guide based upon an assessment of CHW's learning needs. Demonstrates how to outline a formative, summative, and follow-up evaluation plan for CHW training and learning needs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.607.751. Building Community Capacity for Primary Health Care in Low and Middle-Income Countries. 3 Credits.**

This course, coming near the end of the MAS in Community Based PHC, reinforces an understanding of the origins and recent advances in community-oriented PHC through case studies from low- and middle-income countries. Focuses on problem-solving skills in practical situations by connecting case experiences with the contexts where students are working or will work in the future. Examines strategies and frameworks to assess and enhance community-based approaches to building community capacity. Explores current events and emerging opportunities and challenges for community based PHC.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.607.880. Integrative Activity in Community-Based Primary Health Care. 4 Credits.**

This course will enable the learner to apply skills obtained through the coursework in the MAS in Community-Based Primary Health Care to design or update a community based PHC program in a real life community. Learners will select a community where they have lived or worked and obtain data and reports to analyze the social, cultural, epidemiological and demographic profile of the community and use this information to design strategies that involvement community members in improving their health. Learners will draw on previous course materials and independent desk review to produce a program strategy/ plan document that includes human and material resource development and an evaluation component.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.608.705. Emerging Trends in Pharmaceutical Systems Strengthening. 3 Credits.**

Explores pharmaceuticals management and universal health coverage effective, feasible frameworks and possible metrics to measure capacity and accountability. Considers the big picture in pharmaceutical systems: pharma regulatory harmonization and convergence; country, global, and donor financing policies; and sustainability strategies. Presents and contrasts different countries regulatory systems for medicines. Introduces the importance of pharmaceutical harmonization convergence/reliance. Addresses selected challenges within the pharmaceutical services delivery framework among under-served and within LMIC populations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.608.712. Frameworks and Tools for Health Systems in Global Settings. 3 Credits.**

Explores health systems in global settings, with a focus on low and middle income (LMIC) contexts, and examines approaches to improving the performance of health systems. Focuses on frameworks, tools, skills, and strategies to understand, influence, and evaluate health systems in LMICs. Identifies key institutions, functions, and performance issues for national and local health systems. By using frameworks and tools, students gain experience in systematically analyzing health systems and methods to plan, implement, and evaluate changes in health systems in a variety of settings, including countries in various levels of demographic, epidemiologic and economic transitions. Covers key controversies in health systems, including issues in monitoring health systems performance, the role of the public sector, dealing with unregulated private health markets, linking priority health programs and health systems, raising accountability in the health system, etc.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.608.725. Quality Management Concepts and Tools for Healthcare in Low and Middle income Countries. 4 Credits.**

Presents the concepts, principles, and tools of total quality management methods for health systems in low and middle income economies. Emphasizes integrated health systems management; fostering a genuine team approach in the face of an hierarchical tradition; central importance of community governance; interventions designed based on evidence and standards of practice and in an equitable fashion; introducing a measurement-based approach to problem solving, emphasizing analysis of service delivery process and outcome; and integrating implementation science as an integral component of the management system.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.608.771. Non-Governmental Organizations and the Administration of Global Health Programs. 3 Credits.**

Students will describe the practical challenges and philosophical dilemmas faced by NGOs operating in low- and middle-income countries, and basic concepts in the administration of global health programs. Simulation exercises will allow students to experience and analyze real-world scenarios faced by NGO managers and leaders. The first half of the course will focus on the role of NGOs in the health sector, situating a manager's responsibilities in the broader context of the development and humanitarian environment. The second half will focus on the internal workings of an NGO and the day-to-day challenges of managing strategy, finances, human resources, and accountability.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.608.880. Integrative Activity in Global Health Planning and Management. 4 Credits.**

This course will enable the learner to apply skills obtained through the coursework in the MAS in Global Health Planning and management to identify and address an organizational problem or need in a real life organization that focuses on underserved people in a global health setting. Learners will select an organization where they have worked and obtain data and reports to analyze the environmental, structural, human, technical and policy characteristics of the organization and use this information to design strategies for improving organizational functioning. Learners will draw on previous course materials and independent desk review to produce a program strategy/plan document that includes human and material resource strengthening and an evaluation component.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.600. Principles of Population Change. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.601. Critically Evaluating the Science for Policy and Practice. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.602. Basic Demography and Population Dynamics. 3 Credits.**

Acquaints students with global population trends and patterns; population and health. Enhances technical skills and knowledge regarding use of demographic data for policy analysis development, program strategies and priorities. Examines measures and indicators of nuptiality, fertility, mortality and migration, and migrant health issues. Provides skills in making population estimation and projection.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.603. Demographic Methods for Public Health. 4 Credits.**

Teaches students the basic methods demographers use to describe populations and analyze population change. Introduces the concept of a population, describes the demographic approach to populations, and identifies sources of population data. Covers four sets of methods with broad applicability in public health: 1) techniques for describing population composition, distribution, and growth; 2) methods to compare populations (age-period-cohort approaches and standardization and decomposition of rates); 3) single-decrement life tables; and 4) the cohort-component method for population projection. Covers the basic tools used to study the fundamental population processes of fertility, mortality, and migration.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.604. Life Course Perspectives on Health. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.605. Advanced Demographic Methods in Public Health. 4 Credits.**

Covers six areas regarding population studies including: population composition, fertility, migration, population projections, an introduction to stable populations, and measures of population health. Draws examples from data from both developed and developing countries.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.607. Youth Voice in Public Health. 1 Credit.**

Examines how project-based and surveillance data can be used by policy-makers and program administrators to determine needed public health services for youth. Defines the major types of data available for decision making and gaps in available data systems including the determinants of health inequities. Highlights the need for young people to collect, interpret and define data for decision-making in public health and explores the developmentally appropriate conditions for authentic youth engagement in the process. Features young people and adult leaders from the Center's Youth Advisory Board in leadership roles.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.609. Women's Health: Disparities and Equity Implications. 2 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.610. Substance Use in Women and Families. 3 Credits.**

Introduces students to the complex etiology of substance use in women and the impact of substance use on women and their children and families. Provides an overview of the biopsychosocial risk and protective factors for substance use disorders in women. Explores the etiology, epidemiology, data sources, interventions, and policies for women who use substances and their families, from a life course perspective.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.611. Fundamentals of Program Evaluation. 4 Credits.**

Familiarizes students with different types of program evaluation, including formative research, process evaluation, impact assessment, cost analysis, and theory-based evaluations. Gains practical experience through a series of exercises involving the design of a logic model, selection of indicators and data sources, and the design of an evaluation plan to measure both a process and impact evaluation. Covers experimental, quasi-experimental, and non-experimental study designs, including the strengths and limitations of each.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.612. Applications in Program Monitoring and Evaluation. 4 Credits.**

Builds on 380.611, Fundamentals of Program Evaluation and partially fulfills the MPH practicum requirement. The Fundamentals course prepared students to explain major concepts in program evaluation, perform fundamental tasks in evaluation, and write a basic evaluation plan. This course introduces advanced evaluation methods using concrete illustrations from real world evaluations of public health initiatives. Class sessions will integrate lectures with case studies, experiential learning activities, and reflection. Students will develop enhanced skills in the design of appropriate evaluation plans for specific community-based public health programs, with an emphasis on problem solving to address challenges and promote the usefulness of results. This course includes a service learning component. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.613. Gender-Based Violence Research, Practice and Policy. 2 Credits.**

Explores gender-based violence (GBV), including intimate partner violence, sexual violence, and sex trafficking. Include the following topics as they relate to GBV: epidemiology, theoretical frameworks, structural risks and gender equity, policy, prevention and intervention, perpetrators, populations with unique needs, and health consequences spanning sexual and reproductive health, STI, and HIV. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.616. Child Health Epidemiology. 3 Credits.**

Explores conditions and diseases that compromise children's health from birth (congenital anomalies) through adolescence (violence/bullying). Presents methodological challenges to estimating the burden of disease, including the strengths and weaknesses of standardized outcome measures. Analyzes preventive strategies and treatment modalities considering the social context of disease. Encourages creative thinking about needed research and discusses the public health implication of childhood disease. Focuses on domestic health but presents data on the global burden of childhood conditions/diseases, when available. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.620. A Coalition-based SMART Approach to Public Health Advocacy. 3 Credits.**

Introduces the coalition-based SMART model of advocacy as an approach for improving public health outcomes and changing public health policies. Examines international case studies in which advocacy focused on decision-makers played a central role and includes lectures from seasoned advocates. Using reproductive health examples, presents foundational advocacy frameworks and enables students to work through advocacy strategies that are adaptive to a variety of health areas. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.623. Adolescent Health and Development. 3 Credits.**

Consists of online recorded lectures and panel discussions, readings, LiveTalks, and two written assignments focused on an adolescent public health issue of your choosing. Lectures, readings, and discussion explore a variety of aspects of adolescence health and development. Paper assignments enhance knowledge of public health issues affecting adolescents, as well as evidence-based solutions and interventions. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.624. Maternal and Child Health Legislation and Programs. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.625. Evidence and Opportunities to Mitigate Childhood Adversity and Promote Well-Being. 3 Credits.**

Introduces students to a range of scientific, programmatic and policy evidence related to childhood adversity and well-being. Examines evidence-based interventions and common elements of approaches to both prevent and mitigate the impact of adversity and promote resilience and well-being among children, families and communities. Interventions and programs will focus on communities, public health and health care settings, with a special focus on young children and children with special health care needs. Students evaluate policies, frameworks, interventions and research drawing on conceptual models and evidence related to the successful implementation and scaling of public health and services programs and policies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.628. Public Health Perspectives On Abortion. 3 Credits.**

This course provides students with an overview of abortion practice in the United States and worldwide from a public health perspective. Lectures and readings enable students to critically evaluate current research, public health practice, and policy related to abortion, and to speak knowledgeably and accurately on these issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.633. Promoting Equity for Adolescents and Emerging Adults: Problem-Solving Seminar. 3 Credits.**

Introduces the scope, unequal distribution, and negative impacts of disconnection from school and the workforce among young people in the United States ("opportunity youth"). Discusses the importance of different sectors and stakeholders for promoting success and eliminating inequalities in outcomes among adolescents and young adults. Highlights the importance of involving young people in all phases of research and policy making. Describes communication strategies for addressing diverse stakeholders, including individuals at all levels of health literacy, for purposes of influencing behavior and policies for adolescents and young adults. Summarizes promising strategies for preventing youth disconnection and re-engaging young people who have become disconnected from school and the workforce.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.640. Children in Crisis: An Asset-Based Approach to Working With Vulnerable Youth. 3 Credits.**

Uses experienced practitioners, community leaders, and community members to expose students to a wide range of domestic youth health, welfare issues and interventions through an asset lens. Using an asset-based approach, the class highlights domestic youth challenges (e.g., disconnection, homelessness, LGBTQ status and justice involvement) and aims to expose students to thoughts, voices, and perspectives from a variety of different backgrounds. Class sessions feature ample discussion, expert lecturers, youth voices, and an examination of existing programs in and out of Baltimore City. Some students are concurrently enrolled in a practicum component of the course. Classroom discussion will focus on the experiences of practitioners and students and the issues they see youth in the community facing. Overall both practicum and non-practicum students alike will have the chance to read, reflect and discuss programs and interventions that positively impact youth domestically. Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.642. Child Health and Development. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.650. Demographic Methods for Measuring Health and Longevity. 4 Credits.**

Covers demographic methods commonly used to understand how long people live and how this varies over time, across space, and between population groups. Explores the construction of life tables to calculate life expectancy, and understand its determinants. Introduces multi-state methods to calculate what proportion of their life individuals spend in good health, or affected by various illnesses and limitations. Emphasizes the practical application of these methods to the analysis of several large demographic datasets.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.651. Methods and Measures in Population Studies. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.655. Social and Economic Aspects of Human Fertility. 3 Credits.**

Studying fertility is integral to population studies and understanding population changes and dynamics (along with mortality and migration). Offers an essential background for those studying women's, infant and perinatal health. Covers social and economic theories of fertility change, explores fertility transitions across geographic contexts, examines major distal and intermediate determinants of fertility, and considers policies affecting fertility globally. Based on a mix of lectures, readings, and interactive discussion among students and faculty.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.661. Clinical Aspects of Maternal and Newborn Health. 3 Credits.**

Presents morbidity and mortality in the mother, fetus, and newborn and the health care practices utilized to prevent, diagnose, and treat morbidities. Guest speakers in clinical care present lectures from the clinical perspective; course instructors present the public health perspective.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.662. Critiquing the Research Literature in Maternal, Neonatal, and Reproductive Health. 4 Credits.**

Discusses the sources of data and analytic and conceptual basis for methodological approaches to the study of maternal, neonatal, and reproductive health. Evaluates selected research articles in maternal, neonatal, and reproductive health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.663. Gender-Based Violence Research, Practice and Policy: Issues and Current Controversies. 3 Credits.**

Explores gender-based violence (GBV), including intimate partner violence, sexual violence, and sex trafficking. Topics include the following as they relate to GBV: epidemiology, theoretical frameworks, structural risks and gender equity, policy, prevention and intervention, perpetrators, populations with unique needs, and health consequences spanning sexual and reproductive health, STI, and HIV. Prepares students to undertake meaningful scholarly, community-based, programmatic or policy work in the field. Emphasizes active learning and facilitates application of knowledge and skills gained to real world issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.664. Reproductive and Perinatal Epidemiology. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.665. Family Planning Policies and Programs. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.666. Women's Health. 3 Credits.**

Provides an overview of leading topics in women's health with an emphasis on the US and other developed settings. Examines leading sources of morbidity and mortality through age-gender-race/ethnicity-disaggregated data. For each topic, we examine historical context, risk factors, prevention, and treatment. Considers health from biological, lifecourse, and social determinants perspectives, including via frameworks of women's health disparities and intersectionality that address inequities in interpersonal, social, political and economic power. Major topics include: non-communicable diseases (cardiovascular disease, cancer), immunology, infectious disease, preventive health, aging, mental health, and violence.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.667. Women's Health Policy. 3 Credits.**

Provides an overview of selected, timely policy issues related to women's health in both developed and developing countries. It covers the history of selected policy concerns, frameworks for viewing these concerns, and specific policies related to women's health issues such as family planning, gender-based violence, welfare reform, employment and workplace conditions, and disabilities. Topics may change yearly depending on the primacy of the topic or issue.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.668. International Perspectives on Women, Gender, and Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.670. Religion, Spirituality and Public Health. 3 Credits.**

Presents a broad overview of the ways in which religion and spirituality affect health, both generally and with a particular focus on fertility, family planning and adolescent health. Investigates the outreach of religious organizations tackling public health issues in domestic urban settings and internationally. Examines prescriptions for how faith-based organizations can be more integrated into governmental and NGO public health campaigns.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.697. Health and Wellbeing of the Urban Poor: Labor Markets, Safety Nets, and the Criminal Justice System. 3 Credits.**

Examines the causes and consequences of U.S. urban poverty, its implications for health and wellbeing, and explores strategies for addressing it. Covers the major theoretical explanations scholars have advanced to explain the persistence of urban poverty in the U.S. including labor markets, residential segregation, welfare policy, family structure, and the criminal justice system. Discusses consequences, particularly related to health and wellbeing of the urban poor. Within each topic area, introduces students to a range of interventions aimed at alleviating urban poverty.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.701. Accessing Demographic and Population Health Data. 2 Credits.**

Provides students with the skills and tools needed to access and use publicly available datasets that are commonly used in demographic and population health research. Introduces online databases and provides instruction on how to use online data analysis platforms to generate commonly used population health indicators quickly and easily. Features two online databases: 1) CDC Wonder: an online database published by CDC that includes data on all deaths and births in the United States; and 2) IPUMS: an online database platform that contains data from over 750 censuses and surveys from around the world.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.703. Prospective Birth Cohort Studies and Developmental Origins of Health and Disease. 2 Credits.**

Introduces prospective birth cohort studies related to the developmental origins of health and disease. Provides overview of major US and international birth cohort studies. Compares advantages and disadvantages of their different study designs. Reviews specific considerations in conducting such studies, including field data and bio-sample collection and long-term follow-up. Explains importance of collecting sensitive and specific biomarkers. Emphasizes link between study design and interpretation of study data and thus to understanding the developmental origins of health and disease.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.706. Using Data to Inform Family Planning Policies. 2 Credits.**

Introduces the strategic development, organization, and management of nationally-organized, voluntary, family planning programs in low-income countries. Covers the rationales that are advanced for national family planning policies and programs; using data to identify possible policy interventions; and the role of evidence, ethics, and stakeholder priorities in the development of family planning policies and programs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.707. Advocating for Global Reproductive Health. 2 Credits.**

Introduces students to policy analysis and advocacy in reproductive health, with a focus on international family planning. Analyzes policymaking processes and ways to influence these processes through evidence-based advocacy within foreign and domestic political and financial environments. Provides first-hand knowledge of effective advocacy efforts and tools. Emphasizes practical application of the Advance Family Planning SMART approach to advocacy, which centers on advocacy objectives that are Specific, Measurable, Achievable, Relevant, and Time-bound (SMART).

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.708. Strategic Leadership Principles and Tools for Health System Transformation in PFRH. 2 Credits.**

Introduces principles of strategic leadership in the context of facilitating health systems change in low resource settings. Introduces mental models and the household production of health, systems thinking and strategic leverage, personal mastery and commitment to change, action-learning principles and practice, shared vision and creative tension, the theory of constraints and root cause analysis, strategy design and key moves, implementation with accountability, and linking data to action. Develops leadership skills via interactive workbook exercises, small group work and class presentations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.709. Introduction to Program Evaluation in PFRH. 1 Credit.**

Familiarizes students with the basic concepts of program evaluation. Teaches skills in writing goals and SMART objectives, as well as developing logic models and creating a plan for a process evaluation.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.710. Public Health Perspectives on Abortion Policy. 1 Credit.**

Provides students with an overview of abortion practice in the United States and worldwide from a public health perspective. Enables students to critically evaluate current research, public health practice, and policy related to abortion, and to speak knowledgeably and accurately on these issues.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.711. Issues in Survey Research Design. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.712. Methods in Analysis of Large Population Surveys. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.720. Masculinity, Sexual Behavior & Health: Adolescence & Beyond. 3 Credits.**

Focuses on male health with particular attention to sexual and reproductive health and healthcare use among adolescents, extending throughout the lifespan. Assesses the principal health concerns for sexual and reproductive health, the associated population-based risk factors, and the relative impact of each risk factor. Examines the meaning of masculinity and the impact of masculinity beliefs on males' health and healthcare use. Evaluates strategies to promote population health including the policies and programs or health care delivery that address health concerns and behavior for male sexual and reproductive health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.721. Schools and Health. 3 Credits.**

Highlights K-12 schools as public health contexts in 3 ways: as contexts for shaping youth development and behavioral outcomes, for the delivery of health information and services, and for research. Lays a foundation for the connections between health and education by discussing the reciprocal relationship between a young person's health and their educational outcomes including the role that school health can play in addressing disparities in education and health. Explores school context using the ten-component Whole School, Whole Community, Whole Child (WSCC) framework developed by the CDC and the Association for Supervision and Curriculum Development. Using the framework, explores established standards and practices for schools, opportunities for intervention in schools, and challenges to implementation, evaluation, and research in schools. Dives into the debates around school openings and COVID mitigation measures.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.725. The Social Context of Adolescent Health and Development. 3 Credits.**

Recognizes the social ecological model, social determinants of health tenants and the life course perspective as tools to understanding adolescent health. Explores the influences of contexts, such as neighborhoods, education and families, on adolescent health and well-being. Examines empirical work to consider the role of context in prevention and interventions aimed at adolescents.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.740. Nutrition Programs, Policy and Politics in the United States: the Impact on Maternal, Child and Family Health. 3 Credits.**

Addresses nutrition programs, policies, and politics in the US, and their impact on economically disadvantaged mothers, children, and families. Defines and explores food insecurity. Examines nutrition programs directed at high-risk populations. Reviews the administrative and political considerations of nutrition programs and discusses the nutritional impact on health, growth and development. Discusses corporate and commercial interests, their role in shaping the political discussion and their impact on food and nutrition policy.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.742. Family - Health, Public Health and Policy. 3 Credits.**

Focuses on understanding how programs and policies are likely to affect the capacities of families to develop and maintain health, and on teaching students to apply analytic methods to evaluate the relative value and impact of various programs or policies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.744. Nutrition and Growth in Maternal and Child Health. 3 Credits.**

Examines the impact of nutritional status on growth, development, intellectual performance, health status, and the onset and progress of chronic diseases. Considers ethnic, cultural, and environmental issues related to food intake as well as the relationship between physical activity and health. Examines the origin and basis for the identification and assessment of community need using the national nutrition monitoring system. Reviews federally funded nutrition program outcomes and their policy implication.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.747. International Adolescent Health. 3 Credits.**

Focuses on the major health issues that affect adolescents and the effective interventions/policies to address these issues in the developing world. Explores the meaning and health of adolescence from various contexts around the world through lectures, readings, video clips, panels, and discussions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.749. Adolescent Sexual and Reproductive Health. 3 Credits.**

Explores key topics in adolescent sexual and reproductive health (ASRH). Includes topics ranging from the impact of adolescent physical, sexual, and social development on sexual risk-taking behavior to policy and ethical issues influencing adolescent sexual health outcomes. Discusses important clinical topics such as contraception, teen pregnancy, abortion, and sexually transmitted infections using a public health framework from a domestic and global perspective. Explores the role of key social determinants of health and their intersectional functionality in shaping the context through which sexual and reproductive health is operationalized in an effort to develop effective public health solutions to problems facing vulnerable youth.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.750. Migration and Health: Concepts, Rates, and Relationships. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.755. Population Dynamics and Public Health. 2 Credits.**

Provides an introduction to population dynamics, the processes by which populations change, as a foundation for understanding population health. Students will learn how births, deaths, and migrations determine the size, growth, age-sex structure, and geographic location of populations. Students will review the proximate and indirect causes of population change and assess their socioeconomic, environmental, and public health consequences. Students will calculate and interpret basic measures used to describe populations and measure population dynamics, and learn the main sources of population data and their strengths and limitations.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.756. Poverty, Economic Development, and Health. 4 Credits.**

Introduces students to leading theories in economic development and in the macroeconomic determinants of the health of populations, communities, and individuals. Reviews both historical and current cases to answer the following questions: What is economic development? How does economic development occur? Which aspects of development improve and which aspects are detrimental to human health? Can policymakers plot more "hygienic" plans for economic development? Do investments in health and family planning cause economies to prosper?

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.760. Clinical Aspects of Reproductive Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.761. Sexually Transmitted Infections in Public Health Practice. 4 Credits.**

Considers features of sexually transmitted diseases relevant to their control, reviewing the natural history of the infections and laboratory diagnosis. Emphasizes public health practice control measures, including policy, behavior intervention, and medical screening/treatment intervention of sexually transmitted diseases.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.762. HIV Infection in Women, Children, and Adolescents. 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.765. Preventing Infant Mortality and Promoting the Health of Women, Infants and Children. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.767. Couples and Reproductive Health. 3 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.768. Selected Topics in Women's Health and Women's Health Policy. 4 Credits.**

Discusses major health concerns among women in developed and developing countries within a life course framework that integrates biological determinants of health and the social, cultural and economic contexts of women's lives. Examines a spectrum of current health and policy concerns, and may include family planning, preventive services for women, chronic disease, migration, gender-based violence, and disability. Also includes historical perspectives and a gender justice framework for viewing health policies.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.771. Understanding and Changing International Reproductive Health Policy. 3 Credits.**

Introduces students to policy analysis and issues in reproductive health, with a focus on international family planning. Teaches how to analyze policymaking processes and ways to influence these processes through evidence-based advocacy. Uses case studies and other readings to analyze policies within the current political and foreign and domestic financial environment. Provides first-hand knowledge of effective advocacy efforts and tools. Focuses on Family Planning 2030 (FP2030), the international partnership launched in 2012. Presents an "insider's" perspective reflecting their experience and draws from the advocacy approach of the Advance Family Planning (AFP) multi-country initiative. Includes practical application of the SMART Advocacy approach as a core part of the course.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.777. Global Population Change and Local Public Health Needs: Problem Solving Seminar. 3 Credits.**

Describes global and national population trends, examines their causes, and considers their consequences. Explains why population change in a local area may differ from changes observed in the nation as a whole. Reviews major sources of population data and key measurement concepts. In a series of case studies, analyzes data to describe population changes in both domestic and international settings. Students use these data to develop a strategic plan for addressing the changing public health needs of a local population and to design a system-level intervention for meeting those needs.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.800. MPH Capstone Population, Family and Reproductive Health. 2 Credits.**

The MPH Capstone is an opportunity for students to work on public health practice projects that are of particular interest to them. The goal is for students to apply the skills and competencies they have acquired to a public health problem that simulates a professional practice experience.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.810. Field Placement in Population, Family and Reproductive Health. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.816. SS/R: Population, Family and Reproductive Health Master's Seminar. 1 Credit.**

Prepares students to identify and research the central issues in Population, Family and Reproductive Health.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.817. PFRH First Year Doctoral Seminar Part 1. 1 Credit.**

Facilitates students' transitions into the PFRH doctoral program. Reviews program requirements and school and departmental resources. Hones skills students need for success in a doctoral program. Develops students' abilities to formulate scientific questions and understandings of the scientific process. Guides students as they focus their areas of research interest.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.820. Thesis Research PFRH. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.821. PFRH Proposal Writing Seminar. 2 Credits.**

Focuses on development of dissertation project, writing dissertation proposal, and preparation for Department and Schoolwide Preliminary Exams. Explains dissertation expectations and requirements. Reviews dissertation proposal structure and components. Discusses evaluation of existing research, identification of gaps and topics, and design of research projects. Emphasizes clear communication of ideas. Provides opportunity to present work-in-progress and receive peer feedback. Introduces proposal assessment through review of peers' work. Provides forum to practice Preliminary Exam presentation including answering questions.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.822. PFRH First Year Doctoral Seminar Part 2. 1 Credit.**

Examines and demystifies the research process using case examples from existing research conducted by faculty members within the department. Introduces departmental and school-wide resources for conducting effective literature searches, developing sound research designs, funding research, addressing IRB concerns, and disseminating research findings. Encourages the use of critical and creative thinking skills to develop personal research agendas.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.823. Research Seminar in Population, Family and Reproductive Health I. 2 Credits.**

Provides experience in critical evaluation of historical and contemporary research pertinent to Population, Family and Reproductive Health. Addresses a range of topics, drawing on research from multiple academic disciplines. Critique and discusses conceptual frameworks and empirical articles and examine the methodological and disciplinary perspectives of the research or articles.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.824. Research Seminar in Population, Family and Reproductive Health II. 2 Credits.**

Provides experience in critical evaluation of historical and contemporary research pertinent to the focal areas within Population, Family and Reproductive Health. Addresses a range of topics, drawing on research from multiple academic disciplines. Students and faculty critique and discuss conceptual frameworks and empirical articles and examine their methodological and disciplinary perspectives of the research or articles related to the focal areas.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.825. DrPH Concentration Seminar in Women's and Reproductive Health. 1 Credit.**

Provides opportunities to discuss issues and concepts related to Women's and Reproductive Health. Discusses evaluation of existing research, identification of gaps and topics, and design of research projects. Facilitates preparation for the comprehensive written exams, the design and conduct of practicum projects, preliminary oral exams, dissertation projects, and the final oral exam. Provides opportunities to present work-in-progress on overall projects and on specific research methodologies and to give and receive peer feedback. Emphasizes clear communication of ideas.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.830. Postdoctoral Research in Population, Family and Reproductive Health. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.840. Special Studies in PFRH. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.850. PFRH Master's Essay. 3 - 6 Credits.**

This is a required course for all master's students in PFRH. The goal of the essay is for students to apply the skills and knowledge acquired during their academic program to a public health problem or concern of interest to them.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.870. PFRH Special Studies in Public Health Practice. 1 - 22 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.880. Lessons in Leadership: Applications for Population, Family and Reproductive Health I. 1 Credit.**

Focuses on instruments and tools that assess leadership styles, strengths and weaknesses. Explores communication strategies used by effective leaders and interview public health leaders to identify how they approach their work. Opportunity to read studies in leadership.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.881. Lessons in Leadership: Applications for Population, Family and Reproductive Health II. 1 Credit.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.882. Lessons in Leadership: Applications for Population, Family and Reproductive Health III. 1 Credit.**

Focuses on instruments and tools that assess leadership styles, strengths and weaknesses. Explores communication strategies used by effective leaders and interview public health leaders to identify how they approach their work. Opportunity to read studies in leadership.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.883. Lessons in Leadership: Applications for Population, Family and Reproductive Health. 3 Credits.**

Focuses on instruments and tools that assess leadership styles, strengths and weaknesses. Explores communication strategies used by effective leaders and interview public health leaders to identify how they approach their work. Opportunity to read studies in leadership.

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.895. MPH Practicum: PFRH. 1 - 4 Credits.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

**PH.380.955. PFRH Lab for 380.755.**

Course location and modality is found on the JHSPH website (<https://www.jhsph.edu/courses/>).

## Bloomberg School Leadership

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Michael Ward, MEd  
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Elizabeth Stuart, PhD  
Department of Biostatistics

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Department of Environmental Health and Engineering

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Department of Epidemiology

Rajiv Rimal, PhD, MA  
Department of Health, Behavior and Society

Keshia M. Pollack Porter, PhD, MPH  
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Department of International Health (Interim Chair)

Pamela Collins, MD, MPH  
Department of Mental Health (Interim Chair)

Cynthia S. Minkovitz, MD, MPP  
Department of Population, Family and Reproductive Health

Arturo Casadevall, MD, PhD  
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Doctor of Public Health Program

Marie Diener-West, PhD  
Master of Public Health Degree Program