

Population Health (POPH)

Courses

POPH 001 Introduction to Population and Public Health 4 Credits

Despite significant advances in medicine and public health, inequities in health persist. Understanding health on a population level is an approach that seeks to improve the health of the whole population, unravel variations in health outcomes, and to identify effective strategies for reducing or eliminating inequities. The purpose of this course is to provide students with an understanding of: 1) how population and public health are defined and measured; and 2) the determinants of population health.

POPH 002 Population Health Research Methods & Application 4 Credits

This course provides students with fundamental principles of research methods relevant to population health and the translation of research into practice. Through this course, we will review a range of study designs, including experimental and observational studies, mixed methods, and comparative qualitative case study methods. In addition, students will obtain the skills needed to translate research into practice for multiple stakeholder groups.

Prerequisites: POPH 001

POPH 003 Justice, Equity, and Ethics in Population Health 3 Credits

The goal is to examine the historical and emerging issues in population health ethics. The course will introduce both the historical contexts and contemporary issues in population health dilemmas. Topics of interest include: 1) resource distribution and social justice; 2) self-sufficiency and paternalism; 3) health promotion & disease prevention; 4) patients' right to privacy; 5) research integrity; and 6) newly emerging issues. Students will debate, research, and propose solutions and intervention strategies through group discussions, role play, and presentations.

POPH 007 (BSTA 007) Frontiers of AI in Health 3 Credits

This course presents a broad contemporary survey of the actual and potential contributions of Artificial Intelligence and Health Data Science in addressing public health challenges. By reading recent articles that describe case studies of AI in health and healthcare and by engaging in discussions both in class and online, students will come to appreciate the many unsolved problems in public health and how one may evaluate the potential benefits and risks of exciting new data-centric solutions made possible by AI.

POPH 010 Seminar: Population Health 1 Credit

This one-credit special topics seminar will focus on the development of Population Health relevant skills in the areas of communication, professional development, mentorship and leadership, proposal development, policy and advocacy and community engagement and coalitions.

Repeat Status: Course may be repeated.

POPH 012 Seminar: Ethics in Population Health 1 Credit

This seminar will introduce students to ethical concepts and critical issues pertaining to the ethical inclusion of human subjects in population health research. This course will provide opportunities for writing about, discussion of, and case-based learning around current and historical perspectives on population health research. During this course, students will complete the necessary training for conducting human subjects research at Lehigh University.

POPH 101 History of Population Health 3 Credits

This course introduces students to the development of population health as a convergent science. Students will learn about the evolution of population health interests, normative beliefs in service delivery, and policy at the international and domestic level. The principles, ethical values and services enforced by law will be learned. Students will explore the initiatives, collectively achieved among various sectors, addressing the determinants of health. We conclude by addressing future population health challenges, such as the environment, non-communicable diseases, and inequalities.

POPH 104 Careers in Population Health 3 Credits

In this interdisciplinary seminar, students will be exposed to individuals working in various disciplines with the field of population health in academic positions, government and non-governmental organizations, community-based organizations, medical establishments, industry, and more. Through the eyes of these professionals, students will learn of career opportunities in these growing fields of study and will begin to chart their own career paths.

POPH 105 Introduction to Maternal and Child Health 3 Credits

The course introduces the student to the Maternal and Child Health field. Students will examine the multi-dimensional determinants of maternal and child health issues using a Life Course approach. Students will also explore the roles of research, programs, policy, and advocacy in the reduction of maternal and child health disparities.

POPH 106 Global Environment and Human Welfare 3 Credits

This course investigates the present understanding of multiple pollution agents and their effects on human health and well-being. The students will examine the history, the emergence, the known risks from exposure to specific pollutants through multiple media (e.g. air, water, food) with a particular focus on air pollution. Through readings, discussions, and a project, students are expected to cultivate a critical understanding of the risks posed by environmental pollutants on human health and identify knowledge gaps.

POPH 107 Sleep and Physical Activity in Population Health 3 Credits

This course explores how physical activity (PA) and sleep impact population health. Students will evaluate the scientific literature on the role of PA and sleep in preventing chronic diseases, promoting mental health, and enhancing overall well-being. Through experiential research, students will also learn how to measure PA and sleep information. The course will examine how environmental, social, cultural, and policy-related factors influence PA and sleep behaviors in diverse populations.

Prerequisites: CGH 001

POPH 120 (BSTA 120, CGH 120, EPI 120) Independent Study or Research in Population Health 1-4 Credits

This course can be directed readings or research in Population Health or an experiential learning experience that puts students' understanding of Population Health into practice. Department permission required.

Repeat Status: Course may be repeated.

POPH 126 Population Health and the Media 3 Credits

This course explores the importance of the relationship that health organizations have with the media and the powerful role it can play in what a population deems important in public health. We will examine how mass media campaigns have been used to change behaviors: tobacco, alcohol and drug use; lowering risk factors for heart disease and diabetes; and even road safety to produce life-saving changes in large populations as well as to manage national and worldwide health crises.

POPH 130 Internship in Population Health 1-4 Credits

In this introductory course, students will engage in supervised work in Population Health. Potential internship sites include government agencies, non profit organizations and the private sector. A written report is required and preceptor evaluation will be required. Department permission required.

Repeat Status: Course may be repeated.

POPH 150 Special Topics in Population Health 3-4 Credits

In this course, students will engage in an intensive exploration of a topic of special interest that is not covered in other courses. Topics addressed will be at an intermediate level.

Repeat Status: Course may be repeated.

POPH 160 Population Health Study Abroad 1-3 Credits

Population health focused course taken during an abroad experience.

Repeat Status: Course may be repeated.

POPH 195 1-4 Credits

Repeat Status: Course may be repeated.

POPH 300 Apprentice Teaching 1-4 Credits**Repeat Status:** Course may be repeated.**POPH 301 Population Health Capstone (Proposal) 1-3 Credits**

In this writing intensive course, students will work closely with their academic advisor and site preceptor to develop a detailed proposal for a Population Health project. Department permission required.

Students must complete 3 credits of Capstone Proposal.

Repeat Status: Course may be repeated.**Attribute/Distribution:** WRIT**POPH 302 Population Health Capstone (Execution) 1-3 Credits**

In this course, students will implement and evaluate the Population Health project proposed in POPH 301. A final capstone report, oral presentation, and preceptor evaluation will be required. Department permission required. Students must complete 3 credits of Capstone Execution.

Repeat Status: Course may be repeated.**Prerequisites:** POPH 301**POPH 305 Honors Population Health Capstone (Proposal) 1-4 Credits**

In this writing intensive course, students will work closely with their academic advisor and site preceptor to develop a detailed proposal for a Population Health project. This course includes a weekly honors seminar. To qualify for honors, students must have a 3.5 major GPA and department permission. A total of 4 credits is required to complete the Capstone Proposal.

Repeat Status: Course may be repeated.**POPH 306 Honors Population Health Capstone (Execution) 1-4 Credits**

In this course, students will implement and evaluate the Population Health project proposed in POPH 305. A final capstone report, oral presentation, and preceptor evaluation will be required. This course includes a weekly honors seminar. To qualify for honors, students must have a 3.5 major GPA and department permission. A total of 4 credits is required to complete the Capstone Execution.

Repeat Status: Course may be repeated.**Prerequisites:** POPH 305**Can be taken Concurrently:** POPH 305**POPH 317 Urban Greenspace and Health 3 Credits**

This class will investigate the myriad and complex ways in which urban greenspaces impact the health of human populations. This course will present biological/psychosocial theories and mechanisms as well as topical and methodological issues underlying relationships between greenspace and health. The class will also analyze contemporary urban greening interventions. Students will complete experiential learning activities to collect and analyze data describing health effects of urban greenspaces. Additional topics include chronic diseases, mental health, stress, climate change adaptation, urban heat islands.

Prerequisites: EPI 104**POPH 318 Advanced Technologies for Health 3 Credits**

This course introduces different technologies related to healthcare, health education, and health promotion. We will explore how the technologies, including computer simulations, serious games, immersive environments (VR/AR), virtual agents, dashboards, eye tracking, emotion detection, and wearable sensors, can be used for health education and promotion. We also discuss the theoretical models and theories guiding the design/use of those technologies.

Prerequisites: POPH 001 or CGH 001**POPH 319 Population Health Bioethics 3 Credits**

This course will focus on macro-level bioethical dilemmas that arise outside the clinic, at the level of the population, the state, the country, or the globe. Population health policies raise questions about autonomy, individual rights, coercion, justice, community, the meaning of the common good, norms of research, and multi-cultural values. The course will explore a range of questions, including: how to conceptualize, measure and evaluate health inequalities?; how should we set spending priorities?; is paternalism acceptable?

Prerequisites: POPH 001 or CGH 001**POPH 320 (BSTA 320, CGH 320, EPI 320) Independent Study or Research in Population Health 1-4 Credits**

This course can be directed readings or research in Population Health or experiential learning that puts the student's understanding of Population Health into practice. Department permission required.

Repeat Status: Course may be repeated.**POPH 330 Internship in Population Health 1-4 Credits**

In this advanced course, students will engage in supervised work in Population Health. Potential internship sites include government agencies, non-profit organizations, and the private sector. A written report is required and preceptor evaluation will be required. Department permission required.

Repeat Status: Course may be repeated.**POPH 350 Special Topics in Population Health 3-4 Credits**

In this course, students will engage in an intensive exploration of a topic of special interest that is not covered in other courses. Topics addressed will be at an advanced level.

Repeat Status: Course may be repeated.**POPH 360 Population Health Study Abroad 1-3 Credits**

Upper-level population health focused course taken during an abroad experience.

Repeat Status: Course may be repeated.**POPH 401 Population Health Concepts and Methods 3 Credits**

In this introductory graduate course, students will apply foundational concepts related to the definition and measurement of health and disease as well as the multiple determinants of population health (from cell to society). Students will then apply the fundamental principles of quantitative and qualitative research methodologies in order to integrate the multiple determinants of health in population health research and practice. This course will also explore the translation of research findings to programmatic intervention and policy development.

POPH 403 Biological Basis of Population Health: Concepts and Methods 3 Credits

In this graduate course, students will investigate the biological mechanisms underlying population health outcomes as well as the roles of individual and group susceptibility to disease. Students will also explore and apply the emerging and traditional tools used in genomic, molecular, immunological, and environmental fields. Students will then integrate the biological and societal determinants of health in order to propose programmatic and policy interventions that promote health and prevent disease.

POPH 405 Qualitative Research Methods 3 Credits

This is a graduate-level course designed to teach the basics of rigorous qualitative methodology. It is a practical course through which you will learn about and gain experience in study design and sampling methods; data collection through participation and observation, interviews, and focus groups; different traditions of data analysis; and presenting qualitative methods in academic writing, including for study design or grant writing and academic journal writing.

POPH 406 Seminar: Cultural Understanding and Health 1 Credit

Cultural understanding and cultural relativism provide perspectives, abilities, and skills needed to work with diverse peoples and communities in cross-cultural settings. This course will explore cultural understanding and cultural relativism as well as other perspectives, methods, and skills required to understand, participate in, and implement culturally-appropriate and culturally-relevant health-related projects at the individual and community-levels.

POPH 407 Seminar: Data-informed Policy Making 1 Credit

This seminar will introduce students to the different ways in which data informs the policy decision-making process. We will begin with an analysis of the different types of data and how they influence policy prioritization processes. This will be followed by a discussion about how governments and non-governmental organizations strategically use data to evaluate policy effectiveness and search for improvements.

POPH 408 Population Health Survey Methods 3 Credits

In this graduate course, students will explore and apply the foundational concepts and methods related to questionnaire design, sampling, quantitative and qualitative data collection, and data preparation for analysis. Specifically, this course will expose students to the foundational concepts and skills related to measure development and validation. This course will also introduce students to mixed methods research.

Prerequisites: POPH 401 and (EPI 404 or EPI 304) and BSTA 402

POPH 409 Social Determinants of Health 3 Credits

This course will look at cultural and social institutions, as well as other components of culture, society, and social structure, that affect health and the health outcomes at the individual and community-levels.

Topics to be analyzed include cultural traditions, social norms, politics, economics, housing, transportation, and subsistence strategies, just to name a few. Additionally, specific illnesses, sicknesses, and diseases linked to cultural and social institutions and the human experience will also be explored.

Prerequisites: POPH 401

POPH 410 Population Health Capstone/Thesis Project 3 Credits

In this writing-intensive course, students will work closely with their academic advisor to develop a detailed research proposal for a population health thesis project.

Prerequisites: POPH 401

POPH 411 Population Health Thesis II (execution) 3 Credits

In this course, students will work closely with their academic advisor and other relevant mentors to implement and evaluate the population health thesis project proposed in "Population Health Thesis I". A final thesis paper and oral presentation will be required.

Prerequisites: POPH 410

POPH 413 Foundations of Global Health 3 Credits

This graduate-level course provides an in-depth examination of the issue of global health. We begin with an analysis of the rise of the international community in addressing population health needs, and the international norms guiding healthcare delivery systems. We will also focus on healthcare delivery systems, technological and scientific innovations, and data science in response to healthcare needs in several developing nations. Finally, students will understand the political, social, and commercial determinants of population health in these countries.

POPH 414 Global Health Research or Field Experience 3 Credits

During this field experience, students will engage in supervised work in global health. Placements will be arranged to suit individual interests and career goals. Potential placements include government agencies, non-profit organizations, the private sector, and other academic institutions that are involved with global health work. A written report and preceptor evaluation will be required.

Repeat Status: Course may be repeated.

POPH 418 Advanced Technologies for Health 3 Credits

This course introduces different technologies related to healthcare, health education, and health promotion. We will explore how the technologies, including computer simulations, serious games, immersive environments (VR/AR), virtual agents, dashboards, eye tracking, emotion detection, and wearable sensors, can be used for health education and promotion. We also discuss the theoretical models and theories guiding the design/use of those technologies.

POPH 419 Population Health Bioethics 3 Credits

This course will focus on macro-level bioethical dilemmas that arise outside the clinic, at the level of the population, the state, the country, or the globe. Population health policies raise questions about autonomy, individual rights, coercion, justice, community, the meaning of the common good, norms of research, and multi-cultural values. The course will explore a range of questions, including: how to conceptualize, measure and evaluate health inequalities?; how should we set spending priorities?; is paternalism acceptable?

POPH 420 (BSTA 420, CGH 420, PUBH 420) Independent Study or Research in Population Health 1-4 Credits

This course can be directed readings or research in Population Health or experiential learning that puts the student's understanding of Population Health into practice. Department permission required.

Repeat Status: Course may be repeated.

POPH 430 Internship in Population Health 1-4 Credits

In this advanced course, graduate students will engage in supervised work in Population Health. Potential internship sites include government agencies, non-profit organizations, and the private sector. A written report is required and a preceptor evaluation will be required. Department permission required.

Repeat Status: Course may be repeated.

POPH 431 Environmental Health Justice 3 Credits

This course introduces key concepts and methods, such as exposure science, epidemiology, toxicology, biomarkers/omics, risk assessment, implementation science, and policy, in order to deepen the understanding of the relationship between major emerging environmental issues and human health. Specifically, the students will apply key tools to explain the relationship between global-, regional, and local-scale environmental contributors to human health outcomes.

POPH 450 Special Topics in Population Health 3 Credits

In this course, students will engage in an intensive exploration of a topic of special interest that is not covered in other courses. Topics addressed will be at an advanced level.

Repeat Status: Course may be repeated.

POPH 480 Seminar: Population Health Doctoral Roundtable 1 Credit

In this seminar, students will present their progress and receive peer mentoring on various stages of the research process (e.g. conference presentations, grant applications, manuscripts, dissertation proposal). This seminar will also provide career counseling resources, such as presentations on grant opportunities, the job search process, career networking, interview process, etc. All students will be required to enroll in this seminar until they advance to candidacy and present their dissertation proposal prior to the formal proposal defense with the doctoral committee.

Repeat Status: Course may be repeated.

POPH 481 Seminar: Supervised Research in Population Health 1 Credit

In this seminar, students will work closely with their doctoral advisor or another faculty mentor on supervised research projects. Students will be required to enroll in this seminar in their second semester of the doctoral program and continue to take this course every semester until they advance to the qualifying exam stage.

Repeat Status: Course may be repeated.