PUH-Public Health

Courses

PUH 101. Transitioning to College, Exploring Public Health. 1 Hour.
This First Year Experience (FYE) course is for students majoring in or interested in Public Health. It is designed to introduce freshmen to the tools and techniques that will enhance their transition to college and improve their academic success. Goal setting, time management, faculty/peer interaction, and other relevant academic skills will be addressed. Students will also gain an understanding of the various educational opportunities and career options associated with Public Health.

PUH 201. Introduction to Public Health. 3 Hours.
Public health protects and promotes the health of people and communities. This course reviews the history and philosophy underlying public health, introduces core concepts and values in public health, and highlights the essential functions of public health in society. Offered each semester.

PUH 202. Introduction to Global Health. 3 Hours.
This course introduces concepts and considerations relevant to public health in resource-constrained international settings while critically assessing historic, current, and projected efforts to improve population health globally. Topics include global burden of disease, measuring population health, global epidemiologic trends, health of vulnerable populations, comparative health systems, and governmental and non-governmental efforts to address health. This course meets the Core Curriculum requirements for Area IV: Social and Behavioral Sciences. Offered each semester.

PUH 204. Social and Behavioral Determinants of Health. 3 Hours.
This course examines the social and behavioral factors that impact human health at the individual, community, and population levels. The role of social and behavioral factors and the conceptual tools used by public health to understand their influence on health behaviors and resulting health disparities will be a central focus of the course. Offered each semester.

PUH 205. Adolescent Health. 3 Hours.
This undergraduate course will provide an overview of critical health issues in adolescence and review the potential of emerging perspectives to advance adolescent health and promote positive youth development. This course is designed to provide students with the most current knowledge of issues influencing the health and well-being of adolescents. Theoretical frameworks that draw on an ecological perspective will provide a better understanding of how families, peers, schools, neighborhoods, and the larger community influence risk and protective factors in youth. Adolescence is a time of growth and experimentation, a period marked by establishing autonomy and confronting new challenges. Emphasis will be placed on the promotion of positive youth development, and the relevance of adolescent health issues for the science of health behavior and the broader public health arena.

PUH 210. Agent, Host, Environment. 3 Hours.
This course provides the scientific basis for the study of public health. It will examine how various agents (viruses, bacteria, toxins, carcinogens) affect the biology of human hosts. Particular emphasis will be placed on the role of environmental factors in shaping the interaction between agents and hosts, leading to human disease. Offered each semester.

Prerequisites: BY 115 [Min Grade: C] or BY 101 [Min Grade: C] and BY 102 [Min Grade: C] or BY 123 [Min Grade: C]

PUH 220. Environmental Factors in Public Health. 3 Hours.
This course examines the sources, exposure routes, and health outcomes associated with biological, chemical, and physical agents in the environment (both naturally occurring and man-made). The course will focus on how these agents impact air, water, and food quality to cause disease, along with regulations and policies designed to protect the public’s health from their harmful effects.

PUH 230. Public Health Data and Methods. 3 Hours.
This course provides a hands-on introduction to the concepts and tools related to collecting and analyzing public health data. A substantial portion of the course will focus on communicating public health data to a variety of audiences to illustrate the critical role that evidence plays in public health research and practice. Offered each semester.

PUH 250. Biostatistics. 3 Hours.
This course introduces the statistical approaches most commonly used in public health, medicine, and other health-related fields. The critical role of probability in inference and estimation will be examined, along with key univariate and bivariate statistics (e.g., t-tests, correlation, regression, etc.).

Prerequisites: MA 102 [Min Grade: C] or MA 105 [Min Grade: C] or MA 106 [Min Grade: C] or MA 107 [Min Grade: C] or MA 110 [Min Grade: C] or MA 125 [Min Grade: C] or MA 225 [Min Grade: C]

PUH 292. Seminars in Public Health. 1-3 Hour.
Seminar will explore current public health issues and topics locally, regionally, nationally and globally; case studies in epidemiology, issues and causes of chronic and infectious diseases, how the environment interacts with health, and how social and behavioral factors affect personal health.

PUH 299. Special Topics in Public Health. 1-6 Hour.
This special topics course will be used in the undergraduate program to cover emerging issues or specialized content not represented in the main curriculum.

PUH 302. Epidemiology. 3 Hours.
This course introduces the central role of epidemiology in public health research and practice. Students will learn to use the basic tools of epidemiology (e.g., prevalence and incidence, measures of association) and epidemiologic study designs to understand how epidemiologists study patterns of disease in populations and identify outbreaks. Offered once a year.

Prerequisites: (MA 102 [Min Grade: C] or MA 105 [Min Grade: C] or MA 106 [Min Grade: C] or MA 107 [Min Grade: C] or MA 110 [Min Grade: C] or MA 125 [Min Grade: C] or MA 225 [Min Grade: C])

PUH 305. Public Health Practice. 3 Hours.
This course provides an overview of how public health practitioners work with communities to improve health outcomes. It will focus on the stages of public health project implementation, from planning to needs assessment and evaluation. Students will gain hands-on experience with public health advocacy, navigating community dynamics and cultural contexts, and professionalism/ethics. Offered fall and spring.

Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]
PUH 307. Public Health Systems. 3 Hours.
This course provides a comprehensive overview of the characteristics and structures of the US Health System, focusing on the legal, ethical, economic, and regulatory aspects of health care and public health policy. The course will also examine the contributions of federal agencies (Centers for Disease Control, Department of Health and Human Services), state/county health departments, and public and private health care providers (hospitals, long-term care facilities, physicians and nurses) to protecting and promoting health at the population level. Offered fall and spring.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 321. Workplace Environment. 3 Hours.
This course will explore known physical and chemical hazards found in the workplace. We will begin with the importance of key events and milestones in the history of worker safety and health and explore the ethical, legal, and social implications associated with the workplace environment. We will review the roles and responsibilities of government, non-government agencies, private organizations, businesses, and industry in worker safety and health. Offered once a year.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C] and PUH 220 [Min Grade: C]

PUH 322. Environmental Justice and Ethics. 3 Hours.
In this course, students will investigate the disproportionate burdens of environmental contamination and the resulting health disparities affecting communities of color across the U.S. and internationally. Using a broad range of examples we will look at the incidents that led to the emergence of environmental justice as a grass roots movement, much of which came from towns and peoples of the Deep South. Offered once a year.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C] and PUH 220 [Min Grade: C]

PUH 331. The Rise of Noncommunicable Diseases Globally. 3 Hours.
This course provides an introduction to selected key topics in chronic diseases burden endured globally. We will address the following questions: How is it that people in some countries live twice as long as in others? Why is there a rising epidemic of NCDs such as cancer, heart and lung disease, obesity, and diabetes spreading globally? What are the burdens posed by these diseases? What steps are being taken to control it? What key tools are at our disposal? Who are the global actors and stakeholders addressing this global health epidemic? What is the link between globalization and the rise of NCDs? Offered once a year.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 333. Food, Water, and Air. 3 Hours.
The service learning course will examine food, water, air, with a focus on complex role they play in sustainable human development. While learning about food, water, and air in the classroom, students will gain further understanding of these topics by working with non-profit organizations in Birmingham that address food security, clean water, and clean air. Topics include issues of availability, access, and use of food in the local, domestic and global context, as well as current responses and potential solutions; water resources and sustainability, as well as water use, pollution, and treatment, and; outdoor and indoor air quality issues. The course will also focus on helping students develop a skill set for global citizenship that includes opportunities for advocacy, leadership, and critical thinking. Offered once a year.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 340. Profession of Public Health. 3 Hours.
The purpose of this course is to assist students in planning and pursuit of their career goals. Students will interface with public health professionals to identify the skills needed for specific career paths and map out action items needed to gain those skills. The course will provide students the opportunity to gain tangible skills including, but not limited to: Ethics of Public Health, Oral and Written Communication, Personal Presentation Skills, Leadership Styles and Working in Teams and Project Management while addressing a current public health challenge.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 341. Public Health Preparedness and Emergency Management. 3 Hours.
This course will provide participants with an understanding of Public Health Emergency Preparedness (PHEP), exercise development, and evaluation. During this course you will learn how to identify threats within your community, determine what capabilities are most needed to prepare for and meet these threats, and how to develop and evaluate exercises to test knowledge, skills and abilities.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 220 [Min Grade: C]

PUH 342. Public Health Disasters. 3 Hours.
This will be a hybrid of environmental disasters and history and consequences of world disasters.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 350. Intermediate Biostatistics. 3 Hours.
This intermediate-level course will provide students with hands-on experience conducting analyses using statistical software. Selecting appropriate statistical tests and testing model assumptions will be a key focus, along with developing clear interpretations of results.
Prerequisites: (MA 102 [Min Grade: C] or MA 106 [Min Grade: C]) and MA 105 [Min Grade: C] and MA 107 [Min Grade: C] or MA 112 [Min Grade: C] or MA 125 [Min Grade: C] or MA 225 [Min Grade: C]

PUH 352. Risk Reporting: Interpreting and Writing Medical News. 3 Hours.
The main tool that scientists use to describe their work is the peer-reviewed research article. These articles are written for a specialist audience of other scientists and clinicians. However, human research is of interest to patients, policies makers, and other non-scientists. Accurate and appropriate interpretation and evaluation of scientific findings is vitaly important to their implementation. In this course students will learn how to read and interpret scientific publications, to critically evaluate scientific publications and media coverage of the publications, and to write articles describing scientific findings in ways that are accessible for a general audience. The first part of the semester will consist of lectures and class discussions including guest lectures by science writers. The later part of the semester will include student-lead discussions of scientific and mass-market articles. Evaluation will be based on reading quizzes, class participation and submission of discussion questions before class periods, written assignments interpreting and evaluating scientific and mass-market articles, and a midterm and final exam.
Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 220 [Min Grade: C] and PUH 302 [Min Grade: C]
PUH 353. The Domestic Hot Zone: Major Diseases Affecting the U.S. 3 Hours.

Though infectious diseases still contribute greatly to morbidity in the United States, in the 20th century the causes of mortality in the United States began to shift—known as the epidemiologic transition—from infectious diseases to chronic diseases such as heart disease, cancer, stroke, and diabetes. These four diseases alone account for nearly three-quarters of a trillion dollars in medical expenditure and cause over 1.3 million deaths annually. The purpose of this class is to provide students with detailed knowledge regarding the major diseases that affect the United States, covering both major chronic and infectious diseases. Each week will focus on a disease or family of diseases, and will cover the epidemiology of the disease as well as looking at historical trends in disease incidence and mortality and how the trends have changed in recent years. Students will be graded through the use of take-home assignments, a mid-term examination, and a final examination.

Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 354. Scratching the Iche: Introduction to Infection Control and Hospital Epidemiology. 3 Hours.

This course is designed to focus specifically on concepts involved with performing epidemiological surveillance and research within a hospital setting. With the recent advent of policies set forth by the Affordable Care Act, emphasis has been placed on surveillance and prevention of nosocomial infections in hospitals throughout the country. The course will introduce students to the methodology of infection control in a hospital setting, including how patients are tested for infectious diseases, surveillance methodology, and how an outbreak investigation in a hospital is performed. The course will involve guest lecturers from different departments of the hospital, including but not limited to Infection Control, Patient Safety and Quality, Clinical Laboratory, and Environmental Control. Each week will cover a given topic (e.g., bloodstream and catheter-associated infections, multi-drug resistant pathogens, respiratory diseases). The students will be graded through the use of take-home assignments, a mid-term examination, two case studies, and a group project involving a nosocomial outbreak investigation of an infectious disease of the course master’s choice.

Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 220 [Min Grade: C] and PUH 302 [Min Grade: C]

PUH 391. Directed Study in Public Health. 1-6 Hour.

This experiential learning opportunity is open to undergraduate students interested in conducting an in-depth exploration of an approved Public Health topic under the supervision of an SOPH faculty mentor. Students must complete the SOPH agreement form for independent academic work at least two weeks prior to the start of the designated semester. This form specifies the scope of work, regular assignments, and final product that must be completed to receive academic credit.

Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 210 [Min Grade: C] and PUH 220 [Min Grade: C]

PUH 358. Undergraduate Research in Public Health. 1-6 Hour.

This experiential learning opportunity involves participation in a research project under the supervision of an SOPH faculty mentor; this could involve a student-initiated project or collaboration on existing research. Students must complete the SOPH agreement form for independent academic work at least two weeks prior to the start of the designated semester. This form specifies the scope of work, regular assignments, and final product that must be completed to receive academic credit.

PUH 399. Special Topics in Public Health. 1-6 Hour.

This special topics course will be used in the undergraduate program to cover emerging issues or specialized content not represented in the main curriculum.

PUH 403. Immigrant, Migrant, and Refugee Health. 3 Hours.

This course will introduce students to the inter-relationships between migration and health, focusing on the myriad of health issues experienced by migrant populations. The course will focus on both communicable and non-communicable health issues among migrating populations. The course will examine health issues among all types of migrant populations with a particular focus on the categories of ‘displaced peoples’, and the resultant state and humanitarian responses surrounding health and social (public health) services. This course frames global health in broad terms to include the underlying social and economic conditions, including climate change, economic underdevelopment, and political instability, which displace people, or motivates them to migrate, and which present barriers to achieving health, mental health, and wellbeing in immigrant, migrant, and refugee communities. We explore how violence, social suffering, health, disease, and mental health are intertwined with displacement and migration.

PUH 405. Managing Public Health Programs. 3 Hours.

This course is designed to prepare future managers and leaders in the public health arena. The course will provide students with knowledge relevant to managing public health organizations, non-profits, or NGOs, while identifying functions and concepts of management, leadership, and governance.

Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 421. Nature vs. Nurture: Genes, Environment and Health. 3 Hours.

This didactic lecture course will examine how components of the world around us impact our lives and health. The classic battle of nature (genes) vs. nurture (environment) is being replaced with the understanding of how our exposure to our environment impacts gene expression, which can increase (or decrease) our own likelihood of disease. Using everyday, real-world examples we will study the environment-gene interaction and how this helps determine why some people are more disease prone than others. Each example will focus on the underlying science and the medical consequence of exposure, and will also examine exposure prevention strategies for individuals and practical legislation to reduce environmental contamination. Examples will vary from year to year, but damaging examples may include nanoparticles, smog, medical radiation, drugs and alcohol, pesticides, noise, indoor air pollution, toxic metals, plastics, food and water contamination, and sexually transmitted infections. We will also discuss how the environment can positively impact gene expression, and will include discussions of functional foods (i.e. nutraceuticals such as soy, green tea and garlic) and other alternative medicinal therapies.

BY 116 or equivalent; completion of or registration in BY210 or BY330 is recommended.

Prerequisites: PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 210 [Min Grade: C] and PUH 220 [Min Grade: C]
PUH 422. Fundamentals of Toxicology. 3 Hours.
Basic principles in toxicology will be covered including: dose-response relationships; absorption, distribution, storage, biotransformation and elimination of toxicants; target organ toxicity; mutagenesis and carcinogenesis; and an overview of fate and transport of contaminants in the environment. The course will focus on contaminants of environmental and public health interest and will include the fascinating roles toxins have played in human history.
**Prerequisites:** PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 210 [Min Grade: C] and PUH 220 [Min Grade: C]

PUH 432. Global Health Cases. 3 Hours.
This course uses case studies to examine the impact of health conditions that transcend national borders. The focus will be on the political and economic impact of public health crises.
**Prerequisites:** PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 434. Global Communicable Disease Challenges. 3 Hours.
This course is designed to introduce students to the major infectious diseases of public health importance globally. Since we cannot cover all infections in depth in the time allowed, we will highlight major categories of infections as well as focus on a few major infections that together cause the greatest morbidity and mortality in children or adults worldwide. The purpose of this course is to equip participants with up-to-date knowledge of resources on major infections of global importance, and their prevention and control strategies.
**Prerequisites:** PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 436. Maternal and Child Health in Africa and Asia. 3 Hours.
Despite significant advances in global health over the last fifty years, the burden of disease among the maternal and child health (MCH) population in certain areas of the world remains alarmingly high. While child mortality has declined over the last fifty years, maternal and neonatal mortality has seen relatively little improvement, especially in Sub Saharan Africa and South Asia, which bears a disproportionate share of the global burden of maternal and child health disease. Maternal health is especially critical due to the far ranging impact of a maternal death on the family, community, and society. Fortunately, high impact, cost-effective solutions exist to address the possibly preventable maternal and child deaths. In this course we will discuss those successful MCH interventions and policies in addition to identifying different barriers and challenges to the implementation and scale up of MCH services in Africa and Asia.
**Prerequisites:** PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 441. Public Health Law and Policy. 3 Hours.
PUH 441 will be an introductory course in public health law and policy designed for undergraduate students in public health. There are no prerequisites for this course. The purpose of the course is to introduce non-lawyers to the United States legal system and to the basic principles of law relevant to public health practitioners. It is intended to provide students with basic legal knowledge to assist them in communicating with attorneys about potential legal issues that may arise in formulating policy and exercising leadership in health care organizations. An overarching theme of the course is the tension between community interests and individual rights.
**Prerequisites:** PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 220 [Min Grade: C]

This interdisciplinary course will provide students with basic knowledge about current issues in health and society, both globally and domestically that impact the Maternal and Child Health (MCH) population, which broadly includes women of reproductive age, infants, children, and families. The course will include a specific focus on the role of poverty in the health issues of this population.
**Prerequisites:** PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C]

PUH 450. Statistical Programming and Database Analysis. 3 Hours.
This class provides an introduction into the commonly used statistical programs and teaches the fundamentals of database design. By the end of the class, students will be able to design and build research databases. Students will also be taught how to conduct statistical analyses using EXCEL and SAS.
**Prerequisites:** PUH 260 [Min Grade: C]

PUH 491. Directed Study in Public Health. 1-6 Hour.
This experiential learning opportunity is open to junior and senior level undergraduate students interested in conducting an in-depth exploration of an approved Public Health topic under the supervision of an SOPH faculty mentor. Students must complete the SOPH agreement form for independent academic work at least two weeks prior to the start of the designated semester. This form specifies the scope of work, regular assignments, and final product that must be completed to receive academic credit.

PUH 492. Seminar in Public Health. 1-6 Hour.
Seminar will explore current public health issues and topics locally, regionally, nationally and globally; case studies in epidemiology, issues and causes of chronic and infectious diseases, how the environment interacts with health, and how social and behavioral factors affect personal health.

PUH 494. Internship/Fieldwork in Public Health. 3 Hours.
Students who meet eligibility requirements may take three hours of academic credit per semester for participating in an advisor approved internship experience.

PUH 495. Public Health Capstone Experience. 3 Hours.
Through completion of an individually-designed service learning project, this course provides students with the opportunity to apply public health competencies through engagement, study, and reflection. Students will apply their public health knowledge and skills to assist a community partner and present a final report on their experience. This course should be taken within the last two semesters of graduation; students must have completed at least 27 hours of PUH coursework prior to enrolling.
**Prerequisites:** PUH 201 [Min Grade: C] and PUH 202 [Min Grade: C] and PUH 204 [Min Grade: C] and PUH 210 [Min Grade: C] and PUH 230 [Min Grade: C] and PUH 305 [Min Grade: C] and PUH 307 [Min Grade: C]
PUH 496. Exploring Population Health. 6 Hours.
Public health is what we do together as a society to ensure the conditions in which everyone can be healthy. This course will provide students an opportunity to learn about both historical and contemporary public health issues, their effects on population health, and how public health systems are working to solve the health issues affecting our communities today. This course will focus on the Southeast United States. Students will tour historically significant sites, visit communities and community-based organizations, attend featured presentations around both contemporary and historical public health issues, as well as visit local, state, tribal and federal public health agencies to learn about their structure, programs, service delivery models, and approaches to addressing issues of public health. The sum of this experience will illustrate the interdisciplinary nature of public health practice and the need to add attention to the social determinants of health – the conditions in the social, physical, and economic environment in which people are born, live, work and age – in order to achieve health equity. Travel is required for this course. Undergraduate students must have completed their sophomore year before registering for PUH 496.

PUH 498. Undergraduate Research in Public Health. 1-6 Hour.
This experiential learning opportunity involves participation in a research project under the supervision of an SOPH faculty mentor; this could involve a student-initiated project or collaboration on existing research. Students must complete the SOPH agreement form for independent academic work at least two weeks prior to the start of the designated semester. This form specifies the scope of work, regular assignments, and final product that must be completed to receive academic credit.

PUH 499. Special Topics in Public Health. 1-6 Hour.
This special topics course will be used in the undergraduate program to cover emerging issues or specialized content not represented in the main curriculum.