PHSC415 Essentials of Public Health Biology: The Cell, The Individual, and Disease (3 Credits)

Provides the basic scientific and biomedical concepts of modern public health problems and explores in depth mechanisms and models of the major categories of disease. The biologic principles presented are foundations to public health disease prevention, control, or management programs.

Prerequisite: Minimum grade of C- in BSCI202.
Recommended: BSCI223.
Restriction: Must be in Public Health Science program; and must have earned at least 60 credits.
Credit Only Granted for: PHSC415, SPHL415 or SPHL498J.
Formerly: SPHL415 and SPHL498J.

PHSC420 Vaccines and Immunology (3 Credits)

An exploration of immunology and vaccines through a public health lens. We will examine the cells, systems, and molecules that comprise the human immune system and defend your body against disease. In addition, we will discuss the strategies used during vaccine development including the history and future of vaccination and how increased understanding of the immune system has allowed scientists to improve and refine the process. Finally we will examine the current social and political situation surrounding vaccination and the roles and responsibility of public health practitioners.

Prerequisite: Minimum grade of C- in BSCI223.
Recommended: CHEM231.
Restriction: Must have earned a minimum of 60 credits. And must be in Public Health Science program; or permission of instructor.

PHSC425 Genetics, Genomics, and Public Health (3 Credits)

Recent advances in genomic science and biomedical technologies have increased our understanding of the genetic basis of disease and the interplay between genetics and environmental and behavioral factors. This course will provide a solid background in basic genetics and genomic science and highlight the role of public health professionals in translating breakthroughs in this rapidly transforming field into the clinical setting, program planning, and policy. Topics covered will include the molecular basis for genetic variation, fetal and newborn screening, genetic risk factors for cancer, pharmacogenetics, the role of increased our understanding of the immune system has allowed scientists to improve and refine the process. Finally we will examine the current social and political situation surrounding vaccination and the roles and responsibility of public health practitioners.

Prerequisite: Minimum grade of C- in BSCI170 and 171 with a C- or higher.
Recommended: BSCI222 and BSCI223.
Restriction: Must have earned a minimum of 60 credits; and must be in Public Health Science program.
Credit Only Granted for: SPHL498X OR PHSC425.
Formerly: SPHL498X.

PHSC426 Climate Change and Health (3 Credits)

Climate changes pose significant risks to population health by affecting air quality, the availability of safe drinking water, infectious disease transmission, food security, and access to housing, land, and livelihoods. Students examine the relationship between climate change and human health, focusing on how climate change vulnerability varies between populations by geographic, demographic, and socioeconomic characteristics.

Prerequisite: Minimum grade of C- in MIEH300.
Restriction: Must be in Public Health Science program.
PHSC430 Public Health in the City: Perspectives on Health in the Urban Environment (3 Credits)
Exposure to issues related to city habitation and the health of the public, including how the urban environment impacts the lives and health of city dwellers, including discussion of the social determinants of health. Students are encouraged to think about urban health and policy, and to question the current state of urban public health. Issues of race, class, and equality will be discussed throughout the course as they relate to each of these topics.
**Prerequisite:** Minimum grade of C- in BSCI202 and MIEH300.
**Restriction:** Must be in Public Health Science program; and junior standing or higher.
**Credit Only Granted for:** PHSC430 or SPHL498G.
**Formerly:** SPHL498G.

PHSC497 Public Health Science Capstone (3 Credits)
The capstone course is the culminating experience for Public Health Science students and must be taken only in the final semester of study. The Public Health Science capstone course is designed to challenge students to integrate the five core areas of public health in investigating, researching and addressing public health issues. Throughout the semester, students will be required to evaluate, analyze and synthesize scholarly works as they research and propose solutions to a variety of public health issues. By the conclusion of this research based course, students will understand how the various public health perspectives can combine in addressing and informing public health practices.
**Prerequisite:** Must have completed the professional writing requirement with a C- or higher; and minimum grade of C- in MIEH400.
**Restriction:** Must have earned a minimum of 100 credits; and must be in Public Health Science program; and must be in the final semester of undergraduate study.
**Credit Only Granted for:** SPHL498F or PHSC497.
**Formerly:** SPHL498F.