

# PUBLIC HEALTH, EPIDEMIOLOGY (PHEP)

Subject-area course lists indicate courses currently active for offering at the University of Louisville. Not all courses are scheduled in any given academic term. For class offerings in a specific semester, refer to the Schedule of Classes ([https://csprd.louisville.edu/psp/ps\\_class/EMPLOYEE/PSFT\\_CS/c/COMMUNITY\\_ACCESS.CLASS\\_SEARCH./x/?state=62dab551a0d600a5e8237359c50704e59007&duo\\_code=sjUx20STj21bWV5e93ZThpJi/https://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm](https://csprd.louisville.edu/psp/ps_class/EMPLOYEE/PSFT_CS/c/COMMUNITY_ACCESS.CLASS_SEARCH./x/?state=62dab551a0d600a5e8237359c50704e59007&duo_code=sjUx20STj21bWV5e93ZThpJi/https://htmlaccess.louisville.edu/classSchedule/setupSearchClassSchedule.cfm)).

500-level courses generally are included in both the undergraduate- and graduate-level course listings; however, specific course/section offerings may vary between semesters. Students are responsible for ensuring that they enroll in courses that are applicable to their particular academic programs.

## Course Fees

Some courses may carry fees beyond the standard tuition costs to cover additional support or materials. Program-, subject- and course-specific fee information can be found on the Office of the Bursar website (<https://louisville.edu/bursar/tuitionfee/university-fees/>).

### PHEP 200. Disease Detectives - SB

3 Units

**Term Typically Offered:** Spring Only

**Description:** Life expectancy has increased from about 47 to 87 years from the start of the 20th century. This increase was produced primarily by controlling infectious diseases with vaccines, antibiotics, and improved sanitation and nutrition. However, these measures would not have been successful without changes in social policies, economics, and behaviors. This course examines the history of advances in population health, highlighting influential people and cultures and illustrating how they used critical thinking and the scientific approach to integrate information from biological, social and behavioral sciences to make these advancements. Each class tells the backstory behind a selected historical breakthrough in public health philosophy, science and methods that improved population health.

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### PHEP 300. Epidemics, Pandemics and Syndemics

3 Units

**Term Typically Offered:** Fall Only

**Description:** This course provides an overview of the definition, measurement and prediction of epidemic and pandemic events. It is not generally well recognized that these terms, and the methods used to describe their course, can be applied to slow-moving noncommunicable diseases, such as obesity, heart disease and cancer, as well as outbreaks of drug abuse, violence, or mass hysteria, in addition to acute infectious diseases such as COVID-19. The course will examine the dynamics of these outbreaks. Why do they start, what makes them take off, and why do they decline? In addition, the concept of the "syndemic", or the confluence and synergism in time and space of two or more outbreaks, will be examined.

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### PHEP 301. Global Public Health - SBH

3 Units

**Term Typically Offered:** Fall, Spring

**Description:** The course will provide an overview of the factors that produce global health challenges, including demographic changes, conflict, human rights abuses, migration, travel, food production and distribution, water resources, and market forces and economic factors. Students will become familiar with the role of government and non-governmental organizations in identifying, understanding, and addressing global health issues.

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### PHEP 305. Introduction to Social Epidemiology

3 Units

**Term Typically Offered:** Spring Only

**Description:** This course is an introduction to social epidemiology, with an emphasis on conceptual frameworks, measurement of social constructs, and application of methodological approaches from the social sciences. Special topics will be covered to illustrate how social epidemiological and population health science perspectives are applied to address modern public health problems. Guest speakers will also be scheduled throughout the semester (pending availability).

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### PHEP 310. Environmental Epidemiology

1 Unit

**Term Typically Offered:** Spring Only

**Corequisite(s):** PHEP 341.

**Description:** This course explores epidemiologic concepts and methods related to environmental health. It is intended as a companion course to be taken concurrently with PHEP 441. Concepts introduced in the PHEP 441 course will be expanded upon using examples relevant to environmental health. In addition, topics unique to environmental epidemiology will be covered.

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### PHEP 311. Environment and Cancer Epidemiology

3 Units

**Term Typically Offered:** Spring Only

**Description:** The environment in which you live, work, play and age can influence risk of developing cancer. This course is designed to introduce students to Cancer Epidemiology (the study of the distribution and determinants of cancer in populations) and Environmental Cancer Risk Factors (everything outside the body that interacts with human populations and may predispose specific populations to cancer). Students will learn what cancer is, how it develops, the burden of cancer in populations, and about epidemiologic measures and basic epidemiologic study designs.

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**PHEP 320. Climate Change, Environmental Degradation and the Epidemiology of Global Health** 3 Units

**Term Typically Offered:** Fall Only

**Description:** This course will review evidence for climate change and environmental disruption, and evaluate their potential impact on the future of global public health and the policies and actions we must enact to mitigate their effects. Scientific evidence suggests that climate change is occurring and is having widespread impacts on weather, including increases in both drought and hurricane frequency, and rising sea levels. Environmental degradation is accelerating also due to deforestation, agriculture, mining, and the growth of megacities. Taken together these changes may disrupt the balance of ecosystems across the world, increasing risk for multiple adverse health outcomes, including future zoonotic pandemics.

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**PHEP 325. Introduction to Maternal and Child Health** 3 Units

**Term Typically Offered:** Fall, Spring

**Description:** Maternal and Child Health (MCH) is the professional and academic field that focuses on the determinants, mechanisms and systems that promote and maintain the health, safety, well-being, and appropriate development of children and their families in diverse communities, with the goals of improving global health in all settings. Students will examine and address causes of maternal and infant death, malnutrition, and disease with population-scale preventive health, health policies and programs, immunization, and early childhood education programs. This course introduces MCH, including history, programs and policies, research, and global challenges, blending weekly lectures with global case studies.

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**PHEP 341. Epidemiological Concepts and Methods for Public Health** 3 Units

**Term Typically Offered:** Fall, Spring

**Prerequisite(s):** PHST 200 or MATH 109 or higher MATH course.

**Description:** The course explores fundamental epidemiologic concepts and methods used to examine the distribution and determinants of health and disease in and between populations.

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**PHEP 446. Applied Data Analysis for Epidemiology** 3 Units

**Term Typically Offered:** Spring Only

**Prerequisite(s):** At least a B in PHEP 341, or permission of instructor.

**Description:** This course will introduce students to epidemiologic methods for data analysis. Data from three types of epidemiologic study designs will be explored and analyzed. Epidemiologic hypotheses will be tested using simple analysis, stratified analysis, and multivariable modeling. The student will draw a causal diagram to illustrate causal pathways. Confounding, interaction and mediation will be reviewed and assessed as part of the analytic process. The student will become proficient in R statistical software over the course of the semester. The student will also do human subjects research training and gain certification. By the end of the course, the student should have the skills and tools necessary to conduct an independent epidemiologic research.

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**PHEP 501. Introduction to Epidemiology** 3 Units

**Term Typically Offered:** Fall Only

**Prerequisite(s):** Enrollment in the School of Public Health and Information Sciences.

**Description:** Basic epidemiological methods are presented: terminology; study design; issues of contemporary practice; basic skills for interacting with epidemiologists, reading disease control literature, and drawing on epidemiological concepts.

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