

# Epidemiology (EPI)

## Courses

### EPI 104 Fundamentals of Epidemiology 3 Credits

Introduces epidemiology and its application in public health. Addresses basic epidemiologic terminology and definitions. Presents public health problems in terms of magnitude, person, time, place, and disease frequency. Examines correlation measures between risk factors and disease outcomes; strengths and weaknesses of standard epidemiologic study designs; and ethical and legal issues related to epidemiologic data. Students calculate basic epidemiology measures, draw inferences from epidemiologic reports, and use information technology to access, evaluate, and interpret public health data.

**Prerequisites:** POPH 002

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

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

**Repeat Status:** Course may be repeated.

### EPI 130 Internship 1-4 Credits

In this introductory course, students will engage in supervised work in Epidemiology. Placements will be arranged to suit individual interests and career goals. 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 is required.

**Repeat Status:** Course may be repeated.

### EPI 150 Special Topics in Epidemiology 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.

### EPI 160 Epidemiology Study Abroad 1-4 Credits

Epidemiology focused course taken during an abroad experience.

**Repeat Status:** Course may be repeated.

### EPI 300 Apprentice Teaching 1-4 Credits

Instructor permission required.

**Repeat Status:** Course may be repeated.

### EPI 305 Intermediate Epidemiology 3 Credits

This course offers a deeper, expanded view of concepts and methods for observational epidemiological studies. Experiential learning activities and data collection give students opportunities to apply concepts learned in EPI 104. Topics include environmental, molecular, and genetic epidemiology, descriptive methods, analytic study designs (ecologic, cross-sectional, cohort, and case-control studies), confounding, and effect modification. Includes the use of multivariable models to adjust for confounding effects. Deeper concepts in causal inference are examined through the use of directed acyclic graphs.

**Prerequisites:** EPI 104

### EPI 306 Lifecourse Epidemiology 3 Credits

This course provides students a foundation for understanding the terminology and theoretical framework used in life course epidemiology and family health services research; biobehavioral pathways by which early life experiences impact health across the life course; data sources, study designs, and statistical approaches used in lifecourse epidemiology and family health services research; and implications for clinical and public health practice, policy, and health system development with an eye towards development of effective and sustainable life course interventions.

**Prerequisites:** (POPH 001 or CGH 001) and POPH 105

### EPI 308 Spatial Epidemiology 3 Credits

This course will provide students with an introduction to Geographic Information Systems (GIS) and its application in population health. It is primarily intended for students in Population Health, but students from other programs will also get good exposure to the capabilities of GIS in health science. The course is designed to teach a mix of practical skills and fundamental concepts. The first half focuses on basic skills and concepts, while the second half focuses on using GIS for analysis.

**Prerequisites:** EPI 304

### EPI 309 Chronic Disease Epidemiology 3 Credits

This course explores the epidemiology of common chronic diseases, including cardiovascular, cancer, metabolic, musculoskeletal, neurologic and others. Major risk factors include tobacco use, diet and nutrition, physical inactivity, and alcohol use. For each chronic disease we will review the significance of the chronic disease by describing the health disparities across various demographic groups as well as discuss the major risk factors attributed to the disease. Finally, students will critique evidence-based interventions from the published literature.

**Prerequisites:** EPI 104

### EPI 310 Environmental Epidemiology & Exposure Science 3 Credits

Environmental epidemiology examines the associations of diseases with occupational exposures and other environmental risk factors. Exposure science is the study of contact between humans and environmental risk factors, and it plays a fundamental role in the development and application of epidemiology, toxicology, and risk assessment. This course aims to engage students to understand the relationship between environmental exposure and human health, learn how to conduct exposure assessments, and know the application to promote and protect human health.

**Prerequisites:** EPI 304

### EPI 311 Psychiatric Epidemiology and Global Mental Health 3 Credits

This course examines global mental health through the lens of psychiatric epidemiology and cultural psychiatry. It utilizes a life course framework to understand the bio-psycho-social determinants of mental health and global burden of mental disorders throughout the lifespan. Students will explore mental health and illness with an emphasis on culture, diversity, and social inclusion. Focus is placed on exploring diverse cultural conceptualizations and presentations of mental health and illness and implementing culturally appropriate prevention and intervention programs.

**Prerequisites:** EPI 104

### EPI 320 (BSTA 320, CGH 320, POPH 320) Independent Study or Research 1-4 Credits

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

**Repeat Status:** Course may be repeated.

### EPI 330 Internship 1-4 Credits

In this advanced course, students will engage in supervised work in Epidemiology. Placements will be arranged to suit individual interests and career goals. 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 is required.

**Repeat Status:** Course may be repeated.

### EPI 350 Special Topics in Epidemiology 3-4 Credits

In this course, students will explore the substantive and methodological concepts related to a specific Epidemiology content area. Examples may include Lifecourse Epidemiology, Molecular Epidemiology, and Infectious Disease Epidemiology.

**Repeat Status:** Course may be repeated.

**EPI 360 Epidemiology Study Abroad 1-4 Credits**

Upper-level epidemiology-focused course taken during an abroad experience.

**Repeat Status:** Course may be repeated.

**EPI 404 Methods in Epidemiology I 3 Credits**

This course addresses advanced epidemiologic terminology and definitions. Presents public health problems in terms of magnitude, person, time, place, and disease frequency. Examines and critiques correlation measures between risk factors and disease outcomes; strengths and weaknesses of standard epidemiologic study designs; and ethical and legal issues related to epidemiologic data. Students calculate basic epidemiology measures (rates, Odds Ratios, Relative Risks, and others), draw inferences from epidemiologic reports, and use information technology to access, evaluate, and interpret public health data.

**EPI 405 Methods in Epidemiology II 3 Credits**

This course investigates complicated questions in epidemiology providing a deeper, expanded view of concepts and methods for observational epidemiological studies. Through experiential learning and data collection, students apply concepts learned in EPI 404, analyze primary data, write epidemiological reports. Topics include confounding, effect modification, cohort studies, case-control study variants, analytical methods. Students use multivariable models to model relationships between risk factors and health outcomes while adjusting for confounding effects. Deeper concepts in causal inference examined through directed acyclic graph use.

**Prerequisites:** EPI 404

**EPI 411 Psychiatric Epidemiology and Global Mental Health 3 Credits**

This course examines global mental health through the lens of psychiatric epidemiology and cultural psychiatry. It utilizes a life course framework to understand the bio-psycho-social determinants of mental health and global burden of mental disorders throughout the lifespan. Students will explore mental health and illness with an emphasis on culture, diversity, and social inclusion. Focus is placed on exploring diverse cultural conceptualizations and presentations of mental health and illness and implementing culturally appropriate prevention and intervention programs.

**EPI 450 Special Topics in Epidemiology 3 Credits**

In this course, students will engage in an intensive exploration of the substantive and methodological concepts related to a specific Epidemiology content area. Examples may include Lifecourse Epidemiology, Molecular Epidemiology, and Infectious Disease Epidemiology.

**Repeat Status:** Course may be repeated.