

# Epidemiology and Biostatistics (EPBI)

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Course information contained within the Bulletin is accurate at the time of publication in June 2025 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

**EPBI 2219. Biostatistics and Public Health. 3 Credit Hours.**

This course is designed to provide students with a solid background in applied biostatistics in the field of public health. Specifically, the course includes an introduction to the application of biostatistics and a discussion of key statistical tests. Appropriate techniques to measure the extent of disease, the development of disease, and comparisons between groups in terms of the extent and development of disease are discussed. Techniques for summarizing data collected in samples are presented along with limited discussion of probability theory. Procedures for estimation and hypothesis testing are presented for means, for proportions, and for comparisons of means and proportions in two or more groups. Multivariable statistical methods are introduced but not covered extensively in this undergraduate course. Public Health majors, minors or students studying in the Public Health concentration must complete this course with a C or better.

**Repeatability:** This course may not be repeated for additional credits.

**EPBI 2301. Public Health Beyond Borders. 3 Credit Hours.**

Public Health Beyond Borders is a course that will introduce you to the world of disease detectives to solve public health challenges in global (i.e., global and local) communities. You will learn about conducting disease investigations to support public health actions relevant to affected populations. You will discover what it takes to become a field epidemiologist through hands-on activities focused on promoting health and preventing disease in diverse populations across the globe.

**Repeatability:** This course may not be repeated for additional credits.

**EPBI 2361. Epidemiology 360: Determinants, Disease and Health-related Outcomes. 3 Credit Hours.**

This course will provide introductions to the major causes of morbidity and mortality in the US and key determinants of those diseases from an epidemiologic perspective. The course will familiarize students with the major sources of data, the basic methods for estimating burden of diseases or prevalence of exposures, the key risk factors for diseases or outcomes of determinants, and the strengths and limitations of surveillance systems and data collection methods, as well as public health efforts to address these issues. This class will encourage students to decide for themselves what the most pressing health issues facing populations today are and think critically about initiatives that are intended to address those issues.

**Repeatability:** This course may not be repeated for additional credits.

**EPBI 3101. Introduction to Epidemiology. 3 Credit Hours.**

This course explores the application of epidemiology practices in public health including using and interpreting data, calculating measures of health status, and identifying various research study designs used in epidemiologic studies. Additionally, the course will apply the steps in epidemiological disease investigation in order to become familiar with the methodology used in studying an epidemic outbreak. Public Health majors, minors or students studying in the Public Health concentration must complete this course with a C or better.

**Repeatability:** This course may not be repeated for additional credits.

**EPBI 3102. Introduction to Research Methods. 3 Credit Hours.**

This course will cover the basic concepts of public health research, including study designs, human subjects protection, quantitative and qualitative research techniques, and data collection. These concepts will be applied to public health settings and topics. Public Health majors, minors or students studying in the Public Health concentration must complete this course with a C or better.

**Repeatability:** This course may not be repeated for additional credits.

**EPBI 3203. Survey Design and Methods: Agree or Disagree and Everything in Between. 3 Credit Hours.**

This course addresses theoretical and practical aspects of conducting survey research in human populations. We will discuss various types of self-report data, including questions to assess knowledge, attitudes, behaviors, and perceived health and well-being. Design issues include wording of items and response scales, sampling, and respondent and interviewer/staff burden. Implementation issues include methods of administration, interviewer training, and participant recruitment. The primary focuses of this course are observational study designs using probability and non-probability sampling. Note: Prior to fall 2024, the course title was "Applied Survey Methods."

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of C in (EPBI 2219 or 'Y' in CREP01)

**EPBI 3205. All This Data, Now What? Introduction to Statistical Computing. 3 Credit Hours.**

This course is designed to provide students with a solid foundation in statistical computing using SAS and R programming software, which are standard analytic packages in research, business, and public health practice. The course includes an introduction to data management principles and data documentation followed by a series of SAS and R modules. These modules cover syntax and logic for writing SAS and R code to: manipulate datasets, including but not limited to data cleaning and recoding continuous and categorical variables; conduct descriptive analyses; and interpret output for statistical tests for measures of disease frequencies.

**Repeatability:** This course may not be repeated for additional credits.

**EPBI 3377. Public Health Beyond Borders: International Community Projects. 2 Credit Hours.**

In this course, you will remotely work in partnership with global community members to promote and improve health. You will participate in the development and evaluation of educational and health promotion activities in partnership with the community. You will also virtually meet and participate in ongoing discussions with community leaders and local university students bi-weekly to increase community capacity and project sustainability. Among other things, you will: 1) demonstrate awareness of your own cultural values and biases when partnering and developing interventions with global partners, 2) reflect critically on necessary communications and interpersonal skills to work cross-culturally in global settings, 3) develop confidence and a global mindset through cultural competence discussions, and 4) build a global understanding that demonstrates a clear appreciation of cultural differences.

**Repeatability:** This course may not be repeated for additional credits.

**EPBI 3382. Independent Study in Public Health. 1 to 6 Credit Hour.**

Students in this course pursue supervised independent projects on issues related to public health. Public Health majors, minors or students studying in the Public Health concentration must complete this course with a C or better. NOTE: Registration must be preapproved by faculty before registration.

**Repeatability:** This course may be repeated for additional credit.

**EPBI 3387. Public Health Beyond Borders: International Travel Experience. 1 Credit Hour.**

In this course, you will gain hands-on experience in a global community, leading meetings and health-related activities while working closely with community members on site to promote and improve health. You will participate in the delivery and evaluation of educational and health promotion activities in partnership with the community. You will also be actively working with local university students to increase community capacity and project sustainability. Among other things, you will practice cultural competency in a global setting, utilize your interpersonal and communication skills in community-based global settings, and demonstrate a global mindset during implementation of health promotion activities. This course requires travel abroad with the Public Health Beyond Borders (PHBB) student team for a period of 7-14 days. You will be actively involved in advancing PHBB's vision, mission and goals in global communities.

**Repeatability:** This course may not be repeated for additional credits.