EPID Epidemiology

EPID 7090 Selected Topics in Epidemiology
1-3 Credit Hours. 1-3 Lecture Hours. 0 Lab Hours.
Allows the student the opportunity to receive specialized and/or focused instruction in an epidemiology topic not generally offered by the department.

EPID 7131 Epidemiology of Chronic Disease
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course is designed to introduce the student to the ever-expanding area of chronic disease epidemiology. Students will be introduced to the current status of chronic disease and control programs, methods used in chronic disease surveillance, intervention methods, and modifiable risk factors. Some of the major chronic diseases such as cancer, cardiovascular disease, chronic lung disease, diabetes and arthritis will be discussed in detail.
Prerequisite(s): A minimum grade of "B" in PUBH 6533.

EPID 7133 Epidemiologic Research Methods I
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course will focus on epidemiologic methods - primarily methods used in observational studies using existing data, cohort studies, case-control studies and randomized controlled trials. With respect to cohort studies, topics covered include cohort identification, ascertainment of exposure status, follow-up of cohort members, measuring outcomes, sources of bias and interpretational issues. Case-control topics include issues around defining cases and controls, control of confounding, and sources of bias/systematic error. Topics around randomized trials include randomization procedures, defining and assembling treatment/intervention arms, selecting study subjects and approaches to data collection. Other topics covered in this course include surveillance and ecologic studies. Pros and cons of all study designs will be discussed, in part through readings of published papers. Fundamentals of data analysis will also be addressed, but a detailed discussion of that material will be covered in EPID 7134.
Prerequisite(s): A minimum grade of "B" in BIOS 6541 or PUBH 6541.

EPID 7134 Epidemiologic Research Methods II
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course provides instruction and hands-on experience in the analysis and interpretation of data from epidemiologic studies. Topics to be covered include epidemiology research questions that can be addressed by case-control and cohort studies, the rationale underlying the major techniques used to analyze data from case-control and cohort studies, the conditions under which these methods are appropriate and their relative advantages and disadvantages. Attention will be given to how interactions, confounders and nonlinear relationships among variables can be addressed along with interpretation of statistical software output from epidemiologic studies employing these designs and analytical methods.
Prerequisite(s): A minimum grade of "B" in EPID 7133.

EPID 7135 Epidemiology of Infectious Disease
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course is designed to provide students with an overview of the principles and practices of infectious diseases epidemiology with focus on how the presence and control of communicable diseases effects public health locally, nationally and internationally. Topics to be covered include: 1) general principles of infectious diseases epidemiology, including outbreak investigation, surveillance, analysis of infectious diseases data, and laboratory testing of specimens; 2) major modes of infectious disease transmission, including airborne, food and water, zoonotic, insect vector, blood, and sexual transmission; 3) different control strategies for infectious diseases, including infection control, antimicrobial management, immunization, risk factor modification, and screening; 4) the practical application of epidemiologic tools for the understanding and control of infectious diseases.
Prerequisite(s): A minimum grade of "B" in PUBH 6533 and PUBH 6541 and BIOS 6541.

EPID 7230 Social Epidemiology and Health Equity
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course will focus on understanding the social determinants of health. The course will provide an analysis of major social variables that affect population health: poverty, social class, gender, race, family, community, work, behavioral risks, and coping resources. Readings and discussion center on understanding the theories, measurement and empirical evidence related to specific social conditions and experiences such as socioeconomic position, discrimination, social networks and support, work conditions, ecological level neighborhood and community social conditions, and social and economic policies. Biological and psychological mechanisms by which social conditions influence health will be discussed. Methods are introduced to operationalize each construct for the purposes of empirical application in epidemiologic research.
Prerequisite(s): A minimum grade of "B" in PUBH 6533.

EPID 7233 Public Health Surveillance
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course will provide students with a strong foundation in public health surveillance of both health conditions and risk factors. The course will teach the theory and practice of surveillance supported by many examples of surveillance systems from the developed and developing world. The class will build on and reinforce basic epidemiologic concepts. Students will be given the opportunity to design and evaluate a surveillance system.
Prerequisite(s): A minimum grade of "B" in PUBH 6533.

EPID 7890 Directed Individual Study
1-3 Credit Hours. 1-3 Lecture Hours. 0 Lab Hours.
Provides the student with an opportunity to investigate an area of interest under the direction of a faculty mentor.

EPID 8130 Field Methods in Epidemiology
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course addresses practical aspects of management and implementation of research studies and will focus on the conduct of research consistent with the scientific method. Topics include planning study activities, questionnaire design and implementation, and operations research.

EPID 8230 Observational Study Design and Analysis
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course will focus on the design and conduct of observational research designs including cohort, case-control and cross-sectional approaches. This course will provide instruction related to issues specific to observational research approaches. Students will develop and present detailed study plans for each research approach.

EPID 8231 R for Epidemiologists
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This is an introductory course in R tailored to the needs of epidemiologists and epidemiological research. The course will include data management, mathematical and statistical computation and analytical statistical tools that epidemiologists can use in their research and practice.
EPID 8431 Stata for Epidemiologists
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course emphasizes data management and software applications using the Stata software package. Student will learn how to use Stata codes for the basics of data-management, data-reporting, graphics and use of do-files. Students will also learn basic Stata commands useful in epidemiological research including, but not limited to, descriptive statistics to estimate the incidence of a binary response and to characterize the demographic information supplied by study participants; statistical tests to identify univariate predictors associated with the binary response; graph the incidence of a binary response as a function of a predictor; and table of standardized means and proportions. Students will also be introduced to Stata codes for regression models. Particular focus is placed on applications pertaining to public health and health services research.

EPID 9131 Epidemiology of Infectious Diseases of Direct Interpersonal Transmission
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course covers advanced topics in epidemiology of infectious diseases of direct interpersonal transmission, except sexual and bloodborne transmission. These include infectious diseases that are transmitted via airborne transmission, droplet transmission, or transmission via fomite or touching, etc. Important themes may include emergency preparedness and response (including outbreaks and pandemics), surveillance, as well as interventions that prevent and control transmissions. Computational, mathematical and statistical tools relevant to the practice of infectious disease epidemiology will be introduced.

EPID 9132 Epidemiology of Infectious Diseases Transmitted via Bodily Fluids
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course covers advanced topics in epidemiology of infectious diseases transmitted via bodily fluids, primarily sexually transmitted infections and bloodborne infections. Important themes may include outbreak preparedness and response, surveillance, and interventions that prevent and control transmissions. Computational, mathematical and statistical tools relevant to the practice of infectious disease epidemiology will be introduced.
Prerequisite(s): A minimum grade of "C" in EPID 9131.

EPID 9231 Chronic Disease Epidemiology
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course is designed to introduce the student to the ever-expanding area of chronic disease epidemiology. Students will be introduced to the current status of chronic disease and control programs, methods used in chronic disease surveillance, intervention methods, and modifiable risk factors. Some of the major chronic diseases such as cancer, cardiovascular disease, chronic lung disease, diabetes and arthritis will be discussed in detail. Pathophysiology and clinical features of common chronic conditions will also be presented.

EPID 9232 Cardiovascular Disease Epidemiology
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course is designed to enhance understanding about the determinants of cardiovascular diseases in populations and how to intervene most effectively to reduce morbidity and mortality due to stroke and heart disease. Emphasis is placed on the social determinants, behavioral risk factors, nutritional and dietary influences, and policy intervention of cardiovascular diseases. In addition, the course provides students with hands on experience to characterize the frequency and impact of chronic diseases and their risk factors from global, national and local perspective using public data available through the Center of Disease Control and Prevention and other sources.

EPID 9233 Cancer Epidemiology
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course uses a combination of lecture, student discussion and independent research to review the fundamentals of cancer epidemiology including classic descriptive cancer EPI, basic cancer biology, etiology of common and uncommon human cancers, major and minor risk factors for cancer, screening techniques for early detection, cancer biomarkers, and current research in cancer epidemiology. Epidemiologic surveillance techniques including cancer registries and databases, international studies and intervention trials will also be covered. Study designs and epidemiologic methodology used in cancer research will be discussed throughout the course.

EPID 9431 Mental Health Epidemiology
3 Credit Hours. 3 Lecture Hours. 0 Lab Hours.
This course will explore factors that determine the frequency and distribution of mental health problems in populations. Strategies for mental health intervention will also be discussed.