

# EPIDEMIOLOGY (EPID)

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## EPID 542 - Global Health Epidemiology (3 Credits)

This course will introduce epidemiologic concepts and methods using cases studies examining current global health challenges. Students will gain an understanding of the role of epidemiology in understanding the distribution of disease and risk factors, and developing, implementing and evaluating public health interventions globally.

## EPID 594 - Special Topics in Epidemiology (1-6 Credits)

This course will introduce epidemiologic concepts and methods using cases studies examining current global health challenges. Students will gain an understanding of the role of epidemiology in understanding the distribution of disease and risk factors, and developing, implementing and evaluating public health interventions globally.

## EPID 661 - Parasitology (4 Credits)

Parasites of biological, economic, and public health importance. Three lecture and three laboratory hours per week.

**Prerequisites:** 300 level Biology course or equivalent.

**Cross-listed course:** BIOL 531, ENHS 661

## EPID 700 - Introduction to Epidemiology (3 Credits)

Principles of epidemiology with examples of selected health problems. Health status of populations and conceptual tools for translating epidemiologic findings into public health action. May not be used as part of a degree program in epidemiology or biostatistics.

## EPID 701 - Concepts and Methods of Epidemiology (3 Credits)

Conceptual foundation of epidemiologic research, quantitative methods, and epidemiologic study design. Intended for those who will be involved in epidemiologic research.

**Prerequisite or Corequisite:** BIOS 701.

## EPID 721 - Clinical and Population Research Protocol Development and Implementation (2 Credits)

The purpose of this course is to develop applied research skills related to the development of appropriate data collection protocols for a given public health issue and context.

## EPID 722 - Scientific Writing and Appraisal of Epidemiologic Studies (2 Credits)

This course will familiarize students with techniques used to critically assess, interpret, evaluate, and synthesize epidemiologic literature. Students will be introduced to research databases, reference management software, reporting guidelines, and methods for systematic reviews. Students will learn how to effectively communicate research finding via manuscript and oral or poster format.

**Prerequisites:** EPID 701, PUBH 725 or equivalent. The instructor reserves the right to waive course requirements or consider

**Corequisite:** in special cases.

## EPID 725 - Biologic Basis of Public Health (3 Credits)

Survey of the biology of human disease processes at cellular, tissue and body system levels: application of biological principles to contemporary public health problems.

## EPID 730 - Public Health Surveillance Systems (3 Credits)

Introduction to the concepts, implementation, and evaluation of surveillance systems to monitor the health of human populations.

**Prerequisites:** EPID 701, PUBH 725, or equivalent course.

## EPID 741 - Intermediate Epidemiologic Methods (3 Credits)

Application of epidemiologic methods to current health problems through analysis of secondary data. Strategies for investigating etiologic hypotheses, assessment and control of confounding.

**Prerequisites:** EPID 701, PUBH 725, or equivalent.

**Prerequisite or Corequisite:** BIOS 757, BIOS 758 and BIOS 709, BIOS 710.

## EPID 743 - Nosocomial Disease Control (3 Credits)

Specialization in the identification of potential or existing health hazards in institutional settings of the health care system; and includes instruction in the application of scientific knowledge to the daily routines in the implementation of appropriate control behaviors. Two lecture and three laboratory hours per week.

**Prerequisites:** BIOS 700, EPID 700, EPID 742.

## EPID 744 - Cardiovascular Disease Epidemiology (3 Credits)

Epidemiology of selected groups of cardiovascular diseases (CVD) including etiology, pathophysiology, identification and description of events of CVD, and outcomes.

**Prerequisites:** EPID 701, PUBH 725.

## EPID 745 - Seminar in Epidemiology (1-2 Credits)

Analysis of current and prospective issues in epidemiology, including historical foundations. Includes student exploration and critical consideration of current research and unsolved problems in epidemiology.

## EPID 746 - Cancer Epidemiology (3 Credits)

Epidemiology of selected cancers in humans, including etiology, pathophysiology, identification and description of events of cancer and outcomes.

**Prerequisites:** EPID 701, PUBH 725 or equivalent. The instructor reserves the right to waive the prerequisite or consider

**Corequisite:** in special cases.

## EPID 747 - Environmental Epidemiology (3 Credits)

Emphasis on the epidemiology of selected environmental factors which may affect human health including the identification of health hazards and methods of investigation. Two lecture and three laboratory hours per week.

**Prerequisites:** EPID 700, BIOS 700.

## EPID 749 - Infectious Diseases Epidemiology (3 Credits)

Introduction to Principles of Epidemiology and Control of Infectious Disease. Focus will be on selected bacterial, viral, parasitic, and fungal diseases of public health importance locally, nationally and globally.

**Prerequisites:** EPID 701, PUBH 725, or equivalent course; BIOS 700/ BIOS 701 or consent of instructor. The instructor may waive course requirements or consider the need for

**Corequisite:** in special cases.

## EPID 750 - Methods in Infectious Disease Epidemiology (3 Credits)

Quantitative methods for the study of infectious disease dynamics, including study design and analysis, mathematical modeling, computer simulation, and phylogenetic inference.

**Prerequisites:** EPID 741 and EPID 749.

**EPID 751 - Sexually Transmitted Diseases: Their Epidemiology and Control (3 Credits)**

A study of the epidemiology of the various sexually transmitted diseases and their complications, with emphasis on their prevention and control.

**Prerequisites:** EPID 700 and BIOS 700.

**EPID 752 - Epidemiology and Control of Parasitic Diseases of Public Health Importance (3 Credits)**

Study of major parasitic diseases of public health importance. Emphasis on epidemiologic principles and patterns of human morbidity and mortality. Analyzes and evaluates various approaches in prevention and control programs.

**Prerequisites:** EPID 700, BIOS 700, and ENHS 661.

**EPID 753 - AIDS: Epidemiology and Control (3 Credits)**

A study of the epidemiology of Acquired Immunodeficiency Syndrome (AIDS) and its various implications and issues with emphasis on its prevention and control.

**EPID 755 - Emerging Infectious Diseases: Epidemiology and Pathobiology (3 Credits)**

Principles and factors in emerging infectious diseases with emphasis on epidemiology, pathobiology, prevention, and control.

**Prerequisites:** EPID 749.

**EPID 757 - Epidemiologic Applications to Occupational Health (3 Credits)**

Introduction to clinical and epidemiologic aspects of occupational health and recognition and prevention of occupational diseases and injury.

Epidemiologic applications to occupational health are highlighted and stressed, including design and implementation.

**Prerequisites:** EPID 700 or EPID 701.

**EPID 763 - Nutritional Epidemiology (3 Credits)**

Covers methodology for investigating nutrition's role in health, including nutritional assessment and the design and interpretation of research studies. Substantive issues emphasize major public health concerns of the 21st century.

**Prerequisites:** EPID 701, PUBH 725, or equivalent.

**EPID 765 - Reproductive and Perinatal Epidemiology (3 Credits)**

Epidemiology of reproductive and perinatal health with emphasis on current research, controversial issues and methodological approaches.

**Prerequisites:** EPID 701, PUBH 725, or equivalent course, BIOS 701.

**EPID 767 - GIS and Public Health Applications (3 Credits)**

Principles and application of basic and intermediate-level GIS technologies in public health practice and research.

**EPID 768 - Psychiatric Epidemiology (3 Credits)**

Methodologic issues in the epidemiologic study of psychiatric disorder, the epidemiology of major psychiatric outcomes, and issues in the study of special populations.

**EPID 770 - Social Epidemiology (3 Credits)**

Influence of social factors and the distribution of those factors on patterns of health and disease. Including individual-level examinations of the role of social determinants in producing health, as well as more macro-level examinations of patterns of social disparities in health status.

**Prerequisites:** EPID 701, PUBH 725, or equivalent course.

**EPID 777 - Fundamentals of Genetic Epidemiology (3 Credits)**

This course is an introduction to the field of genetic epidemiology, providing students with an understanding of: 1) basic genetics, 2) the tools used by geneticists and genetic epidemiologists, and 3) the integration of genetic data into traditional epidemiologic study designs. This course includes application of epidemiologic and computational software tools used to analyze genetic data.

**Prerequisites:** EPID 701 or PUBH 725; BIOS 701.

**EPID 788 - Practical Methods for Secondary Data Analysis (3 Credits)**

Introduction to data sources and methods commonly used by epidemiologists and health analysts in state or federal health departments and research settings. Methods include data management and analysis using SAS, data interpretation, survey designs, and innovative record linkages.

**Prerequisites:** PUBH 725 and BIOS 709 or EPID 701 and BIOS 701 and BIOS 709 or BIOS 710, Recommended: BIOS 757, BIOS 758, or BIOS 754; and EPID 741 or equivalent research methods course.

**EPID 790 - Independent Study (1-6 Credits)**

Directed research on a topic to be developed by M.P.H. or M.S.P.H. student and instructor. May be repeated.

**EPID 794 - Selected Topics in Epidemiology (1-6 Credits)**

Content varies by title. Course may be repeated for a total of 6 credit hours.

**EPID 796 - Integrated Learning Experience (3 Credits)**

Demonstrate synthesis of MPH foundational and concentration competencies to address a public health issue in the form of a high-quality written product.

**Prerequisites:** C or better in PUBH 724, PUBH 725, PUBH 726, PUBH 730, PUBH 735, and EPID 741 or permission of the program director.

**EPID 798 - Epidemiology Applied Practicum (3 Credits)**

Apply and test public health concepts, theories, and analytical tools learned in the classroom to real-world public health issues outside of the classroom in any one of a variety of settings.

**Prerequisites:** C or better in PUBH 724, PUBH 725, PUBH 726, and PUBH 730 or permission of MPH Program Director.

**EPID 799 - Thesis Preparation (1-9 Credits)**

**EPID 800 - Advanced Methodological Theory in Epidemiology (3 Credits)**

Advanced epidemiologic methods in the design of epidemiologic studies, with emphasis on causal inference. Theories and frameworks of causation and interactions between causes and graphical visualization tools.

**Prerequisites:** EPID 741.

**EPID 801 - Advanced Analytic Methods in Epidemiology (3 Credits)**

Extension of research design and development issues with focus on grant writing.

**Prerequisites:** EPID 800.

**EPID 802 - Grant Writing (3 Credits)**

Extension of research design and development issues with focus on writing a major research grant application.

**Prerequisites:** EPID 741.

**EPID 805 - Introduction to Systematic Reviews and Meta-Analysis (1-3 Credits)**

The major goal for all students taking this course is to provide an overview of how to conduct systematic reviews and meta-analyses from published scientific literature. Emphasis is placed on developing a working knowledge of how to conceptualize a literature review, keyword search for relevant articles through online databases, define inclusion and exclusion criteria, develop coding schemes for study information, and the calculation of effect sizes using published data. For students taking more than 1-credit the additional goals are to provide hands-on experience in conducting a systematic review and meta-analysis, calculating effect sizes, and learning to use meta-analysis software.

**Prerequisites:** C or better in BIOS 700 and BIOS 701 or their equivalent; C or better in BIOS 757 or equivalent is strongly recommended.

**Cross-listed course:** EXSC 805

**EPID 820 - Seminar in the Epidemiology of Health Effects of Physical Activity (3 Credits)**

Seminar presentation and group discussion on the major issues in the study of physical activity and exercise and their impact on health.

**Prerequisites:** EPID 700.

**EPID 830 - Seminar in the Epidemiology of Aging (3 Credits)**

Exploration in depth of theories, current health problems, research, and methodological issues in the epidemiology of aging.

**EPID 844 - Advanced Cardiovascular Disease Epidemiology: Evidence Synthesis and Evaluation (3 Credits)**

Epidemiology of cardiovascular disease and its risk factors, with a focus on evidence synthesis through systematic reviews.

**Prerequisites:** EPID 701.

**EPID 845 - Doctoral Seminar (1-3 Credits)**

May be repeated for credit.

**Prerequisites:** complete at least one semester of course work.

**EPID 847 - Advanced Environmental Factors and Human Health (3 Credits)**

Advanced methods encompassing the investigation of environmental factors and how they affect human health. Emphasis on reading and interpreting the peer reviewed scientific literature and developing a systematic literature review and grant proposal.

**Prerequisites:** EPID 700 EPID 701 and BIOS 700 BIOS 701.

**EPID 861 - Fundamentals and Applications of Translational Science (3 Credits)**

The course is divided into two parts. Part I, the Fundamentals of Translational Science, will provide students with foundational information to understand the basic principles of translational science. Part II of the course, Applications of Translational Science, will provide students with real-world examples of translational science research.

**EPID 865 - Methods in Reproductive & Perinatal Epidemiology (3 Credits)**

This course provides an overview of reproductive and perinatal epidemiology and the applications in the field of Maternal and Child Health. It covers the current and emerging topics in this area. Designed for doctoral students with interests in conducting research related to reproductive and perinatal epidemiology.

**Prerequisites:** EPID 700 EPID 701 and BIOS 700 BIOS 701.

**EPID 867 - Geographic Information Systems for Public Health Research (3 Credits)**

Principles and application of basic and intermediate-level GIS technologies in public health research. Designed for doctoral students with interest in conducting health-related research using GIS methods.

**EPID 869 - Clinical Effectiveness (3 Credits)**

Clinical Effectiveness is a broad term that includes clinical trials and interventional study designs. The purpose of this course is to develop skills in the application of epidemiologic methods to clinical effectiveness research, by conceptualizing and designing an intervention study. Students will actively participate in teaching and learning through in-class activities and developing a protocol to test an intervention in a clinical trial design.

**Prerequisites:** EPID 701, PUBH 725, or equivalent course.

**EPID 877 - Advanced Methods and Concepts in Nutrition Research (3 Credits)**

Advanced Methods and Concepts in Nutrition Research addresses aspects of nutrition ranging from nutritional biochemistry to dietetics and community nutrition education. It covers disciplinary breadth encompassing the study of effects of dietary exposures on inflammation, epigenetics, immune function, psychological states and traits, physiologic states, and pathophysiologic processes, including carcinogenesis.

**Prerequisites:** EPID 763.

**EPID 890 - Independent Study (1-3 Credits)**

Directed research on a topic to be developed by doctoral student and instructor. May be repeated.

**EPID 894 - Selected Topics in Epidemiology for Doctoral Students (1-3 Credits)**

Variable credit doctoral level epidemiology course (1-3). The specific epidemiologic topic to be taught is determined by the course instructor in consultation with the department.

**EPID 899 - Dissertation Preparation (1-12 Credits)**

**Prerequisite:** one full year (18 hrs) of graduate study beyond the master's level.