

## EPIDEMIOLOGY

## EPI

**Department of Epidemiology  
College of Human Medicine**
**390 Disease in Society: Introduction to Epidemiology and Public Health**

Spring. 4(4-0) Interdepartmental with Social Science. Administered by Epidemiology.

Human epidemiology and population health issues facing contemporary society. Developed and less-developed settings. Health-related information in the mass media and scholarly publications.

**546 Information Management: Fundamentals of Epidemiology and Biostatistics**

Spring. 1(1-0) RB: Undergraduate mathematics and/or statistics R: Open only to graduate-professional students in the College of Human Medicine.

Introduction to accessing, analyzing, and applying information to patients and to populations. Offered first ten weeks of the semester.

**547 Information Management: Applications of Epidemiology and Biostats**

Fall. 1(1-0) P:M: EPI 546 RB: Undergraduate mathematics and/or statistics. Open only to 2nd year College of Human Medicine students.

Basic competency in accessing, analyzing, and applying information to patients and populations.

**805 Readings in the Historical Roots of Epidemiological Thought**

Fall. 3(3-0) Interdepartmental with History. Administered by Epidemiology.

Historical evolution of models of disease causation and population perspectives on disease.

**806 Workshop in History of Public Health**

Spring. 3(3-0) Interdepartmental with History. Administered by Epidemiology.

Historical reasoning, research and writing on a significant event or theme in history of epidemiology and public health.

**810 Introduction to Descriptive and Analytical Epidemiology**

Fall. 3(3-0) R: Open to graduate students in the Epidemiology major. Approval of department. SA: HM 810

Disease from a population perspective as the interaction of host, agent, and environment. Case definition, measuring frequency of disease, mortality and morbidity data, and major study designs.

**812 Causal Inference in Epidemiology**

Fall. 3(3-0) RB: EPI 810 and LCS 829 R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 812

Causality in epidemiology. Application of theoretical concepts to the design, analysis, and assessment of epidemiologic research.

**813 Investigation of Disease Outbreaks**

Fall, Spring, Summer. 3 credits. RB: EPI 810 or concurrently R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 813

Principles of and practice in investigating disease outbreaks.

**814 Nutritional Epidemiology**

Fall of odd years. 3(3-0) RB: EPI 810 or concurrently R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 814

Methodologies used in epidemiologic studies of diet and health in the context of U.S. and international dietary patterns. Relationship between diet and specific diseases.

**815 Epidemiology of Cardiovascular Disease**

Fall of even years. 3(3-0) RB: EPI 810 R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 815

Survey of methodologies used in epidemiologic studies of cardiovascular diseases. Review of evidence of genetic, environmental, and behavioral causes of cardiovascular disease.

**816 Perinatal Epidemiology**

Summer of odd years. 3(3-0) RB: EPI 810 R: Open only to graduate students in the Epidemiology major or approval of department. SA: HM 816

Epidemiology of adverse health states in pregnancy and the puerperium. Impact of these health states on subsequent child development.

**817 Epidemiology of Communicable Diseases**

Fall of even years. 3(3-0) RB: EPI 810 R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 817

Application of principles of epidemiology to research in communicable diseases relevant to public health in the U.S. and other countries.

**818 The Epidemiology of Zoonotic Diseases**

Spring of odd years. 3(3-0) Interdepartmental with Veterinary Medicine. Administered by Epidemiology. RB: EPI 810 R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 818

Human susceptibility to diseases of animals. Modes of transmission, surveillance, and strategies for prevention of specific zoonotic diseases.

**819 Spatial Epidemiology and Medical Geography**

Summer of even years. 3(3-0) Interdepartmental with Geography. Administered by Epidemiology. RB: EPI 810 R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 819

Concepts, techniques, and utilization of spatio-epidemiologic analyses for human health.

**820 Evidence-Based Medicine**

Spring of even years. 3(3-0) Interdepartmental with Medicine. Administered by Epidemiology. P:M: (EPI 810 or concurrently) and (STT 421 or concurrently)

Methodology of clinical epidemiology and health services outcomes research. Linkage of epidemiology with daily clinical problems.

**821 Epidemiology of the Health and Cognitive Status of the Elderly**

Fall of odd years. 3(3-0) Interdepartmental with Family Practice. Administered by Epidemiology. RB: EPI 810 or concurrently R: Open to graduate students in the Epidemiology major or approval of department. SA: FMP 821, HM 821

Interpretation of research on the health and cognitive status of elderly. Interpretation of statistical tests of hypotheses. Conclusions based on data.

**822 Environmental Epidemiology**

Fall of odd years. 3(3-0) P:M: (EPI 810 or concurrently) and (STT 421 or concurrently) RB: Basic science in biology, physiology, immunology R: Open only to graduate students in the Department of Epidemiology or approval of department.

Epidemiology of health effects and risk communication.

**823 Cancer Epidemiology**

Spring of odd years. 3(3-0) P:M: EPI 810 and STT 421 R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 823

Basic principles of carcinogenesis. Major etiologic factors, types of malignancies, and biomarkers for susceptibility and exposure. Prevention and early detection of cancer.

**824 Reproductive Epidemiology**

Fall of even years. 3(3-0) P:M: (EPI 810 or concurrently) and (STT 421 or concurrently) RB: Social science or biological science R: Open only to graduate students in the Department of Epidemiology or approval of department.

Epidemiology of reproductive events.

**826 Research Methods in Epidemiology**

Fall. 3(3-0) P:M: STT 422 R: Open to graduate students in the Epidemiology major or approval of department. SA: HM 826

Analyses of epidemiologic and clinical data applying statistical methods, based on logistic and survival models, using standard software.

**827 The Nature and Practice of Scientific Integrity**

Spring. 3(3-0) P:M: EPI 810

Historical development of where and how science is practiced in the United States. Scientific culture, sociology, and ethical standards. Principles, standards, and practices which define scientific integrity and responsible research conduct.

**829 Design and Conduct of Epidemiological Studies and Clinical Trials**

Spring. 3(2-2) Interdepartmental with Large Animal Clinical Sciences. Administered by Large Animal Clinical Sciences. RB: (VM 533) or approval of department. R: Open only to graduate students in the colleges of Human Medicine, Osteopathic Medicine, or Veterinary Medicine.

Applied analytical methods in experimental design. Assessment of health and disease status of animal and human populations. Risk assessment and interpretation of clinical trials.

**830 Epidemiology of Foodborne Diseases and Food Safety: An Overview**

Fall. 3(3-0) Interdepartmental with Large Animal Clinical Sciences. Administered by Large Animal Clinical Sciences. RB: Advanced undergraduate courses in biology, microbiology, biological sciences, biochemical sciences, food technology. R: Approval of department.

Epidemiologic survey of important foodborne diseases addressing recent trends. Sources of surveillance data. Measurement and management of risk factors associated with major foodborne diseases. Tracking foodborne pathogens from farm to table. Introduction to Hazard Analysis Critical Control Points (HACCP).

## Epidemiology—EPI

- 835 Topics and Methods in Neuroepidemiology**  
Summer of even years. 3(3-0) Interdepartmental with Neurology and Ophthalmology. Administered by Epidemiology. P:M: EPI 810  
Epidemiology of neurologic conditions and discussion of the inherent difficulty in studying these disorders.
- 847 Analysis of Survival Data**  
Spring of even years. 3(3-0) Interdepartmental with Statistics and Probability. Administered by Statistics and Probability. RB: STT 422 or STT 442 or STT 862  
Analysis of lifetime data. Estimation of survival functions for parametric and nonparametric models. Censored data. The Cox proportional hazards model. Accelerated failure time models. Frailty models. Use of statistical software packages.
- 851 SAS Programming I: Essentials**  
Fall. 1(1-0) R: Open only to graduate students in the Epidemiology major or approval of department.  
A programming approach to plan and write simple SAS programs to solve common data management and data analysis problems.
- 852 SAS Programming II: Data Management and Analysis**  
Spring. 1(1-0) P:M: EPI 851 R: Open only to graduate students in the Epidemiology major or approval of department.  
A programming approach to plan and write SAS programs to solve common data management and data analysis problems.
- 853 SAS Programming III: Research Data Analysis Using SAS**  
Summer. 1(1-0) P:M: EPI 852 R: Open only to graduate students in the Epidemiology major or approval of department.  
A programming approach to plan and write SAS programs to solve data management and data analysis problems in research settings.
- 890 Independent Study in Epidemiology**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. RB: EPI 810 R: Open only to master's students in the Epidemiology major. Approval of department. SA: HM 890  
Independent study in areas relevant to epidemiology such as population genetics.
- 899 Master's Thesis Research**  
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 36 credits in all enrollments for this course. R: Open only to master's students in the Epidemiology major. Approval of department. SA: HM 899  
Master's thesis research.
- 910 Themes in Contemporary Epidemiology**  
Fall of odd years. 3(3-0) RB: Master of Science in Epidemiology  
Discussion and critique of important contemporary themes in epidemiology as reflected in current publications in the field.
- 915 Advanced Survival Analysis**  
Spring of odd years. 3(3-0) Interdepartmental with Statistics and Probability. Administered by Epidemiology. RB: EPI 810 and EPI 826 and EPI 852  
Methods of analysis of time to event data parametric and nonparametric models, frailty models.
- 920 Advanced Methods in Epidemiology and Applied Statistics**  
Spring of even years. 3(3-0) Interdepartmental with Statistics and Probability. Administered by Epidemiology. P:M: EPI 826  
Pattern recognition and cluster analysis, longitudinal data analysis, path analysis, repeated measures and time-series analysis.
- 925 Modeling in Epidemiology I**  
Fall of odd years. 3(3-0) P:M: EPI 910 RB: Experience in statistical analysis of biological data.  
Critical examination of epidemiological thinking about the determinants of non-communicable diseases.
- 930 Modeling in Epidemiology II**  
Spring of even years. 3(3-0) P:M: EPI 910 and EPI 925 RB: Mathematics through calculus.  
Critical examination of epidemiological thinking about the determinants of communicable diseases and illnesses with both communicable and non-communicable causes.
- 935 Research Seminar**  
Spring of even years. 3(3-0) P:M: EPI 810 and LCS 829 and EPI 812 RB: Master of Science in Epidemiology or equivalent.  
Conceptualization, development, and writing of research proposals in epidemiology and other forms of clinical field research.
- 940 Epidemiological Consultations**  
Spring of odd years. 3(3-0) P:M: EPI 810 RB: Master's level training in epidemiology or biostatistics  
Practical training in providing research consultations in epidemiology and biostatistics.
- 945 Molecular Epidemiology**  
Fall of even years. 3(3-0) P:M: EPI 910 or concurrently  
Strategies for incorporation of genetic and non-genetic biomarkers in epidemiology.
- 950 Advanced Biostatistical Methods in Epidemiology**  
Fall of even years. 3(3-0) P:M: EPI 920  
In-depth study of specific biostatistical methods and epidemiology applications.
- 990 Independent Study**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 12 credits in all enrollments for this course. R: Open to doctoral students in the Department of Epidemiology. Approval of department.  
Special projects, directed reading, and research arranged by an individual graduate student and a faculty member in areas supplementing regular course offerings.
- 999 Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to doctoral students in the Epidemiology major.  
Doctoral dissertation research.