DEPARTMENT OF EPIDEMIOLOGY (GRAD)

Contact Information
Department of Epidemiology
http://sph.unc.edu/epid
2101 McGavran-Greenberg Hall
919-966-7430

Andrew F. Olshan, Chair

The Department of Epidemiology, which is housed in the Gillings School of Global Public Health, is one of the world’s leading academic departments in epidemiology. Renowned faculty members provide students with training in effective research practices and methods. The department conducts innovative research and provides classroom and real-world educational interdisciplinary opportunities that emphasize the integration of substantive area knowledge and cutting-edge epidemiologic methods. It also works with students to apply their epidemiology research to a variety of health problems in North Carolina and across the world. Research resources include diverse studies of disease endpoints (cancer, cardiovascular, infectious disease, injury, and reproductive/perinatal/pediatric epidemiology) and factors and methods that impact patterns of disease and population health (environmental, occupational, pharmacoepidemiology, genetic, social, and methods).

Degrees and Certificates
The Department of Epidemiology offers master’s degrees and a doctoral degree, and cosponsors a certificate. The master’s and doctoral programs offer a body of research skills together with the opportunity to work closely with faculty on key research questions, and to share the challenge and rewards that epidemiology provides.

Master of Public Health (M.P.H.)
The M.P.H. is a terminal degree program for physicians and other doctoral-level professionals. The M.P.H. degree requires a minimum of 42 semester hours of credit, and is designed as a two-year program.

Master of Public Health Program (M.P.H.) with a Veterinary Epidemiology Concentration
The Department of Epidemiology, in collaboration with the North Carolina State University College of Veterinary Medicine, jointly sponsors a targeted curriculum opportunity for veterinarians interested in careers in public health. This two-year program requires a minimum of 56 total credit hours. The unique program is designed to provide graduate training for veterinarians interested in pursuing public health service-oriented careers with local, state, federal, and international public health and animal health agencies.

Master of Science in Clinical Research (M.S.C.R.)
The M.S.C.R. program is an interdisciplinary research degree program housed within the Department of Epidemiology in the Gillings School of Global Public Health but jointly sponsored by the TracS (http://tracs.unc.edu) (North Carolina Translational and Clinical Sciences) Institute in the UNC School of Medicine. The program is designed to develop the skills necessary for a successful career as a principal investigator and collaborator in clinical/translational research. The M.S.C.R. requires a minimum of 36 semester hours of credit and is designed as a two-year program with at least two full semesters in residence. The program may be completed on either a part-time or full-time basis.

Doctor of Philosophy (Ph.D.)
The doctor of philosophy (Ph.D.) in epidemiology prepares students for careers in research and teaching, often at a university, federal, or state agency, or private research institution. Students develop research and teaching skills in epidemiology through coursework and practice opportunities. The doctoral program includes coursework, preliminary doctoral examinations, and doctoral research. Students who have already earned a relevant master’s or professional degree (M.D., D.D.S., D.V.M., etc.) typically complete the doctorate in three to five years after admission.

Students who have not earned a relevant master’s or professional degree may still be admitted to the doctoral program; however, these students are required to complete the master of science in public health (M.S.P.H.) in the Department of Epidemiology before they begin their doctoral coursework. This may add one to two years to the program. These applicants should still apply directly to the Ph.D. program.

Certificate in Field Epidemiology
The Certificate in Field Epidemiology (http://sph.unc.edu/phlp/phlp-degrees-and-certificates/certificate-in-field-epidemiology) is cosponsored by the Department of Epidemiology and the Public Health Leadership Program. The program is specifically designed for working practitioners and emphasizes practical, applied skills.

Following the faculty member’s name is a section number that students should use when registering for independent studies, reading, research, and thesis and dissertation courses with that particular professor.

Distinguished Professors
Myron “Mike” Cohen, Infectious Disease Epidemiology
Gerardo Heiss (41), Cardiovascular Epidemiology
Andrew F. Olshan (147), Cancer Epidemiology, Reproductive/Perinatal Epidemiology
Robert S. Sandler (73), Cancer Epidemiology
H. June Stevens (172), Nutritional Epidemiology, Obesity Epidemiology

Professors
Adaora Adimora, Infectious Disease Epidemiology
Allison Aiello (240), Social Epidemiology
Ralph S. Baric (142), Public Health Virology, Molecular Virology
Maurice Alan Brookhart (228), Pharmacoepidemiology, Methodology
Stephen R. Cole (225), Methodology, Infectious Disease Epidemiology
Michael Emch (234), Spatial Epidemiology, Medical Geography, Infectious Diseases, Neighborhoods and Health
Marlie D. Gammon (195), Cancer Epidemiology
David M. Margolis (220), Infectious Disease Epidemiology
Stephen W. Marshall (199), Injury Epidemiology, Methodology
Steven R. Meshnick (200), Infectious Disease Epidemiology
Kari North (205), Cardiovascular Epidemiology, Genetic Epidemiology
Wayne D. Rosamond (162), Cardiovascular Epidemiology
Anna Maria Siega-Riz (218), Nutritional Epidemiology, Reproductive/Perinatal/Pediatric Epidemiology
Til Hans Robert Stürmer (224), Pharmacoepidemiology, Methodology
Annelies Van Rie (202), Infectious Disease Epidemiology
David J. Weber (96), Infectious Disease Epidemiology
Associate Professors

Julie Daniels (206), Environmental Epidemiology, Reproductive/Perinatal/Pediatric Epidemiology
Larry Engel (232), Environmental Epidemiology, Cancer Epidemiology
Stephanie Engel (231), Reproductive/Perinatal Epidemiology, Environmental Epidemiology
Brian W. Pence (236), Infectious Disease Epidemiology, Mental Health Epidemiology, Implementation Science Research, Quantitative Epidemiologic Methods
Audrey Pettifor (215), Infectious Disease Epidemiology
Charles L. Poole (193), Methodology
David B. Richardson (213), Environmental Epidemiology, Occupational Epidemiology
Victor J. Schoenbach (64), Behavioral Epidemiology, Infectious Disease Epidemiology (Primarily STDs), Cancer Control (Primarily Smoking Cessation)
Jennifer S. Smith (212), Infectious Disease Epidemiology, Cancer Epidemiology
Lola V. Stamm (145), Public Health Bacteriology, Molecular Cloning, Pathogenics of Infectious Disease
James C. Thomas (127), Infectious Disease Epidemiology, Social Epidemiology
Melissa A. Troester (226), Cancer Epidemiology
Daniel J. Westreich (235), Infectious Disease Epidemiology, Methodology, Reproductive and Perinatal Epidemiology, Pharmacoepidemiology
Steven B. Wing (99), Occupational/Environmental Epidemiology, Social Epidemiology

Assistant Professors

Christy L. Avery (233), Cardiovascular Epidemiology, Genetic Epidemiology
Jennifer L. Lund (238), Cancer Survivorship and Outcomes, Pharmacoepidemiology, Healthcare Database Utilization
Hazel B. Nichols (239), Cancer Epidemiology, Women’s Health
Kimberly A. Powers (237), Infectious Disease Epidemiology, Global Health
Whitney R. Robinson (229), Social Epidemiology, Cancer Epidemiology, Nutrition, Methodology

Clinical Associate Professors

Karin Yeatts, Environmental Epidemiology
Lorraine Alexander, Public Health Preparedness, Distance Education

Clinical Assistant Professor

Patricia Basta, Cancer Epidemiology

Research Professors

John Baron, Cancer Etiology and Prevention, Clinical Epidemiology
Kelly R. Evenson (209), Cardiovascular Epidemiology, Physical Activity

Research Associate Professors

Jeannette Bensen, Cancer Epidemiology, Molecular Epidemiology
Nora Franceschini, Cardiovascular Epidemiology
Michele Jönsson Funk (216), Infectious Disease Epidemiology, Pharmacoepidemiology
Sonia Napravnik (223), Infectious Disease Epidemiology
Eric A. Whitsel (221), Cardiovascular Epidemiology

Research Assistant Professors

Kathleen C. Dorsey, Cancer Epidemiology
Tania Desrosiers, Reproductive/Perinatal Epidemiology; Birth Defects
Jess Edwards, Infectious Disease Epidemiology, Methodology, Global Health
Yvonne Golightly, Injury Epidemiology, Osteoarthritis
Mariaelisa Graff, Genetic Epidemiology
Rachel Graham, Public Health Virology, Molecular Virology
Anna Kucharska-Newton, Cardiovascular Epidemiology
J. Bradley Layton, Pharmacoepidemiology
Laura R. Loehr (227), Cardiovascular Epidemiology, Clinical Epidemiology
Anne-Marie Meyer, Cancer Epidemiology, Comparative Effectiveness Research, Health Services Research, Clinical Informatics
Nora Rosenberg, Behavioral Science, Infectious Disease Epidemiology, Global Health
Timothy Sheahan, Public Health Virology, Infectious Disease Epidemiology, Genetic Epidemiology
Amy Sims, Infectious Disease Epidemiology
Xuezheng Sun, Cancer Epidemiology, Molecular Epidemiology, Genetic Epidemiology
Anissa Vines, Social Epidemiology, Health Care Epidemiology
Sharon S. Weir, Infectious Disease Epidemiology
Kristin Young, Genetic Epidemiology, Health Disparities, Obesity Epidemiology

Research Instructor

Andrew Edmonds, Infectious Disease Epidemiology

Adjunct Faculty

Clinical Professors

Timothy S. Carey (138), Clinical Epidemiology
David F. Ransohoff (160), Health Care Epidemiology
Ross Simpson Jr., Cardiovascular Epidemiology, Clinical Epidemiology
Ronald Strauss, Dental Epidemiology, Social Impacts

Clinical Associate Professor

Mary "Bonnie" Rogers (187), Occupational Epidemiology

Adjunct Professors

Naomar Almeida-Filho, Psychosocial Epidemiology
Donna D. Baird (104), Reproductive Epidemiology
James D. Beck (167), Dental Epidemiology
Douglas Bell, Cancer Epidemiology
Dan German Blazer (108), Psychosocial and Aging Epidemiology
Donald Budenz
Gregory L. Burke, Cardiovascular Epidemiology
Leigh Callahan, Chronic Disease Epidemiology, Health Care Epidemiology
Willard Cates (188), Reproductive and Infectious Disease Epidemiology
Honglei Chen, Nutritional Epidemiology
Dennis A. Clements (152), Infectious Disease Epidemiology
Joseph Cook, Infectious Disease Epidemiology, Parasitology
Glenda S. Cooper (196), Chronic Disease Epidemiology, Reproductive Epidemiology
Joan Cornoni-Huntley (04), Aging, Physical, Cognitive, and Social Functioning
John Dement, Environmental Epidemiology, Occupational Epidemiology
Nancy Dreyer
Jeffrey Engel, Infectious Disease Epidemiology
Joseph Eron Jr., Infectious Disease Epidemiology
Paul J. Feldblum (186), Infectious Disease Epidemiology
Robert Fletcher (45), Health Care Epidemiology
Suzanne Fletcher (46), Health Care Epidemiology
Joanne M. Garrett (156), Health Services Research
Bradley Gaynes, Psychiatric Epidemiology
Paul A. Godley (181), Cancer Epidemiology
Raymond S. Greenberg (86), Cancer Epidemiology
Laura Hanson, Clinical Epidemiology, Geriatrics
Russell P. Harris (125), Cancer Epidemiology, Clinical Epidemiology
Katherine E. Hartmann (196), Reproductive Epidemiology, Women's Health
C. David Jenkins, Social Epidemiology
William Jenkins, Social Epidemiology
Joanne Jordan, Chronic Disease Epidemiology
Jay Kaufman, Methodology, Social Epidemiology
Ulrich Keil (169), Cardiovascular Epidemiology, Occupational Epidemiology
Stephen Kritchovsky, Aging Epidemiology
Peter Leone, Infectious Disease Epidemiology
Jay Levine, Veterinary Epidemiology
Stephanie London, Cancer Epidemiology
Matthew Longnecker, Environmental and Occupational Epidemiology
Dana P. Loomis, Environmental and Occupational Epidemiology
Timothy Mastro, Infectious Disease Epidemiology
Melinda S. Meade (58), Medical Geography
Pauline Mendola, Environmental Epidemiology, Reproductive Epidemiology
Kenneth A. Mundt, Occupational Epidemiology
Warren P. Newton, Health Care Epidemiology
David Peden, Environmental and Occupational Epidemiology
Miquel Porta, Cancer Epidemiology, Clinical Epidemiology, Pharmacoepidemiology
Daniel Rodriguez, Built Environment, Physical Activity
Walter J. Rogan (39), Environmental Epidemiology
Dale Sandler (90), Environmental Epidemiology
Joellen M. Schildkraut (126), Cancer Epidemiology
Nicholas Shaheen, Health Care Epidemiology
Mark Sherman
Ilene C. Siegler (148), Aging
Gary Slade, Oral Epidemiology
Betsy Sleath, Pharmacoepidemiology, Outcomes Research
Jeffrey S. A. Stringer, Global Women’s Health, HIV/AIDS in Women and Child Health
Jack A. Taylor, Environmental and Occupational Epidemiology
John Thorp Jr., Reproductive Epidemiology
Hugh H. Tilson (87), Pharmacoepidemiology
Clarice Weinberg, Environmental and Reproductive Epidemiology
Allen J. Wilcox (61), Reproductive Epidemiology
Redford Williams (141), Cardiovascular Epidemiology
Sheryl Zimmerman, Aging

Adjunct Associate Professors
Elizabeth B. Andrews (140), Pharmacoepidemiology
Ronald E. Aubert, Chronic Disease Epidemiology
Wendy Brewster, Women's Health
Carrie Casteel, Injury Epidemiology
Patricia Chang, Cardiovascular Epidemiology
Benjamin H. Chi, Clinical Epidemiology, Global Health, Reproductive Health
Thomas B. Cole, Public Health, Violence, Medical Editing

Martin Crane, Chronic Disease Epidemiology, Reproductive Epidemiology
Evan Dellen, Health Care Epidemiology
Kimon Divers
Nancy Dole, Reproductive Epidemiology
Bruce Duncan, Cardiovascular Epidemiology
Sara Ephros, Chronic Disease Epidemiology
Cynthia Girman, Pharmacoepidemiology
Debra E. Irwin (176), Cancer Epidemiology, Reproductive Epidemiology
Michael Kappelman, Clinical Epidemiology, Pharmacoepidemiology
Duanping Liao (189), Cardiovascular Epidemiology
Hester Lipscomb, Environmental and Occupational Epidemiology
Pia MacDonald, Applied Epidemiology
William F. McDonnell (170), Environmental Epidemiology
Prema Menezes, Infectious Disease Epidemiology
Patricia Moorman, Cancer Epidemiology
Lucas Neas, Environmental Epidemiology
Matthew E. Nielsen, Clinical Epidemiology and Health Services, Cancer Outcomes
Kathryn M. Rose, Cardiovascular Epidemiology, Women’s Health
Maria Schmidt, Chronic Disease Epidemiology
Arlene Sera-Soberano, Infectious Disease Epidemiology
David C. Sokal (178), Reproductive Epidemiology
Paul E. Stang (163), Chronic Disease Epidemiology
Anthony J. Viera, Hypertension, Cardiovascular Disease Prevention
Emmanuel Walter, Infectious Disease Epidemiology
Suzanne West (207), Health Care Epidemiology, Pharmacoepidemiology
Alice D. White (117), Cardiovascular Epidemiology
Timothy C. Wilcosky (98), Cancer Epidemiology
David Wohl, Infectious Disease Epidemiology

Adjunct Assistant Professors
Rukmini B. Balu, HIV, STDs, Clinical Research, Biorepositories, Pharmacogenomics
Sylvia Becker-Dreps, Evaluation of Immunization Programs, Rotavirus Vaccines, Pneumococcal Vaccines
Jane H. Brice, Clinical Epidemiology, Cardiovascular Epidemiology
Lori Carter Edwards (192), Cardiovascular Epidemiology
Remy Coeytaux, Health Care Epidemiology
Kourtney Davis, Pharmacoepidemiology
Lisa DeRoo, Environmental Epidemiology, Genetic Epidemiology, Reproductive Outcomes
Mohamed El Hag Ahmed, Environmental/Occupational Epidemiology, Injury Epidemiology
Alan Ellis
Aaron Fleischauer, Applied Epidemiology, Surveillance, Preparedness and Response
Satish Gopal
Louise Henderson, Health Services Research, Cancer Epidemiology
Jane Hoppin, Environmental Epidemiology
Jennifer A. Horney, Applied Epidemiology
Esther C. Janowsky, Cancer Epidemiology
Jonathan Juliano, Molecular Epidemiology and Genetics of Malaria
Barbara Kowalczyk, Foodborne Illness
Thomas Luben, Environmental Epidemiology, Adverse Reproductive Outcomes
Christina Mack, Pharmacoepidemiology, Comparative Effectiveness
William C. Maier, Pharmacoepidemiology
Edmond Malka
Ann M. McNeill, Cardiovascular Epidemiology
Lynne Messer, Social Epidemiology
David Miller, Pharmacoepidemiology, Molecular Epidemiology
Same as: MHCH 626, HBEH 626.

Grading status: Letter grade

Corequisite, EPID 625.

Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.

Requisites: Pre- or corequisite, EPID 600.

Grading status: Letter grade

Same as: MHCH 625, HBEH 625.

**EPID 626. Intentional Injury as a Public Health Problem. 1 Credit.**
This one-credit course considers the causes and consequences of intentional injury and dilemmas in injury research and prevention. The course meets once a week for 75 minutes starting the sixth week of the semester. Students may enroll concurrently in EPID 627.

**Requisites:** Corequisite, EPID 625.

**Grading status:** Letter grade

**Same as:** MHCH 626, HBEH 626.

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**EPID 625. Injury as a Public Health Problem. 1 Credit.**
This course considers the causes and consequences of traumatic injury and dilemmas in injury research and prevention. This one-credit course consists of 10 class sessions of 75 minutes each over the first five weeks of the semester.

**Requisites:** Pre- or corequisite, EPID 600.

**Grading status:** Letter grade

**Same as:** MHCH 625, HBEH 625.

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**EPID 627. Unintentional Injury as a Public Health Problem. 1 Credit.**
This one-credit course considers the causes and consequences of unintentional injury and dilemmas in injury research and prevention. The course meets once a week for 75 minutes starting the sixth week of the semester.

**Requisites:** Corequisite, EPID 625.

**Grading status:** Letter grade

**Same as:** MHCH 626, HBEH 626.

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**EPID 696. Problems in Epidemiology. 1-3 Credits.**
A course for undergraduate students who wish to make an intensive study of some special problems in epidemiology.

**Repeat rules:** May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.

**Grading status:** Letter grade.

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**EPID 700. SAS and Data Management. 3 Credits.**
An introduction to statistical analysis, programming, and data management, using the SAS programming language. Two lecture hours and two lab hours per week.

**EPID 705. Introduction to Deductive and Probability Logic in Epidemiology. 2 Credits.**
Permission of the instructor for nonmajors. Covers properties of logical relations, truth tables and Euler diagrams, valid and fallacious arguments, cognitive heuristics and biases, interpretations of probability, the probability calculus, Bayes' theorem, binomial and normal distributions, applications of probability logic and probabilistic fallacies, all in an epidemiologic context.

**EPID 710. Fundamentals of Epidemiology. 5 Credits.**
Permission required for nonmajors. An intensive introduction to epidemiological concepts and methods for students intending to engage in, collaborate in, or interpret the results of epidemiologic studies. Some familiarity with biomedical concepts may be needed. An alternate to EPID 600 for satisfying the SPH core requirements. Three lecture and two seminar hours a week.

**Requisites:** Corequisite, BIOS 600.

**Repeat rules:** May be repeated for credit; may be repeated in the same term for different topics.

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**EPID 711. Clinical Measurement/Evaluation. 3 Credits.**
Focuses on work, workplace exposures and hazards, and their effect on health. Interdisciplinary approaches to risk identification, reduction, and communication will be emphasized within regulatory and ethical contexts. Online course.

**Same as:** PUBH 760.

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**Adjunct Instructor**

**Amy Ising,** Public Health Informatics, Public Health Surveillance, Syndromic Surveillance

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**Professors Emeriti**

Wilfrida Behets
Barbara S. Hulka
Michel A. Ibrahim
Berton H. Kaplan
J. Richard Seed
Carl M. Shy
EPID 715. Theory and Quantitative Methods in Epidemiology. 4 Credits.
Required preparation, competence in SAS. An in-depth treatment of basic concepts and skills in epidemiologic research, including problem conceptualization, study design, research conduct, data analysis, and interpretation. Four lecture hours per week.
Requisites: Prerequisites, EPID 705, EPID 710 or 711; Corequisite, BIOS 545; Permission of the instructor required for nonmajors.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.

EPID 716. Epidemiologic Data Analysis. 3 Credits.
Required preparation, documented SAS proficiency. This course is a combined lecture/lab format where students get hands-on experience in the analysis and interpretation of data from cohort and case-control studies.
Requisites: Prerequisites, EPID 705, 710 or 711. Corequisite, EPID 715.

EPID 718. Analytic Methods in Observational Epidemiology. 3 Credits.
Required preparation, demonstrated experience with computer-based data analysis. Concepts and applications, including logistic regression, binomial regression, model building strategy, additive and multiplicative interaction, and graphical exploration. Includes computer-based experience with real data. Two lecture and one lab hours per week.
Requisites: Prerequisites, EPID 715 and EPID 716; Permission of the instructor for nonmajors.

EPID 719. Readings in Epidemiologic Methods. 1 Credit.
EPID 722 (spring). A discussion in journal-club format of readings in general epidemiologic methods, from problem conceptualization to application of results.
Requisites: Co-requisite, EPID 718 (fall);
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.

EPID 722. Epidemiologic Analysis of Time-to-Event Data. 4 Credits.
Required preparation, SAS software expertise. Course covers epidemiologic analysis of time-to-event data and emphasizes weighting threats to the accuracy of inferences. Class time is spent discussing weekly readings and homeworks.
Requisites: Prerequisite, EPID 718.

EPID 725. Research Planning Workshop. 1 Credit.
This course is designed to guide students through the initial stage of formulating an epidemiologic research topic and plan, leading towards the development of a full research proposal. Open only EPID majors in 2nd year (or greater) of the PhD program or 3rd year (or greater) of the MSPH/PhD program.
Requisites: Prerequisite, EPID 715 and 716; corequisite, EPID 718.
Repeat rules: May be repeated for credit.

EPID 726. Epidemiologic Research Methods. 3 Credits.
Minimum second-year standing in doctoral program or permission of the instructor. Majors only. A second-level course in the design and conduct of epidemiologic research. Each student will comprehensively address the conceptual and practical aspects of developing a high-quality, detailed research proposal.
Requisites: Prerequisites, EPID 715 and 725.

EPID 731. Systematic Review and Meta-Analysis. 1 Credit.
This seminar provides training in systematic review and meta-analysis. Topics include problem definition, literature search, extraction of results and study characteristics, publication bias and funnel plot analysis, analysis overall heterogeneity, and stratified and meta-regression analysis of study and population characteristics.

EPID 733. Clinical Trials in Epidemiology. 3 Credits.

EPID 735. Cardiovascular Epidemiology. 3 Credits.
Review of cardiovascular health and disease in populations and their population determinants. Topics include epidemiologic methods, risk factors, strategies for prevention, and a student research project. Three lecture hours per week.

EPID 738A. Methods and Applications of Cardiovascular Disease Surveillance. 1 Credit.
This course helps students gain experience critiquing and interpreting national and international cardiovascular disease (CVD) surveillance programs, evaluate recommendations for future CVD surveillance research and policy, and to explore CVD surveillance data sources with hands-on experience with practical aspects of study conduct.
Requisites: Prerequisite, EPID 735.

EPID 738B. Epidemiology of Stroke. 1 Credit.
This course helps students become familiar with physiologic and pathologic aspects of cerebrovascular diseases, provides opportunity to explore research findings regarding major risk factors for stroke and evidence for prevention strategies, and offers a guided experience in critiquing, synthesizing, and communicating stroke related research findings.
Requisites: Prerequisite, EPID 735.

EPID 738C. Contemporary Issues in Hypertension Research. 1 Credit.
In this seminar, we examine several contemporary issues related to hypertension research, particularly pertaining to measurement of blood pressure. Each session will begin with an overview, likely didactic, followed by more in-depth discussion of the topics.
Requisites: Prerequisite, EPID 735.

EPID 742. Biomarkers in Population-Based Research. 2 Credits.
This course surveys the major issues relevant to the application of biomarkers in epidemiological research, including the logistical hurdles in biospecimen collection and storage, assessments of biomarker quality, analytic issues, and the interpretation of quantitative estimates.

EPID 743. Genetic Epidemiology: Methods and Applications. 3 Credits.
Concepts and methods of genetic epidemiology relevant to the study of complex human diseases, including segregation analysis, linkage analysis, and gene-environment interaction. Includes whole genome approaches, as well as nonhuman systems. Three lecture hours a week.
Requisites: Prerequisites, BIOS 545 and EPID 715; permission of the instructor for students lacking the prerequisites.

EPID 750. Fundamentals of Public Health Surveillance. 3 Credits.
This course provides the conceptual foundations and practical skills for designing and implementing surveillance systems, for using surveillance data for the conduct and evaluation of public health programs and research.

EPID 751. Emerging and Re-Emerging Infectious Diseases. 3 Credits.
Basic principles of infectious diseases, focusing on emerging and re-emerging disease agents that affect public health. Includes an introduction to the biology of viruses, bacteria, and eukaryotic parasites.
EPID 753. Prevention and Control of Infectious Diseases at the Level of the Community. 3 Credits.
Primary focus at county/state level; surveillance/control of acute infectious diseases; public health vs. individual rights. Bridging epidemiological concepts with community activities and real world health department issues. Three lecture hours per week.

EPID 754. Advanced Methods in Infectious Disease Epidemiology. 3 Credits.
This course covers theories, concepts, study designs, and analytical methods of particular importance in studying infectious outcomes. Teaching methods include lectures, hands-on computer practicals, article discussions, and written assignments.
Requisites: Prerequisites, EPID 715 and 716.

EPID 755. Introduction to Infectious Disease Epidemiology. 3 Credits.
Permission required for non-majors. Objectives of the course are to: (1) understand the general principles of infectious disease epidemiology; (2) understand surveillance, prevention and control of infectious diseases; and (3) apply principles to specific infectious diseases. Course is part lecture and part group projects/discussion period per week.

EPID 756. Control of Infectious Diseases in Developing Countries. 3 Credits.
Epidemiology and control of selected infectious diseases prevalent in developing countries. Course involves lectures, critical discussions of published articles, and a final group project. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.

EPID 757. Epidemiology of HIV/AIDS in Developing Countries. 3 Credits.
This course examines the epidemiology of AIDS from an international perspective. It considers the AIDS pandemic in a broad epidemiologic perspective, including key aspects of basic, clinical, and social science. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.

EPID 758. Methods and Principles of Applied Infectious Disease Epidemiology. 3 Credits.
This course will cover the interaction between an infectious agent, host, and environment; modes and dynamics of transmission; the role of immunity in infectious disease epidemiology; and disease elimination strategies. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.

EPID 759. Methods in Field Epidemiology. 3 Credits.
Course will focus on epidemiological methods required to investigate urgent public health problems. Course covers the skills and tools needed to conduct outbreak investigations and communicate findings to the public. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.

EPID 760. Vaccine Epidemiology. 3 Credits.
An overview of vaccinology principles, mechanisms of action, and herd protection, and statistical considerations. Students will obtain understanding of how vaccines are produced by industry, undergo preclinical evaluation, and evaluated for efficacy in clinical trials.

EPID 764. Hospital Epidemiology. 1-2 Credits.
Comprehensive seminar in hospital infection control. Topics include issues in employee health, surveillance, outbreak investigation, environmental sampling, and policy formation. May be repeated for credit. Two to four seminar hours.
Requisites: Prerequisites, EPID 710 and 752; Permission of the instructor required.

EPID 765. Methods and Issues in Pharmacoepidemiology. 3 Credits.
Required preparation, introductory-level epidemiology and biostatistics. Application of the epidemiologic knowledge, methodology, and reasoning to the study of the effects (beneficial and adverse) and uses of drugs in human populations.

EPID 766. Epidemiologic Research with Healthcare Databases. 3 Credits.
Required preparation, competency in data management with SAS (BIOS 511, EPID 700, or equivalent). Learn how healthcare utilization data are generated and use databases to identify study populations and conduct epidemiologic analysis of the utilization and comparative effectiveness/safety of prescription drugs and healthcare services.
Requisites: Prerequisite, EPID 600.

EPID 770. Cancer Epidemiology and Pathogenesis. 3 Credits.
Equivalent experience for students lacking EPID 710. Undergraduate major or strong preparation in the biological sciences required. Permission of the instructor for nonmajors. Emphasis on integration of epidemiologic data with laboratory and clinical research findings. Issues in epidemiologic research design, analysis, and interpretation are presented within the context of substantive epidemiology. Three lecture hours a week.
Requisites: Prerequisites, BIOS 600 and EPID 710.

EPID 771. Cancer Epidemiology: Survivorship and Outcomes. 3 Credits.
Students will evaluate the strengths and weaknesses of data sources common to cancer survivorship and outcomes studies, focusing on epidemiologic study designs. The course addresses cancer detection, treatment strategies, medical surveillance, and personal behaviors as determinants for prognosis, late effects, and the long-term health of cancer survivors.
Requisites: Prerequisite, EPID 710 or 711.

EPID 772. Cancer Prevention and Control Seminar. 3 Credits.
An interdisciplinary overview of cancer prevention and control. Emphasis on projects and activities from perspectives of epidemiology, health behavior and education, and health policy and management. Appropriate research design and methodologies are covered.
Same as: HPM 765, HBEH 765.

EPID 775. Advanced Cancer Epidemiology: Classic and Contemporary Controversies in Cancer Causation. 2 Credits.
Readings and discussions on classic and contemporary controversies in cancer causation. Two seminar hours per week.
Requisites: Prerequisites, EPID 715, 718, and 770 or 771; Permission of the instructor for students lacking the prerequisites.

EPID 780. Occupational Epidemiology. 3 Credits.
Required preparation, introductory epidemiology and biostatistics. This course provides a background in the epidemiology of work-related illness and injury and the application of epidemiologic concepts and methods in protecting workers’ health and safety.

EPID 785. Environmental Epidemiology. 3 Credits.
Epidemiologic ideas and methods applied to evaluation and control of human health consequences of environmental hazards. Pollution of environmental media and global change are considered from a human-ecological perspective, with local and international examples. Three lecture hours per week.
Requisites: Prerequisites, EPID 710 and BIOS 600.
EPID 786. Community-Driven Epidemiology and Environmental Justice. 2 Credits.
Principles for conducting research within communities unduly burdened by environmental health threats are presented. Topics include research ethics, community presentations, study design and implementation, and student research projects.

EPID 790. Intervention Epidemiology. 2 Credits.
Epidemiologic methods for evaluating interventions, primarily in infectious disease epidemiology and injury epidemiology. Covers randomized designs, such as community trials, and evaluation of non-randomized interventions, such as policies and laws.
Requisites: Co-requisites, EPID 705 and 710.

EPID 795. Introduction to Public Health Informatics. 1 Credit.
This course provides students with an overview of public health informatics and includes in-depth discussions on informatics approaches used in developing the public health information systems in use today.

EPID 799A. Special Studies in Epidemiology I. 1 Credit.
Experimental course to be offered by faculty to determine the need and demand for the subject. Topics will be chosen by faculty based on current public health issues. One credit option.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 3 total credits. 3 total completions.

EPID 799B. Special Studies in Epidemiology II. 2 Credits.
Experimental course to be offered by faculty to determine the need and demand for the subject. Topics will be chosen by faculty based on current public health issues. Two credits option.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 3 total completions.

EPID 799C. Special Studies in Epidemiology III. 3 Credits.
Experimental course to be offered by faculty to determine the need and demand for the subject. Topics will be chosen by faculty based on current public health issues. Three credits option.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.

EPID 801. Data Analysis in Oral Epidemiology. 2-3 Credits.
Required preparation, basic knowledge of SAS. Permission of the instructor. Data analysis project in oral epidemiology: data cleanup, file construction, analysis. For three credit hours, student also completes multivariate analysis with linear, logistic regression. Project to result in publishable paper. Two to three seminar hours a week.

EPID 802. Clinical Research Skills I: Basics. 2 Credits.
Includes basic development of research ideas, manuscript writing, manuscript review.
Requisites: Co-requisite, EPID 711 or PUBH 760.

EPID 804. Design of Clinical Research Studies. 4 Credits.
Prerequisite: EPID 711. Clinical research majors only. The goals of this course are to develop a strong fundamental understanding of the design of clinical research studies; to understand selection of study populations, exposure and outcome measurement, and choice of appropriate measures; to understand ethical oversight, project management and quality control.

This course will address the process for proposal development for clinicians with an emphasis on the initial stages including development of the research questions, specific aims, and significance.
Requisites: Co-requisites, EPID 711 and PUBH 741 or permission of instructor.

EPID 806. Clinical Research Skills IV -- Proposal Development. 2 Credits.
Proposal writing and study implementation skills. Emphasis is given to NIH style proposals for clinical and translational research.
Requisites: Prerequisites, EPID 805, EPID 711, PUBH 741; permission of the instructor for students lacking the prerequisites.

EPID 810. Physical Activity Epidemiology and Public Health. 3 Credits.
This course provides an overview of major issues in physical activity measurements, population distribution, correlates, impacts (physically and economically), and public health recommendations. Interventions, including relevant theories, will be reviewed. Three lecture hours per week.
Requisites: Prerequisite, EPID 600.
Same as: NUTR 810.

EPID 813. Nutritional Epidemiology. 3 Credits.
This course introduces basic methods of dietary assessment, reviews various topics in nutrition epidemiology, and teaches the skills needed for critical evaluation of the nutritional epidemiologic literature.
Requisites: Prerequisites, BIOS 600, and EPID 600 or 710.
Same as: NUTR 813.

EPID 814. Obesity Epidemiology. 3 Credits.
Examines epidemiology research on the causes, consequences, and prevention of obesity. Emphasis on methodological issues pertinent to obesity research.
Requisites: Prerequisites, BIOS 545, EPID 715, 716 and NUTR 812 or NUTR 813/EPID 813.
Same as: NUTR 814.

EPID 818. Analytical Methods in Nutritional Epidemiology. 3 Credits.
Skills and techniques to study how dietary exposures, physical activity, and anthropometric status relate to disease outcomes. Focus is hands-on data analysis using STATA, and interpretation of results from statistical analysis.
Requisites: Prerequisites, BIOS 545, EPID 600 or 710, and NUTR 813.
Same as: NUTR 818.

EPID 825. Social Determinants of Health: Theory, Method, and Intervention. 3 Credits.
Discussion and readings will focus on population vs. individual perspectives on health, risk conditions vs. risk factors, concepts of causation, and knowledge development as a historic and social process. Course will also examine macro-level determinants of population health.
Requisites: Prerequisite, EPID 600.
Same as: HBEH 802.

EPID 826. Introduction to Social Epidemiology. 2 Credits.
Pre- or This course provides an overview of key concepts, methods and findings in research on social determinants of population health. Classes will consist of a didactic presentation followed by in-class group work modules and large group summary discussion.
Requisites: co-requisite, EPID 600.

EPID 827. Social Epidemiology: Design and Interpretation. 2 Credits.
Approaches to social epidemiologic research, with a focus on study design and interpretation of analytic techniques common in social epidemiology. Topics include causal inference for socially patterned exposures, racial equity research, and place effects on health.
Requisites: Prerequisite, EPID 710; corequisite, EPID 715 or 716.
EPID 851. Reproductive and Perinatal Epidemiology. 3 Credits.
Equivalent experience for students lacking the co-requisites.
Epidemiology of reproductive and perinatal health outcomes, including infertility, fetal loss, preterm birth, birthweight, congenital malformations, and infant mortality. Includes current knowledge regarding epidemiology of these outcomes and discussion of methodologic issues. Three lecture hours per week.
**Requisites:** Co-requisites, BIOS 600 and EPID 600;
**Same as:** MHCH 851.

EPID 853. Advanced Topics in Perinatal and Pediatric Epidemiology. 2 Credits.
Critical review of current topics in, and methods for, perinatal and pediatric epidemiology.
**Requisites:** Prerequisites, EPID 710 and 851; Permission of the instructor for master’s level students.
**Same as:** MHCH 853.

EPID 883. Teaching Experience in Epidemiology. 1-4 Credits.
Open to EPID majors, second-year or above. Provides epidemiology majors with supervised experience in teaching and course preparation. Students act as assistants in departmental courses. Two to eight seminar hours a week.

EPID 886. Readings in Epidemiology. 1-3 Credits.
Permission of the instructor required. Independent reading and tutorial guidance in special areas of epidemiology.

EPID 888. Topics in Epidemiology Seminar. 1 Credit.
EPID majors only. Topics are chosen to reflect emerging issues in the field, as well as those that meet the interests of the students and faculty in the department.
**Requisites:** Prerequisite, EPID 710.
**Repeat rules:** May be repeated for credit; may be repeated in the same term for different topics.

EPID 890. Seminar for M.S.P.H. Students. 1 Credit.
A workshop for addressing special topics related to M.S.P.H. program including, but not limited to, research topic development, career planning, and public health ethics.

EPID 891. Epidemiology Doctoral Seminar. 2 Credits.
Exposes students to issues and debates in the philosophy of science, the object of knowledge in epidemiology, and the place of epidemiology in public health.

EPID 892. Interdisciplinary Seminar in Health Disparities. 1 Credit.
This seminar will provide an opportunity for students to synthesize knowledge across disciplines and to develop an interdisciplinary approach to addressing their identified health disparities research topic.
**Requisites:** Prerequisite, MHCH 756.
**Same as:** MHCH 892.

EPID 893. Pharmacoepidemiology Seminar. 1 Credit.
Required preparation, basic knowledge of epidemiology and biostatistics. This is a weekly seminar to explore current problems in pharmacoepidemiology. It supplements the introductory course, EPID 765. May be repeated. Two seminar hours a week.
**Repeat rules:** May be repeated for credit; may be repeated in the same term for different topics.

EPID 894. Infectious Disease Seminar. 1 Credit.
Required preparation, introductory epidemiology and biostatistics. Detailed review of selected topics in infectious disease epidemiology. May be repeated for credit.
**Repeat rules:** May be repeated for credit; may be repeated in the same term for different topics.

EPID 895. Seminar in Oral Epidemiology. 1 Credit.
Explores conceptual and methods issues in conducting epidemiologic investigations of oral conditions, specifically caries, periodontal disease, and oral cancer (topics rotate semesters).
**Requisites:** Prerequisite, EPID 710.

EPID 897. Advanced Seminar in Cardiovascular Research. 1-3 Credits.
Permission of the instructor. Review of substantive and methodological research in cardiovascular and cerebrovascular diseases. May be repeated for credit. Two to six seminar hours a week.
**Repeat rules:** May be repeated for credit; may be repeated in the same term for different topics.

EPID 900. Epidemiology Practice. 4 Credits.
Designed to give epidemiology majors a supervised field experience in population health research.
**Repeat rules:** May be repeated for credit.

EPID 905L. Epidemiology Laboratory Practice. 0.5-9 Credits.
Permission of the instructor. Students work individually with a faculty member on supervised laboratory research and skills development. May be repeated for credit. Two to 18 laboratory hours a week.

EPID 910. Research in Epidemiology. 1-9 Credits.
Permission of the instructor. Independent investigation in consultation with an instructor who must assign or approve the subject of research. Credits vary according to the effort and rigor of the research.
**Repeat rules:** May be repeated for credit; may be repeated in the same term for different topics.

EPID 992. Master's (Non-Thesis). 3 Credits.

EPID 994. Doctoral Research and Dissertation. 3 Credits.