DEPARTMENT OF EPIDEMIOLOGY (GRAD)

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

Til Stürmer, 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, pharmacoeconomics, genetic, social, and methods).

Degrees and Certificates
The Department of Epidemiology offers a master’s degree 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 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. The program is designed for physician-scientists and others who want to develop the skills necessary for a successful career as a principal investigator and collaborator in clinical and 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 typically complete the doctorate in three to five years after admission.

Certificate in Field Epidemiology
The Certificate in Field Epidemiology (http://sph.unc.edu/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
Adaora Adimora (241), Infectious Disease Epidemiology
Ralph S. Baric (142), Public Health Virology, Molecular Virology
Myron ‘Mike’ Cohen, Infectious Disease Epidemiology
Michael Emch (234), Spatial Epidemiology, Medical Geography, Infectious Diseases, Neighborhoods and Health
Gerardo Heiss (41), Cardiovascular Epidemiology
David M. Margolis (220), Infectious Disease Epidemiology
Andrew F. Olshan (147), Cancer Epidemiology, Reproductive/Perinatal Epidemiology
Robert S. Sandler (73), Cancer Epidemiology
H. June Stevens (172), Nutritional Epidemiology, Obesity Epidemiology
Til Stürmer (224), Pharmacoepidemiology, Methodology

Professors
Allison Aiello (240), Social Epidemiology, Infectious Disease Epidemiology, Aging
Stephen R. Cole (225), Methodology, Infectious Disease Epidemiology
Julie Daniels (206), Environmental Epidemiology, Reproductive/Perinatal/Pediatric Epidemiology
Stephanie Engel (231), Reproductive/Perinatal Epidemiology, Environmental Epidemiology
Marlie D. Gammon (195), Cancer Epidemiology
Stephen W. Marshall (199), Injury Epidemiology, Methodology
Steven R. Meshnick (200), Infectious Disease Epidemiology
Kari North (205), Cardiovascular Epidemiology, Genetic Epidemiology
Brian W. Pence (236), Infectious Disease Epidemiology, Mental Health Epidemiology, Implementation Science Research, Quantitative Epidemiologic Methods
Audrey Pettifor (215), Infectious Disease Epidemiology
David B. Richardson (213), Environmental Epidemiology, Occupational Epidemiology
Wayne D. Rosamond (162), Cardiovascular Epidemiology
Jennifer S. Smith (212), Infectious Disease Epidemiology, Cancer Epidemiology
Melissa A. Troester (226), Cancer Epidemiology
David J. Weber (96), Infectious Disease Epidemiology

Associate Professors
Christy L. Avery (233), Cardiovascular Epidemiology, Genetic Epidemiology
Lawrence Engel (232), Environmental Epidemiology, Cancer Epidemiology
Emily Gower (243), Ocular Epidemiology, Infectious Disease Epidemiology
Jennifer L. Lund (238), Cancer Survivorship and Outcomes, Pharmacoepidemiology, Healthcare Database Utilization
Joanna ‘Asia’ Maselko (242), Social Epidemiology, Mental Health Epidemiology
Hazel B. Nichols (239), Cancer Epidemiology, Women’s Health
Charles L. Poole (193), Methodology
Kimberly A. Powers (237), Infectious Disease Epidemiology, Global Health
Whitney R. Robinson (229), Social Epidemiology, Cancer Epidemiology, Nutrition, Methodology
James C. Thomas (127), Infectious Disease Epidemiology, Social Epidemiology
Assistant Professors

Yvonne Golightly (244), Injury Epidemiology, Osteoarthritis

Clinical Associate Professors

Lorraine Alexander, Public Health Preparedness, Distance Education
Karín Yeatts, Applied Epidemiology, Environmental Epidemiology

Clinical Assistant Professors

Patricia Basta, Cancer Epidemiology
Sara Berkeley, Cardiovascular Epidemiology

Research Professors

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

Research Associate Professors

Sylvia Becker-Dreps (246), Evaluation of Immunization Programs, Rotavirus Vaccines, Pneumococcal Vaccines
Jeannette Bensen, Cancer Epidemiology, Molecular Epidemiology
Kathleen C. Dorsey, Cancer Epidemiology
Michele Jönsson Funk (216), Pharmacoepidemiology, Women's Health
Sonia Napravnik (223), Infectious Disease Epidemiology
Eric A. Whitzel (221), Cardiovascular Epidemiology

Research Assistant Professors

Christopher Baggett, Chronic Disease Epidemiology
Tania Desrosiers, Reproductive/Perinatal Epidemiology, Birth Defects
Andrew Edmonds, Infectious Disease Epidemiology
Jessie Edwards (247), Infectious Disease Epidemiology, Methodology, Global Health
Mariaelisa Graff, Genetic Epidemiology
Rachel Graham, Public Health Virology, Molecular Virology
Lisa Gralinsky, Public Health Virology, Infectious Disease Epidemiology
Alex Keil, Environmental Epidemiology, Occupational Epidemiology
Anna Kucharska-Newton, Cardiovascular Epidemiology
Rebecca Naumann, Injury Epidemiology
Shabbar Ranapurwala, Injury Epidemiology
Timothy Sheahan, Public Health Virology, Infectious Disease Epidemiology, Genetic Epidemiology
Anissa Vines (245), Social Epidemiology, Health Care Epidemiology
Sharon S. Weir, Infectious Disease Epidemiology
Kristin Young, Genetic Epidemiology, Health Disparities, Obesity Epidemiology

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

Donna D. Baird (104), Reproductive Epidemiology
James D. Beck (167), Dental Epidemiology
Douglas Bell, Cancer Epidemiology
Wendy Brewster, Women's Health
Jane H. Brice, Clinical Epidemiology, Cardiovascular Epidemiology
Donald Budenz, Ocular Epidemiology
Gregory L. Burke, Cardiovascular Epidemiology
Leigh Callahan, Chronic Disease Epidemiology, Health Care Epidemiology
Benjamin H. Chi, Clinical Epidemiology, Global Health, Reproductive Health
Dennis A. Clements (152), Infectious Disease Epidemiology
Joseph Cook, Infectious Disease Epidemiology, Parasitology
Evan Dellen, Health Care Epidemiology
John Dement, Environmental Epidemiology, Occupational Epidemiology
Nancy Dreyer, Pharmacoepidemiology
Jeffrey Engel, Infectious Disease Epidemiology
Joseph Eron Jr., Infectious Disease Epidemiology
Aaron Fleischauer, Applied Epidemiology, Surveillance, Preparedness and Response
Robert Fletcher (45), Health Care Epidemiology
Suzanne Fletcher (46), Health Care Epidemiology
Bradley Gaynes, Psychiatric Epidemiology
Alicia Gilsenan, Pharmacoepidemiology
Cynthia Girman, Pharmacoepidemiology
Laura Hanson, Clinical Epidemiology, Geriatrics
Louise Henderson, Health Services Research, Cancer Epidemiology
Michael Kappelman, Clinical Epidemiology, Pharmacoepidemiology
Jay Kaufman, Methodology, Social Epidemiology
Stephen Kritchevsky, Aging 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
Pauline Mendola, Environmental Epidemiology, Reproductive Epidemiology
William Miller, Infectious Disease Epidemiology, Clinical Epidemiology
David Peden, Environmental and Occupational Epidemiology
Miquel Porta, Cancer Epidemiology, Clinical Epidemiology, Pharmacoepidemiology
Dale Sandler (90), Environmental 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, Child Health
Jack A. Taylor, Environmental and Occupational Epidemiology
John Thorp Jr., Reproductive Epidemiology
Hugh H. Tilson (87), Pharmacoepidemiology
Anthony J. Viera, Hypertension, Cardiovascular Disease Prevention
Clarice Weinberg, Environmental and Reproductive Epidemiology
Allen J. Wilcox (61), Reproductive Epidemiology
David Wohl, Infectious Disease Epidemiology

Adjunct Associate Professors

Deverick Anderson, Health Care Epidemiology, Infection Prevention
Elizabeth B. Andrews (140), Pharmacoepidemiology
Lori Carter Edwards (192), Cardiovascular Epidemiology
Patricia Chang, Cardiovascular Epidemiology
Kimon Divaris, Oral Epidemiology
Sarah Ephross, Chronic Disease Epidemiology
Debra E. Irwin (176), Cancer Epidemiology, Reproductive Epidemiology
Jonathan Juliano, Molecular Epidemiology and Genetics of Malaria
Duanping Liao (189), Cardiovascular Epidemiology
Thomas Luben, Environmental Epidemiology, Adverse Reproductive Outcomes
Pia MacDonald, Applied Epidemiology
Prema Menezes, Infectious Disease Epidemiology
Anne-Marie Meyer, Outcome Research, Comparative Effectiveness Research
Patricia Moorman, Cancer Epidemiology
Lucas Neas, Environmental Epidemiology
Matthew E. Nielsen, Clinical Epidemiology and Health Services, Cancer Outcomes
Arlene Sena-Soberano, Infectious Disease Epidemiology
Paul E. Stang (163), Chronic Disease Epidemiology
Vani Vannappagari, Infectious Disease Epidemiology
Emily Vavalle, Infectious Disease Epidemiology
Timothy Wade, Environmental Epidemiology
Emmanuel Walter, Infectious Disease Epidemiology
Suzanne West (207), Health Care Epidemiology, Pharmacoepidemiology
Jose Zevallos, Cancer Epidemiology

Adjunct Assistant Professors
Remy Coeytaux, Health Care Epidemiology
Kourtney Davis, Pharmacoepidemiology
Mohamed El Hag Ahmed, Environmental/Occupational Epidemiology, Injury Epidemiology
Alan Ellis, Health Services Research, Mental Health Services Research
Lydia Feinstein, Psychosocial Determinants of Health, Health Disparities in Aging
Kelly Ferguson, Reproductive Epidemiology, Environmental Epidemiology
Lindsay Fernandez-Rhodes, Genetic Epidemiology, Social Epidemiology
Mugdha Gokhale, Pharmacoepidemiology, Comparative Effectiveness Research
Christine Gray, Social Epidemiology, Environmental Epidemiology
Quaker Harmon, Reproductive and Perinatal Epidemiology
Jane Hoppin, Environmental Epidemiology
Chandra Jackson, Social and Environmental Determinants of Health Equity
Anne Jukic, Reproductive Epidemiology
James Bradley Layton, Pharmacoepidemiology, Comparative Effectiveness Research
Christina Mack, Pharmacoepidemiology, Comparative Effectiveness Research
Ann M. McNeill, Cardiovascular Epidemiology
Lynne Messer, Social Epidemiology
Michelle Meyer, Cardiovascular Epidemiology
David Miller, Pharmacoepidemiology, Molecular Epidemiology
Victoria Mobley, Infectious Disease Epidemiology
Keri Monda, Genetics, Obesity Epidemiology
Sarah Nyante, Cancer Epidemiology, Molecular Epidemiology
Priya Palta, Cardiovascular Epidemiology, Aging
Scott Proescholdbell, Injury Epidemiology
David Rosen, Social Epidemiology, Criminal Justice/Incarceration
Erika Samoff, Infectious Disease Epidemiology
Pamela Schwingl, Chronic Disease Epidemiology, Reproductive Epidemiology
Sumitra Shantakumar, Pharmacoepidemiology
Markus Steiner, Methodology
Paula Strassle, Clinical Epidemiology, Patient Outcomes Research
Steve M. Taylor, Malaria, Tropical Disease Epidemiology, Hemoglobin Disorders
Andres Villaveces, Injury Epidemiology
Catherine Vladutiu, Perinatal Epidemiology, Injury Epidemiology, Cardiovascular Epidemiology
Julia Ward, Mental Health Epidemiology, Nutritional/Cardiovascular Epidemiology
Alexandra White, Cancer Epidemiology, Environmental Epidemiology
Rachel E. Williams, Health Care Epidemiology
Christopher Woods, Infectious Disease Epidemiology

Adjunct Instructor
Amy Ising, Public Health Informatics, Public Health Surveillance, Syndromic Surveillance

Professors Emeriti
Wilfrida Behets
Barbara S. Hulka
Michel A. Ibrahim
Victor Schoenbach
J. Richard Seed
Carl M. Shy

EPID
Advanced Undergraduate and Graduate-level Courses
EPID 600. Principles of Epidemiology for Public Health. 3 Credits.
An introductory course that considers the meaning, scope, and applications of epidemiology to public health practice and the uses of vital statistics data in the scientific appraisal of community health. One lecture and two lab hours per week.
Grading status: Letter grade.
EPID 625. Injury as a Public Health Problem. 3 Credits.
This course examines unintentional injuries from a public health perspective. The course covers core concepts in injury prevention and control, including the epidemiology of unintentional injury, prevention strategies, behavioral models, child and adolescent injury, messaging framing, the Haddon matrix, and injury surveillance.
Requisites: Corequisite, EPID 600.
Grading status: Letter grade
Same as: MHCH 625, HBEH 625.
EPID 626. Violence as a Public Health Problem. 3 Credits.
This course covers core concepts in violence prevention and control, including the epidemiology of violence, prevention strategies for interpersonal and intra-personal violence, behavioral models that describe power structures that reinforce personal and societal factors affecting self-harm and violence towards others, and violence directed towards children and adolescents.
Requisites: Prerequisite, EPID 625.
Grading status: Letter grade
Same as: MHCH 626, HBEH 626.
EPID 695. Research in Epidemiology. 1-3 Credits.
Permission of the instructor. A course for undergraduate students who wish to conduct research as part of an ongoing epidemiology project or as an independent activity.
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.

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.

Graduate-level Courses

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.
Grading status: Letter grade.

EPID 701. R for Epidemiologists. 3 Credits.
This course is intended to be the most effective and efficient way for UNC Epidemiology students to establish a foundation in the R programming language, RStudio IDE, and functional programming modalities. Special attention is given to R topics and packages relevant for epidemiological data management, analysis, and visualization.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

EPID 711. Clinical Measurement and 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.
Grading status: Letter grade
Same as: PUBH 760.

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.
Grading status: Letter grade.

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. Students may take the SAS exemption exam in lieu of taking EPID 700 or BIOS 511.
Requisites: Prerequisite, EPID 710, EPID 711, or SPHG 712. Pre- or corequisite, EPID 700 or BIOS 511.
Grading status: Letter grade.

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.
Grading status: Letter grade.

EPID 719. Readings in Epidemiologic Methods. 1 Credit.
A discussion in journal-club format of readings in general epidemiologic methods, from problem conceptualization to application of results.
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.
Grading status: Letter grade.

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.
Grading status: Letter grade.

EPID 726. Epidemiologic Research Methods. 3 Credits.
Minimum second-year standing in doctoral (with permission of the instructor) or MSCR program. A 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. EPID PhD or MSCR majors only.
Requisites: Prerequisite, EPID 715 or EPID 804.
Grading status: Letter grade.
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.
Grading status: Letter grade.

EPID 733. Clinical Trials in Epidemiology. 3 Credits.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

EPID 755. Introduction to Infectious Disease Epidemiology. 3 Credits.
Permission required for non-majors. This course will cover concepts, theory, study designs, and analytical methods of particular importance in infectious disease epidemiology. Most topics will be introduced with a didactic lecture and readings, followed by an in-class exercise, discussion, or computer practical applying relevant theories, concepts, and methods to specific questions in infectious disease epidemiology.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade.
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.

Grading status: Letter grade.

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.

Grading status: Letter grade.

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: Prerequisite, EPID 710; Permission of the instructor required.

Grading status: Letter grade.

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.

Grading status: Letter grade.

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 710 OR EPID 600 (or equivalent); Demonstrated SAS competency.

Grading status: Letter grade

Same as: DPOP 766.

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.

Grading status: Letter grade.

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.

Grading status: Letter grade.

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.

Grading status: Letter grade

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. Two seminar hours per week.

Requisites: Prerequisites, EPID 715, 718, and 770 or 771; Permission of the instructor for students lacking the prerequisites.

Repeat rules: May be repeated for credit.

Grading status: Letter grade.

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.

Grading status: Letter grade.

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.

Grading status: Letter grade.

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.

Grading status: Letter grade.

EPID 787. Advanced Environmental Epidemiology. 2 Credits.
Discussion of the epidemiology of environmentally-related disease and the application of epidemiologic concepts/methods to protecting public health from environmental hazards. Examples illustrate discussions regarding exposure assessment, dynamic nature of environments, regulation/assessment of environmental hazards, and methods used for environmental hazard identification and risk assessments.

Grading status: Letter grade.

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.

Grading status: Letter grade.

EPID 795. Data in Public Health. 3 Credits.
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.

Grading status: Letter grade.
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.
Repeatability: 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.

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.
Repeatability: May be repeated for credit; may be repeated in the same term for different topics; 6 total credits. 3 total completions.
Grading Status: Letter grade.

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.
Repeatability: May be repeated for credit; may be repeated in the same term for different topics; 9 total credits. 3 total completions.
Grading Status: Letter grade.

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.
Grading Status: Letter grade.

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.
Grading status: Letter grade.

EPID 804. Design of Clinical Research Studies. 4 Credits.
Permission required for nonmajors. 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.
Requisites: Prerequisite, EPID 711, PUBH 741 or equivalent; Corequisite, PUBH 742 or equivalent.
Grading status: Letter grade.

EPID 805. Clinical Research Skills IV -- Proposal Development. 2 Credits.
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.
Grading status: Letter grade.

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.
Grading status: Letter grade.

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.
Grading status: Letter grade
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.
Grading status: Letter grade
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.
Grading status: Letter grade
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.
Grading status: Letter grade
Same as: NUTR 818.

EPID 823. Integrating Social and Biological Perspectives on Human Health. 3 Credits.
Student will learn key theories and methodological approaches for how social processes, socio-spatial organization, and social inequality are associated with health patterns, changes, and disparities; theories/approaches for studying human health from a biological perspective; and strategies using integrated social and biological research perspectives and address advantages and challenges.
Grading status: Letter grade
Same as: SOCI 823.

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.
Grading status: Letter grade
Same as: HBEH 802.

EPID 826. Introduction to Social Epidemiology. 2 Credits.
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: Pre- or corequisite, EPID 600.
Grading status: Letter grade.
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.  
Grading status: Letter grade.  

EPID 851. Reproductive and Perinatal Epidemiology. 3 Credits.  
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; Equivalent experience for students lacking the co-requisites.  
Grading status: Letter grade  
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.  
Grading status: Letter grade  
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.  
Grading status: Letter grade.  

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

EPID 889. 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.  
Grading status: Letter grade.  

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.  
Grading status: Letter grade.  

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.  
Grading status: Letter grade.  

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.  
Grading status: Letter grade.  

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.  
Grading status: Letter grade.  

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.  
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.  
Grading status: Letter grade.  

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.  
Grading status: Letter grade.  

EPID 897. Advanced Seminar in Cardiovascular Research. 1-3 Credits.  
Required preparation, biostatistics. 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.  
Grading status: Letter grade.  

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.  
Grading status: Letter grade.  

EPID 905L. Epidemiology Laboratory Practice. 0.5-9 Credits.  
Permission of the instructor. Review of substantive and methodological research in cardiovascular and cerebrovascular diseases. May be repeated for credit. Two to 18 laboratory hours a week.  
Repeat rules: May be repeated for credit; may be repeated in the same term for different topics.  
Grading status: Letter grade.  

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.  
Grading status: Letter grade.
Master of Public Health (M.P.H.) Applied Epidemiology Concentration Description

In the Applied Epidemiology concentration (https://sph.unc.edu/resource-pages/master-of-public-health-2/applied-epidemiology-concentration/), students will learn to apply epidemiologic tools and approaches to describe patterns of disease or public health issues affecting diverse populations using an epidemiologic framework and, in turn, help drive solutions to problems. Examples of recent public health topics that our students have explored include HIV, cardiovascular disease, environmental exposures, the opioid epidemic, suicide rates, HPV vaccine, efficacy of cancer treatments, and the role of nutrition, among others.

Requirements

Requirements for the M.P.H. degree in the Applied Epidemiology concentration

**Code** | **Title** | **Hours** | **Offered**
--- | --- | --- | ---
**M.P.H. Integrated Core** |  |  |  
SPHG 711 | Data Analysis for Public Health | 2 | Fall 1  
SPHG 712 | Methods and Measures for Public Health Practice | 2 |  
SPHG 713 | Understanding Public Health Issues | 2 | Fall 1  
SPHG 721 | Public Health Solutions: Systems, Policy and Advocacy | 2 | Spring 1  
SPHG 722 | Developing, Implementing, and Evaluating Public Health Solutions | 4 | Spring 1  
**M.P.H. Concentration** |  |  |  
EPID 711 | Clinical Measurement and Evaluation | 3 | Fall 1  
EPID 716 | Epidemiologic Data Analysis | 3 | Spring 1  
EPID 750 | Methods in Field Epidemiology | 3 | Spring 2  
EPID 759 | Fundamentals of Public Health Surveillance | 3 | Fall 2  
**M.P.H. Practicum** |  |  |  
SPHG 701 | MPH Practicum Preparation | 2 | Summer 1  
SPHG 702 | Practicum Assignments & Interprofessional Practice Activities | 1 | Fall 2  
**M.P.H. Electives** |  |  |  
Elective (Graduate-level courses) | 3 |  
Elective (Graduate-level courses) | 3 |  
**M.P.H. Culminating Experience** |  |  |  
EPID 992 | Master’s (Non-Thesis) | 3 | Spring 2  
**Total Hours** |  |  |  
 |  | 42 |  

Competencies

Students will develop the following Applied Epidemiology competencies, building on the foundational public health knowledge they attain in the Gillings M.P.H. Integrated Core courses.

EPID01. Evaluate critically the relevant body of the scientific literature, considering the perspectives of relevant community stakeholders.

EPID02. Understand surveillance systems and how they can be applied to a disease or condition of public health importance, using evolving technologies and data linkages.

EPID03. Recommend specific epidemiologic study designs – including appropriate study populations, strategies of data collection – to identify or monitor public health problems, investigate etiologic and preventive relations, and provide epidemiologic input for program evaluation.

EPID04. Create or implement data collection tools and linkages, with adequate consideration of ethical and privacy considerations, data management principles, data security, quality control, and oversight.

EPID05. Conduct and interpret data analyses of epidemiologic data, including datasets made available by governmental and other organizations, to address research questions, taking account of data quality, measurement error, and potential for bias, including confounding.

EPID06. Communicate epidemiologic concepts and findings to a wide range of stakeholders, from lay to professional audiences.

Admissions

Please visit Applying to the Gillings School (https://sph.unc.edu/students/how-to-apply/) first for details and information. Application to the residential M.P.H. is a two-step process. Please apply separately to (1) SOPHAS and (2) UNC–Chapel Hill (via the Graduate School application). Visit https://gradschool.sites.unc.edu/master-of-public-health/ for more details. If you are interested in the online M.P.H., please visit the M.P.H.@UNC (https://onlinemph.unc.edu/) Web site and fill out an inquiry form.

Comprehensive Exam

A milestone degree requirement for all graduate students at UNC–Chapel Hill, including M.P.H. students at the Gillings School of Public Health, is the comprehensive exam. The comprehensive exam will cover the public health foundational knowledge and competencies covered in the M.P.H. Core courses: SPHG 701, 711, 712, 713, 721, 722. Students will have an opportunity to demonstrate synthesis and higher order learning of the 22 core competencies achieved in the M.P.H. Core courses during the exam. The exam will be administered and graded by Gillings faculty and clear instructions on how to prepare for and complete the comprehensive exam will be provided. They comprehensive exam will typical be offered in the fall of the student’s second year in the M.P.H. program and cannot be completed by students until after all M.P.H. core courses have been successfully completed. Should students not successfully pass the comprehensive exam a remediation plan will be developed. Students cannot retake the comprehensive exam for 90 days after the initial exam.
Practicum

This 200 (minimum) hour planned, mentored, and evaluated work experience (paid or unpaid) gives students the real-world opportunity to integrate and apply knowledge, skills, and values from Year One of their Gillings M.P.H. training in a professional public health setting such as a nonprofit organization, hospital, local or state health department, or for-profit firm (public or private sectors). Please visit the M.P.H. Practicum Web site (https://sph.unc.edu/resource-pages/master-of-public-health-2/mph-practicum/) for additional information. In order to meet graduation requirements, a Gillings M.P.H. practicum must:

1. Occur after a student has completed the Gillings M.P.H. Core courses, the M.P.H. practicum preparation course (SPHG 701), and at least one concentration-required course from the student’s declared concentration. In extenuating circumstances and with the approval from the student’s declared concentration, some exceptions may apply.

2. Yield a least two student-generated products, produced in the practicum setting for the practicum setting, that allow for attainment of at least three (CEPH) M.P.H. Foundational and two concentration-specific competencies (Appendix A). In extenuating circumstances and with the approval from the concentration, students can petition to substitute up to two CEPH Foundational competencies for the concentration-specific competencies.

3. Be mentored by a supervisor (preceptor) with an advanced degree in public health or equivalent experience with expertise in the practicum project area.

4. Comprise a minimum of 200 hours (equivalent to five weeks of full-time work) in a location approved for student travel (UNC Travel Policy (https://global.unc.edu/files/2018/02/UNC-Travel-Policy-Final.pdf)), and the student must complete UNC Gillings International Pre-Departure Travel Requirements prior to travel.

Culminating Experience

Each student completes a 3-credit culminating experience and produces a high-quality written product that is completed near the end of the program of study. The high-quality written product demonstrates a synthesis of four foundational and concentration-specific competencies appropriate to the student’s educational and professional goals. This culminating experience ideally is delivered in a manner that is useful to external stakeholders, such as nonprofit or governmental organizations, and could take the form of a course-based capstone project or master’s paper but will be tailored to the concentration a student chooses.

Academic Advising and Faculty Mentoring

We are committed to providing quality academic advising and mentoring for all students. We ensure that M.P.H. students get the guidance they need with several components: 1) an orientation program that provides an overview of the types and sources of M.P.H. advising; 2) cohort advising sessions to disseminate information that is relevant to course planning and registration; 3) faculty mentoring that provides students with tailored support for their academic, professional, personal development, and practicum support.

M.P.H. students will complete a 2-semester, 12-credit-hour Integrated Core taught by an interdisciplinary team of instructors. The 6-credit first semester (fall) focuses on understanding public health issues, and the second semester (6-credit spring courses) focuses on creating solutions to those issues.

All M.P.H. students take COMPASS (Core Online Modules to Promote and Accelerate Student Success). These brief, self-paced online modules are open for students prior to their first academic year. Students can complete any and all parts of COMPASS up to and including the first week of class.

Electives

Students in the M.P.H. program are required to take 9 credits. Students are expected to use their electives in a thoughtful way to strengthen their public health knowledge/skills and are encouraged to consult with their academic coordinator early on prior to the registration period for this purpose. In addition to those courses offered in the Gillings School there are many appropriate electives elsewhere in the University.

For information on policies and procedures, please visit the Gillings School Student Handbook (https://sph.unc.edu/students/gillings-school-student-handbook/) Web site.