

EPIDEMIOLOGY

GMS 7858 Causal Artificial Intelligence for Health Research 3 Credits

Grading Scheme: Letter Grade

This course covers foundational issues in “causal Artificial Intelligence” embedding machine learning with causal inference methods on real-world data, and methodologies for automated causal learning. Health research approaches such as target trials and transportability will be discussed, as well as Artificial Intelligence fairness to tackle health disparities and inequity.

Prerequisite: Instructor approval.GMS7858

PHC 6000 Epidemiology Methods I 3 Credits

Grading Scheme: Letter Grade

Overview of epidemiology methods used in research studies that address disease patterns in community- and clinic-based populations.

Prerequisite: PHC 6001, PHC 6050 or PHC 6052, or departmental approval.

PHC 6002 Epidemiology of Infectious Diseases 3 Credits

Grading Scheme: Letter Grade

Epidemiology, prevention, and control of infectious diseases affecting local, national, and global community health; epidemiologic methods used in disease surveillance and measures used in slowing or preventing spread of disease.

Prerequisite: PHC 6001, and PHC 6052 or PHC 6050: Statistical Methods for Health Sciences Research I or departmental approval.

PHC 6003 Epidemiology of Chronic Diseases and Disability 3 Credits

Grading Scheme: Letter Grade

Overview of epidemiology of chronic diseases and disabilities prevalent in various populations. Introduces contemporary methods for surveillance including risk factors, etiology, and changes over time.

Prerequisite: PHC 6001, and PHC 6052 or PHC 6050 or departmental approval.

PHC 6009 Biology and Epidemiology of HIV/AIDS 3 Credits

Grading Scheme: Letter Grade

Examining the biological process by which HIV causes infection and AIDS, including the physiologic and cellular processes involved in HIV infection and treatment. Developing skills in finding and interpreting current epidemiologic data on HIV/AIDS, including risk factors, comorbid health issues, special populations, and health outcomes. Overview of HIV prevention strategies and their effectiveness. Special emphasis on epidemiology of HIV/AIDS in the rural south.

PHC 6011 Epidemiology Methods II 3 Credits

Grading Scheme: Letter Grade

Analytic methods in epidemiology with a foundation in applied epidemiological analysis and experience in peer-review productivity based on secondary data analysis.

Prerequisite: PHC 6000 & PHC 6052 & PHC 6053, or approval of instructor

PHC 6016 Social Epidemiology in Public Health 3 Credits

Grading Scheme: Letter Grade

Social determinants of population health, including acute and chronic disease outcomes, and health behavior. Introduces methodological approaches to the field of social epidemiology with specific attention to measurement issues.

Prerequisite: PHC 6000, PHC 6001, PHC 6410, or consent of instructor.

PHC 6041 Landmarks in Psychiatric Epidemiology 2 Credits

Grading Scheme: S/U

Landmarks in psychiatric epidemiology, including mental health and substance use disorders, are reviewed with emphasis on student discovery. The focus is on findings, methodology, and historical development of methods in case finding and diagnosis; cohort discovery; and geographical, social, and community risk factors. Topics include relevance to current methodological challenges.

PHC 6194 Spatial Epidemiology 3 Credits

Grading Scheme: Letter Grade

Spatial Epidemiologic research methods, with major focus on Geographic Information Systems (GIS) and Exploratory Spatial Data Analysis (ESDA) applied to public health issues.

Prerequisite: All of the following courses: PHC 6000 , PHC 6011 , PHC 6052 , PHC 6053 (or equivalent).

PHC 6517 Public Health Concepts in Infectious Diseases 3 Credits

Grading Scheme: Letter Grade

Topics and methods used in modern infectious disease epidemiology.

Prerequisite: PHC 6001 and PHC 6002.

PHC 6591 Maternal and Child Health Epidemiology 3 Credits

Grading Scheme: Letter Grade

This is a 3-credit course offered on campus to graduate students on the epidemiology of maternal and child health. This course is designed to provide a graduate level understanding of how epidemiological principles can be applied to maternal and child mortality and morbidity.

Prerequisite: PHC 6001 and PHC (or equivalent research methods coursework). Students with no prior instruction in epidemiology but with methodological coursework from another related discipline may be admitted with permission from the instructor.

PHC 6598 Foundations in Precision Medicine: Genetic Epidemiology 1 Credit

Grading Scheme: Letter Grade

Genetic epidemiology, a rapidly evolving field of research, utilizes specialized molecular and statistical methods to identify genetic factors that might be involved in disease etiology. This course provides an exposure to fundamental concepts, terminologies and principles in human population genetics and molecular biology relevant to understanding genetic epidemiologic approaches.

Prerequisite: Enrollment in the Certificate for Precision Medicine or permission of the instructor

PHC 6711 Measurement in Epidemiology and Outcomes Research 3 Credits

Grading Scheme: Letter Grade

Major designs and principles of measurement for epidemiology and health services outcomes research, with emphasis on use of primary data collection.

Prerequisite: PHC 6001 and PHC 6050 or equivalent.

PHC 6717 Public Health Surveillance 3 Credits

Grading Scheme: Letter Grade

The purpose of this course is to prepare master's- and doctoral-level students to be able to design, evaluate, and operate epidemiological surveillance systems, and to be able to critically evaluate surveillance systems and reports.

Prerequisite: PHC 6001 and PHC 6000, or equivalent graduate-level coursework in epidemiologic methods, or instructor permission.

PHC 6932 Psychiatric Epidemiology Online Seminar Series 1 Credit**Grading Scheme:** S/U

Epidemiology seminars from the Department of Epidemiology and other epidemiology departments, and associated publications will be used to provide students with an understanding of new developments in the field of epidemiology as applied to psychiatric epidemiology.

PHC 6937 Special Topics in Public Health 1-6 Credits, Max 12 Credits**Grading Scheme:** Letter Grade

Special Topics in Public Health

PHC 6939 CPE Psychiatric Grand Rounds 1 Credit**Grading Scheme:** S/U

World-renowned experts are invited to address a wide spectrum of specialties and sub-specialties and often introduce new and interesting developments. Mental health care professionals and epidemiologists will receive up-to-date information on trends and techniques in psychiatry.

Prerequisite: Enrollment in Certificate in Psychiatric Epidemiology**PHC 6971 Research for Master's Thesis 1-4 Credits, Max 4 Credits****Grading Scheme:** S/U

The thesis requires the student to formulate a research question, conduct relevant background research, generate hypotheses, gather and analyze appropriate data, interpret and discuss findings, and determine conclusions. Students submit a written thesis consistent with UF requirements, pass an oral defense of their research and submit their work for publication under the direction of a mentor.

Prerequisite: Satisfactory completion of the first semester of coursework and instructor's permission. All Human Subjects Participation/IRB required training must be completed prior to registering for this course.

PHC 7000 Epidemiology Seminar II: Critical Evaluation, Research Proposals, and Methods 2 Credits**Grading Scheme:** Letter Grade

This course is taken in the second year of the epidemiology PhD program curriculum. Seminar series is designed to introduce students to a range of advanced epidemiologic concepts and research methods to help PhD students advance their dissertation ideas and help students obtain skills needed for a PhD in epidemiology.

Prerequisite: PHC 6001 and PHC 6000, one semester of biostatistics, and PhD student status in epidemiology or permission of the instructor

PHC 7007 Cancer Epidemiology 3 Credits**Grading Scheme:** Letter Grade

Providing students with skills to evaluate the burden associated with cancers and develop public health interventions to reduce the burden of cancer worldwide. From the population perspective, the course will familiarize students with exposures associated with cancer risk. Practical applications of genome analysis and phenotypic profiling are included/
Prerequisite: PHC 6001 and PHC 6000 or equivalent. PhD student status required; other students need instructor permission. Students with no prior instruction in epidemiology but with methodological coursework from another related discipline may be admitted.

PHC 7017 Advanced Epidemiologic Methods III 3 Credits**Grading Scheme:** Letter Grade

To expand the methodology inventory by introducing advanced and new statistical and modeling methods to address measurement, descriptive, comparative, associative and causal relations in modern epidemiology.

Prerequisite: GMS 6800, GMS 6810, consent of instructor.**PHC 7038 Psychiatric Epidemiology 3 Credits****Grading Scheme:** Letter Grade

Concepts, history, measures, methods and analytical techniques to study the risks, prevalence and incidence, course, comorbidities, and consequences of major mental disorders, in general and specific populations internationally.

Prerequisite: PHC 6000 and PHC 6011**PHC 7065 Advanced Skills in Epidemiological Data Management 2 Credits****Grading Scheme:** Letter Grade

Provides knowledge and skills in data manipulation for population science. Included are: data context, concepts; relational databases; data collection, extraction; parallel manipulation of massive datasets; NoSQL systems, concepts. The course is designed for advanced students to learn the "code of best practice" for data engineering in population science.

Prerequisite: PHC 6052 Introduction to Biostatistical Methods and PHC 6000 Epidemiology Methods I, or equivalents, or instructor permission.

PHC 7083 Artificial Intelligence and Data Science for Epidemiology and Population Health 3 Credits**Grading Scheme:** Letter Grade

This computational epidemiology course blends methodological, practical, and translational aspects with emphasis on new data science methods. The course is not intended to provide statistical training, but rather to teach students to recognize suitable computational approaches to handle data. Practice sessions will acquaint students with statistical and machine learning software.

Prerequisite: PHC 6000, and at least one among PHC 6052, PHC 6053, PHC 7065 or PHC 6711 (or equivalent quantitative stats/programming course with permission of instructor).

PHC 7199 Topics in Precision Medicine and Public Health Informatics 1 Credit**Grading Scheme:** Letter Grade

The course introduces methodological and translational topics in precision medicine and public health informatics and provides knowledge and skills for planning and managing such research.

Prerequisite: Epidemiology Methods I and II and a SAS course, or graduate statistical and quantitative research courses in any relevant department, or permission from the instructor.

PHC 7427 Ethics in Population Science 2 Credits**Grading Scheme:** S/U

Covering federally mandated topics in the Responsible Conduct of Research: Data Acquisition, Management, Sharing, Ownership; Conflict of Interest/Commitment; Human Subjects; Animal Welfare; Research Misconduct; Publication Practices and Responsible Authorship; Mentor/Trainee Responsibilities; Peer Review; and Collaborative Science. This ethics course is for those enrolled in research intensive graduate programs.

Prerequisite: Advanced degree or PhD candidacy or permission of the instructor.

PHC 7594 Genetic Epidemiology 3 Credits**Grading Scheme:** Letter Grade

Covers fundamental concepts and principles in genetic epidemiology. At the completion of this course, students are expected to critically discuss literature, design and conduct basic genetic analysis, and interpret research finding. Advanced methods course for PhD program.

Prerequisite: PHC 6000, PHC 6011 (can be taken concurrently), and PHC 6050C. Talk to the instructor for a prerequisite waiver or further information. For PhD students; MS/MPH students may contact the instructor for permission.

PHC 7595 Introduction to Molecular Epidemiology 3 Credits**Grading Scheme:** Letter Grade

Covering the theoretical concepts in molecular epidemiology and use of biomarkers in epidemiologic studies. Class topics include: basics of molecular epidemiology, potential uses and limitations of biomarkers, sample collection and storage, issues in epidemiologic study design and analysis, and discussion of specific research examples involving molecular markers.

Prerequisite: Knowledge of basic concepts in epidemiology and study designs: PHC 6001

PHC 7727 Grant Writing for Population Health Research 3 Credits**Grading Scheme:** Letter Grade

This course provides practical instruction in the grant process, with a specific focus on National Institutes of Health (NIH) procedures. It provides the student with experience in writing parts of the grant application and in reviewing other's grant applications. It also contains a Mock Grant Review session to assist students in understanding the process and content of grant review.

Prerequisite: PHC 6011 Epidemiology Methods II

PHC 7901 Epidemiology Literature Review and Critique (Journal Club) 1 Credit, Max 3 Credits**Grading Scheme:** S/U

Preparing students to perform peer-review and to think critically. In weekly class discussion sessions, students will review peer-reviewed, published research studies that demonstrate innovative or faculty epidemiologic content or methods. Feedback will be given by student peers and faculty.

Prerequisite: PhD candidacy status or permission from the instructor

PHC 7902 Scientific Writing for Peer Reviewed Publications for Popular Science 3 Credits**Grading Scheme:** Letter Grade

Practice reviewing and critiquing research studies.

Prerequisite: PhD student status or permission of the instructor ;

Corequisite: Conducting mentored doctoral research

PHC 7910 International Field Epidemiology 3 Credits**Grading Scheme:** S/U

This is an independent study for a student who wishes to accomplish a primary data collection effort internationally.

Prerequisite: PHC 6011 Epidemiology Methods II

PHC 7916 National Field Epidemiology 1-3 Credits**Grading Scheme:** S/U

This applied epidemiology field experience is designed as an opportunity for doctoral students to integrate their growing expertise in epidemiology in a field research experience among a population in the United States.

Prerequisite: PHC 6011 Epidemiology Methods II

PHC 7918 Epidemiology Independent Study 1-3 Credits, Max 12 Credits**Grading Scheme:** S/U

Independent Study is designed for graduate level students who want to pursue in depth an area of study not provided in regularly offered courses. It can involve independent readings or independent projects under the guidance of a faculty sponsor.

Prerequisite: Consent of faculty member supervising the study.

PHC 7934 Seminar I: Epidemiology Past, Present, and Future 2 Credits**Grading Scheme:** Letter Grade

The principal goals of this doctoral seminar include becoming familiar with major programs of research in epidemiology, discussing findings and implications of classic/prominent epidemiologic studies, reviewing the strengths and weakness of major epidemiologic study designs, and applying knowledge of epidemiologic study design to students' formulation of their own research studies.

Prerequisite: PhD standing

PHC 7979 Advanced Research 1-12 Credits**Grading Scheme:** S/U

Research for doctoral students before admission to candidacy. Designed for students with a master's degree in the field of study or for students who have been accepted for a doctoral program. Not appropriate for students who have been admitted to candidacy.

PHC 7980 Research for Doctoral Dissertation 1-15 Credits**Grading Scheme:** S/U

Research for Doctoral Dissertation