

**Cancer Epidemiology Program
Department of Epidemiology**

Program Learning Objectives

Introduction

Epidemiology provides an important approach to elucidating the causes of cancer, improving our understanding of mechanisms, as well as developing strategies for the treatment, prevention and control of cancer. The training of a successful cancer epidemiologist requires training in epidemiologic methods, biostatistics, related substantive areas (e.g., nutrition, occupational, environmental, and social epidemiology), and cancer biology. Students should also obtain an appreciation of multidisciplinary, collaborative research.

Learning Objectives

- Understand cancer statistics and the descriptive epidemiology of cancer;
- Understand known risk factors and gaps in knowledge for the major cancers;
- Understand the pathobiology of cancer;
- Apply epidemiologic methods in the design, conduct, and analysis of cancer research studies;
- Apply critical thinking in the review of projects and publications in cancer epidemiology;
- Appreciate the multidisciplinary aspect of cancer including the contributions of basic sciences, clinical medicine and the social sciences to the understanding of cancer etiology and progression;
- Appreciate methods for cancer risk assessment and screening;
- Appreciate the role and interdisciplinary methods of cancer control and prevention.

Methods for Meeting Learning Objectives

The learning objectives are met through formal coursework, mentored research training, and individualized study. There are three formal courses in cancer epidemiology, EPID770 Cancer Epidemiology and Pathogenesis, EPID771 Cancer Epidemiology Methods, and EPID775 Advanced Cancer Epidemiology. Students are also encouraged to enroll in additional related courses including EPID772 Cancer Prevention and Control, PATH725 Cancer Pathology, EPID743 Genetic Epidemiology, EPID745 Molecular Techniques for Public Health Research, and EPID815 Diet and Cancer.

Students participate in the regular cancer epidemiology seminar that provides a forum for learning about cancer research in the Department, School of Public Health, and Lineberger Comprehensive Cancer Center. Students are encouraged to present their own research or lead journal club style discussions. In addition, speakers from outside the University of North Carolina are invited to speak at the Seminar.

The Departmental requirements for the MPH, MSPH, and PhD graduate programs encompass individualized research activities related to a specific topic in cancer epidemiology. The Masters and Doctoral research projects typically require an understanding of the biology of cancer, application of epidemiologic methods, and use of methods and resources from other disciplines.

Students are also encouraged to work on additional cancer-related projects that are not directly part of their masters or dissertation projects to broaden their experiences and perspectives. Practical experience in the conduct of studies is also encouraged.

Documentation of Achievement of Learning Objectives

Student progress is monitored by means of performance in the Department cancer epidemiology courses as well as other recommended courses outside the Department. These courses utilize different means of student evaluation including traditional examinations, course papers and presentations. The Department's master's comprehensive examination and doctoral program qualifying examination are designed to evaluate the student's understanding of epidemiologic theory and methods and application to specific topics in various substantive areas. The doctoral substantive qualifying examination assesses the student's knowledge base and use of epidemiologic methods in cancer epidemiology. The masters thesis is focused on a specific topic in cancer epidemiology and provides additional evidence of mastery of epidemiologic methods and substantive knowledge in cancer epidemiology. The dissertation project provides documentation of a student's ability to independently develop and execute a major independent project on a focused area of cancer epidemiologic research. The dissertation proposal and oral examination, research conduct, dissertation, final defense, and publication development are specific landmarks in the doctoral program that provide documentation for achievement of learning objectives.