

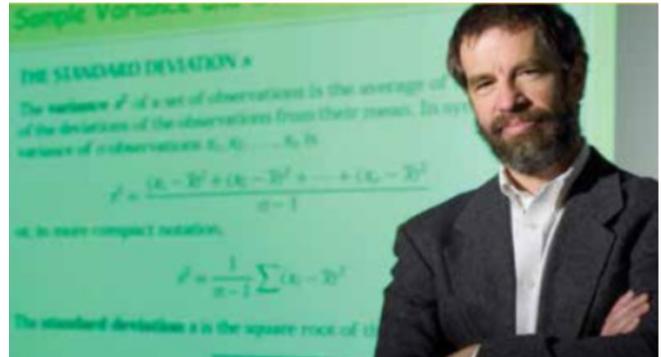


Epidemiology and Human Genetics Program

The Program in Epidemiology and Human Genetics offers a diverse array of integrated opportunities to develop skills for discovering how population, molecular, and genetic variations relate to health and disease. These skills are essential for translating new basic research findings into clinical practice and applying them to public health. New findings from epidemiology and human genetics research consistently make the news. Students in this program become leaders in improving the health of local, regional, and global populations. The program combines traditional areas of biomedical, genetic, clinical, and community studies with opportunities to learn and apply

observational, biostatistical, molecular, and genomic tools in their investigations.

A valuable resource for students is the program's multidisciplinary faculty, which is made up of epidemiologists, human geneticists, physicians, social scientists, statisticians, and computer scientists who collaborate with colleagues at the National Institutes of Health, the Centers for Disease Control, the Maryland Department of Health and Mental Hygiene, the Food and Drug Administration, and various other agencies. Faculty in the program explore risk factors for disease and the natural history of disease processes, assess the effectiveness of medical and



behavioral interventions, and design studies to better understand health behavior. They investigate genetic influences on health and disease, elucidating the mechanisms through which genes act. The program includes three distinct yet intersecting tracks, each with its own curriculum: Epidemiology, Molecular Epidemiology, and Human Genetics.



Epidemiology Track

The Epidemiology Track has a strong quantitative focus, providing students with the tools needed to conduct world-class research on epidemiologic questions and to participate in multidisciplinary research in a wide range of specialties. Training concentrates on understanding the biological, behavioral, social, environmental, and organizational determinants of disease and health outcomes.

Recent student dissertation projects have examined serum vitamin E and physical function after hip fracture, the effect of micronutrient fortification on diarrhea and acute respiratory infection in infants in rural India, the effect of alcohol sales tax increases on alcohol-impaired drivers, patient understanding of infection-related hospital quality measures, and adherence to and safety of the HPV vaccine in Mali.



Molecular Epidemiology

The Molecular Epidemiology Track is designed for students who wish to undertake research that combines molecular, genetic, and epidemiologic techniques and apply them to the understanding of human health and disease. Recent advances in genomics have added a new dimension to the understanding of risk factors for disease transmission and acquisition. Students in this track develop a solid knowledge base in epidemiology and biostatistics, while gaining the laboratory and informatics skills needed to incorporate

Where do our graduates go?

- Academia (research and teaching)
- CDC (including as Epidemic Intelligence Service officers)
- NIH (postdoctoral fellows or researchers)
- Other federal agencies (FDA, CMS, NCHS)
- State health departments
- Non-governmental organizations, domestic and international
- Industry, including pharmaceutical companies
- Employment as public health geneticists
- Employment as clinical laboratory geneticists
- Forensics

genomic data into their research. Here are some recent dissertation topics of students in this track: risk factors for childhood diarrhea in Bangladesh, optimal universal precautions for treating patients with hospital-acquired infections, markers for inflammation and depression among hip fracture patients, *Shigella* in relation to childhood diarrheal illness in developing countries, and antibody diversity to *Plasmodium falciparum* apical membrane antigen 1 in Mali.



Human Genetics Track

The Human Genetics Track offers training for students who want to understand human genetic variation and its relation to health and disease. Students first receive a broad overview of human genetics (molecular, biochemical, and clinical), cytogenetics, and genetic epidemiology/genomics, and then specialize in their particular areas of interest. The track utilizes a multidisciplinary team approach to research training involving faculty from across the campus. Recent students have carried out research in a range of areas, including mechanisms of DNA repair, clinical genetics and screening, gene mapping in simple and complex diseases, gene discovery and function, recombination and mutation in bacteria that cause human disease, and characterization of chromosomal diversity in the Amish population.

Visit our website:

<http://lifesciences.umaryland.edu/epidemiology/>

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