

GRADUATE CERTIFICATE IN BIostatISTICS AND EPIDEMIOLOGY

The 15 credit hours graduate Certificate in Biostatistics and Epidemiology focuses on the development of the qualitative and quantitative knowledge and skills to collect, organize, analyze, and interpret data associated with epidemiologic investigations, health surveys, injury and illness recognition, and human exposure assessment. The Certificate in Biostatistics and Epidemiology provides learners with an expanded scope and depth of quantitative knowledge and skills, as compared to the Certificate in Epidemiology. NOCPH MPH students may not take this certificate concurrently while earning the MPH.

Student Learning Objectives

Student Learning Objectives for the Certificate in Biostatistics and Epidemiology:

- Select and apply appropriate biostatistical and epidemiological methods and interpret basic and applied research data
 - Define and calculate measures of disease frequency and measures of association between risk factors and disease
 - Describe the major epidemiologic research study designs and their advantages and limitations
 - Define the basic terms and apply methods used in outbreak investigation, infectious disease epidemiology, chronic disease epidemiology, disease prevention trials, and evaluation of screening tests
 - Review the scientific literature with competence, synthesize findings across studies, and make appropriate public health recommendations based on current knowledge
 - Design an epidemiologic study to address a question of interest
 - Write a clear description of the rationale, methods, results, and interpretation of an epidemiologic investigation
 - Apply epidemiologic skills in a clinical or public health setting, specifically in the formulation or application of health-related programs or policies
- PLO 2. Describe the major epidemiologic research study designs and their advantages and limitations.
 - PLO 3. Describe the major sources of bias in epidemiologic research (confounding, selection bias, and measurement error) and the ways to evaluate and reduce bias.
 - PLO 4. Apply criteria to support whether an association is causal.
 - PLO 5. Interpret the results of an epidemiologic study, including the relation to findings from other epidemiologic studies, potential biologic and/or social mechanisms, the limitations of the study, and any public health implications.
 - PLO 6. Describe basic biostatistical methods and perform basic statistical analyses.

Certificate in Biostatistics and Epidemiology students take the following courses.

Code	Title	Hours
PUBH 6000/8000	Quantitative and Qualitative Data Analysis in Public Health	3
PUBH 6010/8010	Public Health Epidemiology	3
PUBH 6030/8030	Advanced Epidemiology	3
PUBH 6060/8060	Advanced Biostatistics	3
PUBH 6110/8110	Categorical Data Analysis	3
Total Hours		15

- PLO 1. Define and calculate measures of disease frequency and measures of association between risk factors and disease.