DrPH-Biostatistics

This concentration is designed for health professionals who would like to become leaders in public health, especially in biostatistics and related areas. The Department of Biostatistics coordinates the concentration. Graduates will be able to develop their careers in academia, public health institutions, or healthcare facilities. The graduate of the concentration will understand public health policies and practices, will identify key elements of quantitative nature for decision-making, and will be able to plan and evaluate health systems and public health programs by using biostatistical methodology. The student will also have the opportunity to learn about community health measurements, as well as the design and management of health data systems. The concentration provides the expertise and experience to plan, develop, and evaluate public health programs. The student will also gain biostatistical knowledge and skills to be able to plan and conduct applied biostatistical research as an independent researcher or member of research teams in public health and other biomedical sciences that use experimental and observational techniques. A doctoral dissertation for the concentration is required, providing the opportunity to apply the knowledge gained during coursework and other academic activities. The dissertation is expected to analyze and propose solutions to a problem with implications for public health practice, often by translating and applying new theoretical and technical advances to current problems in public health. The graduate of this program can undertake professional, managerial or leadership position in governmental or private institutions such as public health departments, academic settings such as schools of public health, epidemiologic research institutions, hospitals and other medical facilities, health care, and pharmaceutical companies.

Prerequisite Courses: 18 SCH*

BIOS	5210	Biostatistics for Public Health I	3 SCH
BIOS	5215	Biostatistics for Public Health II	3 SCH
ENVR	5300	Environmental Health	3 SCH
EPID	5100	Principles of Epidemiology	3 SCH
HMAP	5210	Introduction to Health Management and Policy	3 SCH
SCBS	5110	Behavioral and Social Aspects of Public Health	3 SCH

Additional Prerequisite Courses in Statistics: 12 SCH*

BIOS	5700	Mathematical Statistics	3 SCH
BIOS	5730	Regression Analysis	3 SCH

BIOS	5735	Analysis of Variance	3 SCH
BIOS	5740	Introduction to Statistical Packages	3 SCH

Curriculum

Core Curriculum Requirements: 22SCH*

BIOS	6100	Applied Statistical Methods for Data Analysis	3 SCH
ENVR	6100	Environmental Health Determinants	3 SCH
EPID	6110	Intermediate Epidemiology for Non-Majors[1]	3 SCH
HMAP	6100	Health Care Systems	3 SCH
SCBS	6100	Social and Behavioral Theories and Health Applications	3 SCH
SPH	6161	Ethics I	1 SCH
SPH	6162	Ethics II	1 SCH
SPH	6163	Leadership I	1 SCH
SPH	6164	Leadership II	1 SCH
SPH	6900	Doctoral Capstone	

* A student may petition to waive a core course or prerequisite course requirement based on comparable course work. Such a petition must be approved by the student's advisor and the department chair and course instructor associated with the course.

Dr.P.H. Core Curriculum Learning Objectives

After the completion of the Dr.P.H. core curriculum, the student will be able to:

1. Identify and promote the relationships between public health and social agencies whose actions affect the health of people.
2. Analyze issues and problems in public health using critical evaluation, applied research methodology, and statistical methods.
3. Participate in effecting change in public health policies and practices through the study of how programs are implemented in institutions and society, and to those subjects that support decision-making in public health such as organizational behavior and theory, financial management, strategy, information systems, and ethics.
4. Plan and evaluate public health programs.
5. Develop a vision and philosophy for professional leadership in public health.
6. Acquire the skills to mobilize resources and the organizational and community capacity necessary to address public health challenges to achieve the national health objectives.
7. Participate in the decision making process where professional leadership in public health is conducted.
8. Analyze quantitative research data in public health using appropriate techniques.
9. Communicate findings of the analysis and solution of a problem of public health importance in professional journals.

Public Health Practice Experience: 4 SCH

SPH	6860	Public Health Practice Residency	4 SCH

Culminating Experience Requirement: 9 SCH

SPH	6950	Dissertation	9 SCH

Biostatistics Concentration Curriculum

Required Courses: 18 SCH

BIOS	5720	Survey Sampling	3 SCH
BIOS	5725	Nonparametric Statistical Methods	3 SCH
BIOS	5760	Data Management	3 SCH
BIOS	6760	Multivariate Analysis	3 SCH
BIOS	6775	Clinical Trials and Survival Analysis	3 SCH

| BIOS | 6785 | Biostatistical Research and Consulting | 3 SCH |

Elective Courses: 12 SCH

BIOS	6750	Applied Categorical Data Analysis	3 SCH
BIOS	6790	Seminar in Biostatistics	3 SCH
BIOS	6910	Doctoral Independent Study in Biostatistics	1-3 SCH
EPID	5300	Survey Methodology	3 SCH
EPID	5610	Chronic Disease Epidemiology	3 SCH
EPID	5630	Infectious Disease Epidemiology	3 SCH
EPID	6630	Quantitative Epidemiologic Methods	3 SCH
HMAP	5240	Health Politics and Policy	3 SCH
HMAP	5245	Health Economics	3 SCH
HMAP	5260	Health Information Systems	3 SCH
HMAP	6200	Organizational Management	3 SCH
HMAP	6210	Health Services Research I	3 SCH
SCBS	6400	Research Methods in Social and Behavioral Sciences	3 SCH

Biostatistics Dr.P.H. Qualifying Examination

Biostatistics Dr.P.H. students are required to pass a qualifying exam which is given in the second week of November each year. The exam covers material from six courses: BIOS 5720 Survey Sampling; BIOS 5725 Nonparametric Statistical Methods; BIOS 5760 Data Management; BIOS 6760 Multivariate Analysis; BIOS 6775 Clinical Trials and Survival Analysis; BIOS 6785 Biostatistical Research and Consulting. In order to take the exam a student must have a grade point average of 3.0 or higher in graduate level biostatistics courses. Students are responsible for informing the Department of Biostatistics of their intentions to take the exam. A student who encounters a last minute emergency (sickness, death in the family, etc.) may appeal to the exam committee for an opportunity to take a makeup exam. Students who fail the exam may, upon recommendation of the committee, be allowed to retake a different exam or given an oral exam. However, an opportunity for retaking the exam or the oral exam is not automatic.

Biostatistics Concentration Learning Objectives

 After the completion of the concentration curriculum in biostatistics, the graduate will be able to:
1. Conduct biostatistical research as applied to public health issues.
2. Assist in the planning, development and evaluation of health systems and programs using biostatistical procedures.
3. Assist in the planning, development and evaluation of public health surveillance systems.
4. Analyze and solve a public health issue by applying statistical methodology.
5. Communicate findings of the analysis and solution of a problem of public health importance in professional journals.
6. Conduct experimental research in public health such as community trials and clinical trials in collaboration with other health professionals.
7. Plan and conduct independent research focusing on the analysis and solution of a problem in public health practice, through the completion of a dissertation.