BIOSTATISTICS, DOCTOR OF PHILOSOPHY (PH.D.)

Summary of PhD in Biostatistics Program Course Requirements

- Prerequisites/Admission requirement (preferred): Calculus (preferably 3 semesters including multivariable calculus), Linear algebra.
- Course waiving policy for students who have taken similar (graduate-level) courses from other institutions.
- All students are strongly encouraged to attend the biweekly seminar every semester.
- Students entering with a relevant master's degree in biostatistics or statistics are likely to have completed several of the courses required for the Ph.D. program. For this reason, we outline two programs of study: I. Students with a relevant master's degree; II. Students without a relevant master's degree.
- Students advance to candidacy after successfully completing the comprehensive exam and dissertation proposal.

I) Students entering with a relevant master's degree (e.g. MS/MPH in Biostatistics):

The total credits for PhD in Biostatistics will be 48 (36 course credits + 12 dissertation credits) if students have a prior MS/MPH degree in biostatistics.

Course	Title	Credits
IA. Core Courses [1]		
EPIB652	Categorical Data Analysis	3
EPIB653	Applied Survival Data Analysis	3
EPIB655	Longitudinal Data Analysis	3
EPIB680	(Linear Model)	3
EPIB610	Foundations of Epidemiology	3
SPHL600	Foundations of Public Health	3
STAT700	Mathematical Statistics I	3
STAT701	Mathematical Statistics II	3
IB. Elective Courses [2]		**12**
EPIB611	Intermediate Epidemiology	
EPIB612	Epidemiologic Study Design	
EPIB633	Health Survey Design and Analysis	
EPIB635	Applied Multilevel Modeling in Health Research	
EPIB654	Clinical Trials: Design and Analysis	
EPIB656	Applied Bayesian Data Analysis	
EPIB657	Spatial Statistics for Public Health Data	
EPIB660	Analysis of National Health Survey Data	
EPIB661	Applied Multivariate Data Analysis	
EPIB664	Missing Data Analysis	
EPIB667	(Applied Machine Learning with Python)	
EPIB681	(Causal Inference)	
EPIB682	(Statistical Learning for Health Data Analysis)	
EPIB683	(High-throughput Data Analysis)	
EPIB684	Epidemiologic Research Using Electronic Health Records Data (Electronic Health Record Data Analysis)	
EPIB695	Introduction to R for Health Data Analysis	
IC. Dissertation Credits [3]		**12**
EPIB899	Doctoral Dissertation Research	
Total Credits		**48**

1. The 8 core courses are required for students with a MS/MPH degree in Biostatistics (24 credits). It is anticipated that students with a relevant master's degree in biostatistics from accredited school of public health would have taken core courses such as EPIB650 (Biostatistics I), EPIB651 (Applied Regression Analysis) and EPIB697 (Public Health Data Management).
2. With advisement, students will be able to choose elective courses (12 credits) both within and outside of EPIB (MATH, JPSM, CMSC, UMSOM).
3. Students are required to complete 12 dissertation credits after passing the Comprehensive Exam.

II) Students entering WITHOUT a relevant master's degree (e.g. MS/MPH in Biostatistics):

The total credits will be 60 for students without prior MS/MPH degree in biostatistics (48 course credits + 12 dissertation credits).

The table below provides the list of 11 core courses for students without a relevant master degree (33 credits).

Course	Title	Credits
IIA. Core Courses		
EPIB650	Biostatistics I	3
EPIB651	Applied Regression Analysis	3
EPIB652	Categorical Data Analysis	3
EPIB653	Applied Survival Data Analysis	3
EPIB655	Longitudinal Data Analysis	3
EPIB680	(Linear Model)	3
EPIB697	Public Health Data Management	3
EPIB610	Foundations of Epidemiology	3
SPHL600	Foundations of Public Health	3
STAT700	Mathematical Statistics I	3
STAT701	Mathematical Statistics II	3
IIB. Elective Courses		**15**
EPIB611	Intermediate Epidemiology	
EPIB612	Epidemiologic Study Design	
EPIB633	Health Survey Design and Analysis	
EPIB635	Applied Multilevel Modeling in Health Research	
EPIB654	Clinical Trials: Design and Analysis	
EPIB656	Applied Bayesian Data Analysis	
EPIB657	Spatial Statistics for Public Health Data	
EPIB660	Analysis of National Health Survey Data	
EPIB661	Applied Multivariate Data Analysis	
EPIB664	Missing Data Analysis	
EPIB667	(Applied Machine Learning with Python)	
EPIB681	(Causal Inference)	
EPIB682	(Statistical Learning for Health Data Analysis)	
EPIB683	(High-throughput Data Analysis)	
EPIB684	Epidemiologic Research Using Electronic Health Records Data (Electronic Health Record Data Analysis)	

EPIB695	Introduction to R for Health Data Analysis	
IIC. Dissertation Credits [2]		**12**
EPIB899	Doctoral Dissertation Research [2]	
Total Credits		**60**

1 With advisement, students will be able to choose elective courses (15 credits) both within and outside of EPIB (MATH, JPSM, CMSC, UMSOM).

2 Students are also required to complete 12 dissertation credits after passing the Comprehensive Exam.