

Biostatistics, PhD

Requirements

The Doctor of Philosophy program in biostatistics requires a minimum of 79 s.h. of graduate credit, including credit from a master's degree. Students must maintain a cumulative grade-point average of at least 3.00. Those who receive a grade of C on 7 s.h. of coursework may be dismissed from the program.

All students must successfully complete a comprehensive examination and a dissertation. The research topic and content, which vary depending on the program of study, must be approved by a student's dissertation committee. Other degree requirements include approved electives chosen from Department of Biostatistics and other University of Iowa courses.

The PhD with a major in biostatistics requires the following work.

Master of Science Background

PhD students must take the following courses required for the Master of Science in biostatistics. Students who have completed equivalent coursework at other institutions may request waivers and/or transfers of credit. Students who earned a Master of Science with a major in biostatistics at the University of Iowa automatically receive credit for these courses.

Course #	Title	Hours
This sequence:		
STAT:5100- STAT:5101	Statistical Inference I-II	6
All of these:		
BIOS:5510	Biostatistical Computing (taken twice for 2 s.h. each; topics should be programming with R and programming with SAS)	4
BIOS:5710 & BIOS:5720	Biostatistical Methods I-II	8
BIOS:5730	Biostatistical Methods in Categorical Data	3
BIOS:6610	Statistical Methods in Clinical Trials	3
BIOS:7500	Preceptorship in Biostatistics	3
EPID:4400	Epidemiology I: Principles	3

Public Health Requirement

Course #	Title	Hours
This course:		
CPH:6100	Essentials of Public Health	2

Responsible Conduct of Research Training

Course #	Title	Hours
This course:		
BIOS:7270	Scholarly Integrity in Biostatistics	1

Core Courses

Course #	Title	Hours
All of these:		
BIOS:6810	Bayesian Methods and Design	3
BIOS:7110	Likelihood Theory and Extensions	4
BIOS:7210/ STAT:7570	Survival Data Analysis	3
BIOS:7250	Theory of Linear and Generalized Linear Models	4
BIOS:7310	Longitudinal Data Analysis	3

Electives

With approval of their advisor, students choose 16–23 s.h. of courses according to their interest in biostatistics, statistics, genetics, computing, public health, or in other areas. No more than 5 s.h. in nonquantitative courses (e.g., epidemiology, environmental health) may count toward the electives requirement. Courses required for the MS that are not listed above also may be used to satisfy the electives requirement, although BIOS:7800 Independent Study in Biostatistics does not generally count as an elective. At least 6 s.h. of elective coursework must be taken with grades awarded.

These courses are recommended, but other coursework may be selected; students should consult their advisor.

Course #	Title	Hours
BIOS:6420	Survey Design and Analysis	3
BIOS:6650	Causal Inference	3
BIOS:6720	Statistical Machine Learning for Biomedical and Public Health Data	3
BIOS:7230	Advanced Clinical Trials	3
BIOS:7240	High-Dimensional Data Analysis	3
BIOS:7330	Advanced Biostatistical Computing	3
BIOS:7410/ STAT:7510	Analysis of Categorical Data	3
BIOS:7600	Advanced Biostatistics Seminar (topics include model selection, spatial biostatistics, statistical methods in genetics/genomics, analysis of network data)	1-3
STAT:6560	Applied Time Series Analysis	3
STAT:7400	Computer Intensive Statistics	3

Dissertation

Students must enroll in the following dissertation course for at least two semesters in residence.

Course #	Title	Hours
BIOS:7900	Thesis/Dissertation	6-13