

Biostatistics, MS

Requirements

The Master of Science program in biostatistics requires a minimum of 38 s.h. of graduate credit. 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.

The program provides training in the design of experiments and in analysis of data related to biomedical or public health problems. It emphasizes mathematical, statistical, and computer methods for dealing with quantitative information and provides opportunities for students to gain statistical consulting experience with a variety of problems.

MS students are required to complete an in-depth preceptorship under the direction of a departmental faculty member and a final comprehensive-style examination.

The MS with a major in biostatistics requires the following coursework.

Core Courses

Course #	Title	Hours
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
One of these sequences:		
STAT:4100-STAT:4101	Mathematical Statistics I-II	6
STAT:5100-STAT:5101	Statistical Inference I-II (required for students who intend to earn a PhD)	6

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

Electives

Students complete a minimum of 5-6 s.h. of electives with at least 3 s.h. in quantitative coursework (statistics or

biostatistics). It is recommended that students consider a biology/public health course as the other elective, particularly for those who have not had prior exposure to these areas. Electives must be approved by the advisor and the director of graduate studies.

Course #	Title	Hours
BIOS:6210	Applied Survival Analysis	3
BIOS:6310	Introductory Longitudinal Data Analysis	3
BIOS:6420/EPID:6420	Survey Design and Analysis	3
BIOS:6650/EPID:6655	Causal Inference	3
BIOS:6720	Statistical Machine Learning for Biomedical and Public Health Data	3
BIOS:6810	Bayesian Methods and Design	3
BIOS:7110	Likelihood Theory and Extensions	4
BIOS:7210	Survival Data Analysis	3
BIOS:7230	Advanced Clinical Trials	3
BIOS:7240	High-Dimensional Data Analysis	3
BIOS:7250	Theory of Linear and Generalized Linear Models	4
BIOS:7310	Longitudinal Data Analysis	3
BIOS:7330	Advanced Biostatistical Computing	3
BIOS:7410	Analysis of Categorical Data	3
BIOS:7600	Advanced Biostatistics Seminar (topics include statistical methods in bioinformatics, model selection, spatial modeling, statistical analysis of network data)	1-3
BIOS:7700	Problems/Special Topics in Biostatistics	1
BIOL:4213	Bioinformatics	4
BME:5335	Computational Bioinformatics	3
CBH:4105	Introduction to Health Promotion and Disease Prevention	3
CPH:5100	Introduction to Public Health	3
CS:5110	Introduction to Informatics	3
DATA:6200	Predictive Analytics	3
GENE:7191	Human Molecular Genetics	3
HMP:4000	Introduction to the U.S. Health Care System	3
ISE:4172	Big Data Analytics	3
OEH:4240	Global Environmental Health	3
PATH:5270	Pathogenesis of Major Human Diseases	3
PATH:8133	Introduction to Human Pathology for Graduate Students	2-4
STAT:4520	Bayesian Statistics	3
STAT:4580	Data Visualization and Data Technologies	3

STAT:6560	Applied Time Series Analysis	3
STAT:7400	Computer Intensive Statistics	3