STATISTICS: BIOSTATISTICS, PHD

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum degree requirements (https://guide.wisc.edu/graduate/#requirementstext) and policies (https://guide.wisc.edu/graduate/#policiestext), in addition to the program requirements listed below.

NAMED OPTION REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students typically take enough credits aimed at completing the program in a year or two.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	51 credits
Minimum Residence Credit Requirement	32 credits
Minimum Graduate Coursework Requirement	26 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).
Other Grade Requirements	A grade of B or better must be received in any course used to fulfill the required and elective course requirements.
Assessments and Examinations	Students must pass the PhD qualifying examination, an oral preliminary examination on a topic selected with the approval of the student's advisor, and a dissertation defense.
Language Requirements	No language requirements.
Graduate School Breadth Requirement	For PhD Statistics: Biostatistics named option students, the breadth requirement is satisfied by: • (1) the biological sciences course and • (2) the collaborative research experience. The Graduate School requirement of a doctoral minor or graduate/professional certificate is not required.

REQUIRED COURSES

Code	Title	Credits
Core		
Students must complete the following courses.		
STAT/B M I 641	Statistical Methods for Clinical Trials	3
STAT/MATH 709	Mathematical Statistics I	4
STAT/MATH 710	Mathematical Statistics II	4
STAT 771	Computational Statistics	4
STAT 849	Advanced Statistical Methods	4
STAT 998	Statistical Consulting	3
Biostatistics Elective		
Students must complete 6 credits from the following courses.		6
STAT/B M I 642	Statistical Methods for Epidemiology	
STAT/B M I 727	Theory and Methods of Longitudinal Data Analysis	
STAT/B M I 741	Survival Analysis Theory and Methods	
STAT/B M I 877	Statistical Methods for Molecular Biology	
Biological Science Elective		
Students must complete 3 credits of a biological science elective. Refer to the "Biological Science Electives Courses" table for courses that satisfy this requirement.		3
Statistics Electives		
Students must complete 6 credits of statistics electives. Refer to the "Statistics Electives Courses" table for courses that satisfy this requirement. Note: Students cannot apply the same course towards the biostatistics elective requirement and statistics elective requirement.		6
Directed Research (Lab Rotation)		
Students must complete one of the following courses for at least 3 credits to fulfill the lab rotation requirement. Students may register for the subject listing associated with their faculty trainer's department. Refer to the "Directed Research (Lab Rotation)" section for additional requirements.		3
STAT 990	Research	
B M I 899	Pre-dissertator Research	

B M I 990	Dissertator Research	
Additional Coursework		
Students must complete 11 credits of additional coursework to meet the minimum credit requirement. Typically, this is earned through a combination of directed research and other elective courses selected in consultation with advisor.		11
Total Credits		**51**

Biological Science Electives Courses

Code	Title	Credits
BIOCHEM 501	Introduction to Biochemistry	3
GENETICS 466	Principles of Genetics	3
GENETICS 467	General Genetics 1	3
GENETICS 468	General Genetics 2	3
GENETICS/ MD GENET 565	Human Genetics	3
GENETICS/ BIOCHEM/ MD GENET 620	Eukaryotic Molecular Biology	3
GENETICS/ CHEM 626	Genomic Science	2
GENETICS 633	Population Genetics	3
GENETICS/ MD GENET 662	Cancer Genetics	3
GENETICS/ MD GENET 677	Advanced Topics in Genetics	1-3
MICROBIO 303	Biology of Microorganisms	3
MICROBIO 450	Diversity, Ecology and Evolution of Microorganisms	3
MICROBIO 526	Physiology of Microorganisms	3
POP HLTH 750	Cancer Epidemiology	2
POP HLTH 752	Principles of Population Health: Determinants of Health and Health Disparities	2
POP HLTH 753	Principles of Population Health: Population Health and Healthcare Systems	2
POP HLTH 795	Principles of Population Health Sciences	1-3
POP HLTH/ SOC 797	Introduction to Epidemiology	3
POP HLTH 801	Epidemiology of Infectious Diseases	2
POP HLTH 805	Advanced Epidemiology: Causal Inference in Epidemiological Studies	3
POP HLTH 847	Cardiovascular Epidemiology	2
POP HLTH/AN SCI/ GENETICS 849	Genomic Epidemiology	2
ZOOLOGY 570	Cell Biology	3

Statistics Electives Courses

Code	Title	Credits
STAT/B M I 620	Statistics in Human Genetics	3
STAT/B M I 642	Statistical Methods for Epidemiology	3
STAT/B M I 643	Clinical Trial Design, Implementation, and Analysis	3
STAT 701	Applied Time Series Analysis, Forecasting and Control I	3
STAT/COMP SCI/ I SY E/MATH 726	Nonlinear Optimization I	3
STAT/B M I 727	Theory and Methods of Longitudinal Data Analysis	3
STAT 732	Large Sample Theory of Statistical Inference	3
STAT/MATH 733	Theory of Probability I	3
STAT/MATH 734	Theory of Probability II	3
STAT/B M I 741	Survival Analysis Theory and Methods	3
STAT 760	Multivariate Analysis I	3
STAT 761	Decision Trees for Multivariate Analysis	3
STAT/B M I 768	Statistical Methods for Medical Image Analysis	3
STAT 772	Linear Randomized Algorithms for Data Science	3
STAT/ECON/ GEN BUS 775	Bayesian Statistics	3
STAT 780	Introduction to Quantum Data Science	3
STAT 801	Advanced Financial Statistics	3
STAT/MATH 803	Experimental Design I	3
STAT 809	Non Parametric Statistics	3
STAT/B M I 828	Semiparametric Methods in Data Science	3
STAT/MATH 833	Topics in the Theory of Probability [1]	3
STAT 841	Nonparametric Statistics and Machine Learning Methods	3
STAT/COMP SCI/ E C E 861	Theoretical Foundations of Machine Learning	3
STAT/B M I 877	Statistical Methods for Molecular Biology	3
STAT/E C E/ MATH 888	Topics in Mathematical Data Science [1]	1-3
STAT 992	Seminar [1]	1-3
MATH 521	Analysis I	3

[1] Students may not apply multiple special topics courses with the same topic title towards their degree.

Directed Research (Lab Rotation)

Students must complete interdisciplinary collaborative research under the supervision of a faculty trainer. To satisfy this requirement, students register for at least 3 credits of research and rotate in various faculty trainer labs. Students enroll in the research course corresponding to their faculty trainer's department.

Students should be aware of the following:

- Lab rotations should be completed during the **first three years of the program**;

- Lab rotations need to be established at the **beginning of the semester** and;
- Students must give a **presentation** of their research at the **end of the same semester**.