BIOSTATISTICS
SCHOOL OF PUBLIC HEALTH

Master of Science Capstone Requirements for Students Entering the Program in 2024

Course Credits

- 24 credits of core curriculum courses
- 20 credits of pathway-specific courses
- 6 course credits for capstone project
- A minimum 3.0 grade in core and pathway courses
- Full-time enrollment of 10 credits per quarter is expected (summer optional)

Capstone Project

The culminating capstone project provides you with a marketable portfolio that demonstrates competency in:

- Data analysis
- Statistical programming
- Consulting experience with non-statisticians
- Written and oral communication
- Collaborative team work

Project Management

You will work on a real-world, health data analytics challenge with a small group of students in close collaboration with a course instructor and partner organization. The capstone project includes two courses:

Capstone Project I

Project preparation (autumn quarter) The partner organization introduces students to the health data analytics challenge. Students form collaborative teams, each of which writes, presents and revises a project proposal that outlines the approach and methods the group plans to use. See BIOST 596

Capstone Project II

Project implementation (winter quarter) - Student teams implement their project proposals. At the end of the course, teams share their findings with the partner

organization in oral and written form, and prepare materials for individual portfolios. See BIOST 597

Courses by Specialization

Select a specialization to view a sample course timeline and overview of course courses and pathway courses.

Data Science

Learn the statistical and computing tools that are unlocking the puzzles of big data and its potential to dramatically improve health of individuals and communities.

Sample Timeline for Data Science

FIRST YEAR

Autumn (10 credits)	Winter (10 credits)	Spring (10 credits)	Summer (0-8 credits)
BIOST 514 (4) Biostatistics I	BIOST 515 (4) Biostatistics II	BIOST 579 (2) Data Analysis and Reporting	BIOST 600 (0-8) Independent Study or Research
BIOST 522 (4) Statistical Inference for Biometry I	BIOST 523 (4) Statistical Inference for Biometry II	BIOST 561 (2) Computational Skills for Biostatistics	
BIOST 504 (2) Foundations of Public Health for Biostatistics	BIOST 505 (2) Writing and Presentation Skills for Biostatistics	Choose one of the following: • BIOST 529 (3) Sample Survey Techniques • BIOST 524 (3) Design of Medical Studies	
		BIOST 540 (3) Longitudinal and Multilevel Data Analysis	

SECOND YEAR

Autumn (10 credits)	Winter (10 credits)
BIOST 544 (3) Introduction to Biomedical Data Science	BIOST 546 (3) Machine Learning for Biomedical and Public Health Big Data* ***or*** BIOST 555 (3) Statistical Methods for Spatial Epidemiology or STAT 554 (3) Statistical Methods for Spatial Epidemiology* ***or*** BIOST 531 (3) Statistical Methods for Analysis with Missing Data*
BIOST 536 (4) Categorical Data Analysis	BIOST 537 (4) Survival Data Analysis
BIOST 596 (3) Biostatistics Capstone I - Project Planning	BIOST 597 (3) Biostatistics Capstone II - Project Implementation

Core Courses

- BIOST 514 Biostatistics I (4 credits)
- BIOST 515 Biostatistics II (4 credits)
- BIOST 522 Statistical Inference for Biometry I (4 credits)
- BIOST 523 Statistical Inference for Biometry II (4 credits)
- BIOST 561 Computational Skills for Biostatistics I (2 credits)
- BIOST 579 Data Analysis and Reporting (2 credits)
- BIOST 504 Foundations of Public Health for Biostatistics (2 credits)
- BIOST 505 Writing and Presentation Skills for Biostatistics (2 credits)
- BIOST 596 Biostatistics Capstone I - Project Planning (3 credits)
- BIOST 597 Biostatistics Capstone II - Project Implementation (3 credits)

Pathway Courses

- BIOST 536 Categorical Data Analysis in Epidemiology (4 credits)
- BIOST 537 Survival Data Analysis in Epidemiology (4 credits)
- BIOST 544 Introduction to Biomedical Data Science (3 credits)
- A choice of one of the following courses:
- BIOST 546 Machine Learning for Biomedical and Public Health Big Data (3 credits)*

- BIOST 555 Statistical Methods for Spatial Epidemiology (3 credits)* or STAT 554 Statistical Methods for Spatial Methodology (3 credits)
- BIOST 531 Statistical Methods for Analysis with Missing Data (3 credits)*
- A choice of one of the following courses:
- BIOST 524 Design of Medical Studies (3 credits)
- BIOST 529 Sample Survey Techniques (3 credits)
- Other 500 level course(s) that total 3 credits with approval of program director.

Statistical Genetics

Learn the mathematical and biological science that underpins our understanding of the genetic basis of diseases and leads to cutting-edge advances in precision medicine.

Sample Timeline for Statistical Genetics

FIRST YEAR

Autumn (10 credits)	Winter (10 credits)	Spring (10 credits)	Summer (0-8 credits)
BIOST 514 (4) Biostatistics I	BIOST 515 (4) Biostatistics II	BIOST 579 (2) Data Analysis and Reporting	BIOST 600 (0-8) Independent Study or Research
BIOST 522 (4) Statistical Inference for Biometry I	BIOST 523 (4) Statistical Inference for Biometry II	BIOST 561 (2) Computational Skills for Biostatistics	
BIOST 504 (2) Foundations of Public Health for Biostatistics	BIOST 505 (2) Writing and Presentation Skills for Biostatistics	BIOST 550 (3) Mendelian Genetics	
		BIOST 540 (3) Longitudinal and Multilevel Data Analysis	

SECOND YEAR

Autumn (10 credits)	Winter (10 credits)
BIOST 544 (3) Introduction to Biomedical Data Science	GENOME 540 (4) Computational Molecular Biology

BIOST 551 (3) Quantitative Genetics	BIOST 546 (3) Machine Learning for Biomedical and Public Health Big Data
BIOST 581 (1) Statistical Genetics Seminar	
BIOST 596 (3) Biostatistics Capstone I - Project Planning	BIOST 597 (3) Biostatistics Capstone II - Project Implementation

Core Courses

- BIOST 514 Biostatistics I (4 credits)
- BIOST 515 Biostatistics II (4 credits)
- BIOST 522 Statistical Inference for Biometry I (4 credits)
- BIOST 523 Statistical Inference for Biometry II (4 credits)
- BIOST 561 Computational Skills for Biostatistics (2 credits)
- BIOST 579 Data Analysis and Reporting (2 credits)
- BIOST 504 Foundations of Public Health for Biostatistics (2 credits)
- BIOST 505 Writing and Presentation Skills for Biostatistics (2 credits)
- BIOST 596 Biostatistics Capstone I - Project Planning (3 credits)
- BIOST 597 Biostatistics Capstone II - Project Implementation (3 credits)

Pathway Courses

- BIOST 540 Longitudinal and Multilevel Data Analysis (3 credits)
- BIOST 550 Mendelian Traits (3 credits)
- BIOST 551 Quantitative Genetics (3 credits)
- BIOST 546 Machine Learning for Biomedical and Public Health Big Data (3 credits)
- BIOST 544 Introduction to Biomedical Data Science(3 credits)
- GENOME 540 Computational Molecular Biology (4 credits)
- BIOST 581 Statistical Genetics Seminar (1 credit)

Modeling and Methods

Learn advanced mathematical and statistical techniques that allow us to analyze complex data structures and simulate realistic biological systems, all with the goal of making the next big leap in improving human health.

Sample Timeline for Modeling and Methods

FIRST YEAR

Autumn (10 credits)	Winter (10 credits)	Spring (10 credits)	Summer (0-8 credits)

BIOST 514 (4) Biostatistics I	BIOST 515 (4) Biostatistics II	BIOST 579 (2) Data Analysis and Reporting	BIOST 600 (0-8) Independent Study or Research
BIOST 522 (4) Statistical Inference for Biometry I	BIOST 523 (4) Statistical Inference for Biometry II	BIOST 561 (2) Computational Skills for Biostatistics	
BIOST 504 (2) Foundations of Public Health for Biostatistics	BIOST 505 (2) Writing and Presentation Skills for Biostatistics	BIOST 529 (3) Sample Survey Techniques	
		BIOST 533 (3) Theory of Linear Models	

SECOND YEAR

Autumn (10 credits)	Winter (10 credits)
BIOST 570 (4) Advanced Regression Methods I	BIOST 571 (4) Advanced Regression Methods II
STAT 516 (3) Stochastic Modeling I	STAT 517 (3) Stochastic Modeling II
BIOST 596 (3) Biostatistics Capstone I - Project Planning	BIOST 597 (3) Biostatistics Capstone II - Project Implementation

Core Courses

- BIOST 514 Biostatistics I (4 credits)
- BIOST 515 Biostatistics II (4 credits)
- BIOST 522 Statistical Inference for Biometry I (4 credits)
- BIOST 523 Statistical Inference for Biometry II (4 credits)
- BIOST 561 Computational Skills for Biostatistics I (2 credits)
- BIOST 579 Data Analysis and Reporting (2 credits)
- BIOST 504 Foundations of Public Health for Biostatistics (2 credits)
- BIOST 505 Writing and Presentation Skills for Biostatistics (2 credits)
- BIOST 596 Biostatistics Capstone I - Project Planning (3 credits)
- BIOST 597 Biostatistics Capstone II - Project Implementation (3 credits)

Pathway Courses

- BIOST 529 Sample Survey Techniques (3 credits)

- BIOST 570 Advanced Regression Methods I (4 credits)
- BIOST 571 Advanced Regression Methods II (4 credits)
- STAT 516 Stochastic Modeling I (3 credits)
- STAT 517 Stochastic Modeling II (3 credits)
- BIOST 533 Theory of Linear Models (3 credits)
- Other 500 level course(s) that total 3 credits with approval of program director.

Current year requirements

https://biostat.washington.edu/academics/ms/capstone/requirements