

Statistics, MS—Connect (Boston)

The Master of Science in Statistics—Connect program is designed for students from all backgrounds with a BS/BA degree, provided the student has experience with basic calculus and statistics. The first semester of the degree program provides students with the foundational knowledge needed to study successfully alongside direct-entry graduate students. The field of statistics plays a critical role in the support of nearly every industry including technology; business, management, and finance; healthcare and pharmaceuticals; and more. The MS in Statistics develops a comprehensive and flexible skill set that allows graduates to adapt to an ever-changing job market in various occupations and industries. In an era of increasing automation of Big Data, the value of the rigor of statistical thinking and analysis by individuals grows with the rise of automated Big Data analysis (e.g., artificial intelligence and machine learning). This program in statistics is designed to provide learners with a solid foundation in applied, modern, and computational approaches to statistical analysis and exposure to the statistical thinking skills necessary to critically assess data and answer business and research questions across domains. Core courses integrate theory and application, enabling students to be ready for the job on day one. Upon application, each student selects an industry concentration (biostatistics, statistical machine learning, and statistical theory and modeling) to examine statistical theories and applied methodologies most relevant to specific career pathways. In this degree program, students are admitted to the college associated with their concentration, and their degree is awarded by that college. The concentrations are associated with the following colleges:

- Biostatistics—Bouv  College of Health Sciences
- Statistical Machine Learning—Khoury College of Computer Sciences
- Statistical Theory and Modeling—College of Science

Students will follow all policies associated with their college. Each student finishes the program with experiential courses such as a thesis, capstone, or consulting project, where they gain hands-on, project-based experience addressing business problems and presenting and communicating the findings and recommendations.

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Connect Courses

Code	Title	Hours
Students are required to complete 8–10 semester hours from the following unless otherwise determined by the program:		8-10
CS 5001	Intensive Foundations of Computer Science	
MATH 5001	Accelerated Linear Algebra	
MATH 5002	Accelerated Multivariable Calculus	
MATH 5003	Accelerated Probability and Statistics	
MATH 5110	Applied Linear Algebra and Matrix Analysis	

Required Courses

Code	Title	Hours
MATH 5010	Foundations of Statistical Theory and Probability	4
MATH 6241	Stochastic Processes	2
MATH 6243	Statistical Learning	4
PHTH 6800 or PHTH 6801	Causal Inference in Public Health Research Causal Inference 1	3-4
PHTH 6830	Generalized Linear Models	4

Concentrations

Complete one of the following concentrations:

- Biostatistics—Bouv  College of Health Sciences (p. 2)
- Statistical Machine Learning—Khoury College of Computer Sciences (p. 2)
- Statistical Theory and Modeling—College of Science (p. 2)

Experiential Courses

Code	Title	Hours
Complete 2 semester hours from the following (courses can be repeated):		2
MATH 6910	Master's Project	
PHTH 6880	Statistical Consultancy	

Program Credit/GPA Requirements

39-41 total semester hours required (40-42 for students who declare the Concentration in Statistical Theory and Modeling and also opt to participate in co-op)

Minimum 3.000 GPA required

BIostatistics Concentration—Bouvé College of Health Sciences

Code	Title	Hours
Complete 12 semester hours from the following:		12
PHTH 5350	Using SAS in Public Health Research	
PHTH 6440	Advanced Methods in Biostatistics	
PHTH 6802	Causal Inference 2	
PHTH 6810	Survival Analysis	
PHTH 6820	Design and Analysis of Clinical Trials	
Optional Co-op		
HLTH 6964	Co-op Work Experience	0

Statistical Machine Learning Concentration—Khoury College of Computer Sciences

Code	Title	Hours
CS 5100	Foundations of Artificial Intelligence	4
CS 6140	Machine Learning	4
DS 5110	Essentials of Data Science	4
Optional Co-op		
CS 6964	Co-op Work Experience	0

Statistical Theory and Modeling Concentration—College of Science

Code	Title	Hours
Complete 12 semester hours from the following:		12
MATH 7339	Machine Learning and Statistical Learning Theory 2	
MATH 7340	Statistics for Bioinformatics	
MATH 7341	Probability 2	
MATH 7342	Mathematical Statistics	
MATH 7343	Applied Statistics	
MATH 7344	Regression, ANOVA, and Design	
Optional Co-op		
EESC 6500	Pathways to Professional Success	1
EESC 6964	Co-op Work Experience	0