STATISTICS (PHD)

Department Website (https://www.stern.nyu.edu/experience-stern/about/departments-centers-initiatives/academic-departments/ioms-dept/)

NYSED: 07796 **HEGIS:** 0507.00 **CIP:** 14.3701

Program Description

Doctoral work in statistics combines theory and methodology to deal with the large quantity of statistical data. Stern, one of the few top business schools that offers a PhD in statistics, combines the theoretical and methodological orientation of a traditional statistics department with a focus on the applications that are central to the concerns of a business school. The PhD thesis work at Stern is a mathematically sophisticated enterprise that never loses sight of the real and practical problems of business. In addition to the department's growing strength in the area of statistical learning, it has maintained strength in time series and econometrics, two areas not always found in other statistics departments.

Admissions

All applicants to the NYU Stern School of Business PhD Program are required to submit a complete application for admission. A complete application includes the online application (https://apply.stern.nyu.edu/apply/?sr=6bdbb033-1d1f-4adb-9cb4-102d7e899dc2), statement of purpose (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/#statement), optional essay (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/#optional), educational history and resume or CV (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/#resume), letters of recommendation (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/#recommendationletters), test scores (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/#testscores), academic transcripts (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/#transcripts), and an application fee (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/#fee).

See How to Apply (https://www.stern.nyu.edu/programs-admissions/phd/admissions/how-to-apply/) for admission requirements and instructions specific to this program.

Program Requirements

The program requires the completion of at least 36-54 credits, and students will work in close consultation with their adviser to select appropriate courses based on research interests.

Course	Title	Credits
Major Requirements		
Research Practica		
STAT-GB 4101	Research Practicum-Stat	1
STAT-GB 4102	Research Practicum	1
STAT-GB 4103	Research Practicum	1
STAT-GB 4104	Research Pract IV - Stat	1
STAT-GB 4105	Research Practicum - 5	1
STAT-GB 4150	Teaching Pract-Stat/Or	1
Electives		*30-48*
Total Credits		**36-54**

Curriculum Details

Although every doctoral student must satisfy general requirements, each student designs and completes an individual program of study.

Each new doctoral student begins a program of study, which requires approval from the Area Coordinator and the Doctoral Office. Any unusual features or revisions of an approved program of study requires permission from both the department Area Coordinator and the Doctoral Office. Unless specifically approved in advance by the Area Coordinator and the Doctoral Office, MBA courses will not be eligible for tuition remission.

The general PhD degree requirement for students entering the program with a Master's degree or equivalent is to successfully complete a minimum of 36 credits. The requirement for students entering the program with only a Bachelor's degree is to successfully complete a minimum of 54 credits. If the Doctoral Office and the department Area Coordinator approve, a program of study may include previous graduate work at NYU or other universities. In all cases, students must complete at least 33 credits of coursework at NYU.

An approved program of study becomes part of the student's permanent academic file and represents a formal commitment by both the student and the school. Any approved program can be modified as appropriate.

A complete program of study must include:

- **Prerequisites:** Every student must satisfy the prerequisites in calculus, linear algebra, basic probability and statistics, and economics before starting doctoral study. This can be accomplished by taking courses in these subjects for a grade.
- **Basic Research Skills Methodology Courses:** Every student must complete four research methodology courses, including three courses in probability and statistics, and one course in microeconomics.
- **Major Specialization & Elective Courses:** Every student must complete the prescribed program of courses in their major specialization, as well as elective courses.

Additional Program Requirements

Program of Study

Successfully complete a program of study, including completion of prerequisite coursework, basic research skills methodology courses, and major field of study and elective courses.

Comprehensive Examination

Successfully pass the comprehensive examination(s) required in the student's area of study.

Teaching Workshop

Attend the Teaching Workshop and receive certification to teach an undergraduate course.

Teaching Preparations

Successful completion of the teaching practica as described in the PhD Handbook.

Teach an Undergraduate Course

Teach one undergraduate course or the equivalent during the 4th year of study.

Dissertation Proposal

Initiate a major piece of original research and present it for faculty approval.

Dissertation Defense

Complete a satisfactory dissertation and defend it successfully at the defense presentation. The research is the extension and completion of the research presented at the dissertation proposal.

Sample Plan of Study

Course	Title	Credits
1st Semester/Term		
STAT-GB 4101	Research Practicum-Stat	1
CSCI-GA 3033	Spec Top Computer SCI:	3
MATH-GA 2911	Probability Theory I	3
OPMG-GB 4334	Convex Optimization	3
DS-GA 1005	Inference and Representation	3
	Credits	**13**
2nd Semester/Term		
STAT-GB 4101	Research Practicum-Stat (continued from Fall)	1
DS-GA 1004	Big Data	3
DS-GA 1008	Deep Learning	3
STAT-GB 3383		3
TECH-GB 3391	Research Seminar: Data Science	3
	Credits	**12**
3rd Semester/Term		
STAT-GB 4102	Research Practicum	1
STAT-GB 4103	Research Practicum	1
MATH-GA 2902	Stochastic Calculus	3
OPMG-GB 3321	Stochastic Processes	3
STAT-GB 3385	Foundations of Machine Learning and Deep Learning with Applications to Business	3
	Credits	**11**
4th Semester/Term		
STAT-GB 4102	Research Practicum (continued from Fall)	1
STAT-GB 4103	Research Practicum (continued from Fall)	1
STAT-GB 4304	Modern Statistics & Causal Inference for Data Science	3
CSCI-GA 3033	Spec Top Computer SCI:	3
	Credits	**6**
5th Semester/Term		
STAT-GB 4104	Research Pract IV - Stat	1
STAT-GB 4105	Research Practicum - 5	1
DS-GA 3001	Special Topics in Data Science	3
	Credits	**5**
6th Semester/Term		
STAT-GB 4104	Research Pract IV - Stat (continued from Fall)	1
STAT-GB 4105	Research Practicum - 5 (continued from Fall)	1
MATH-GA 2420	Advanced Topics	1.5
Elective		3
	Credits	**4.5**
7th Semester/Term		
STAT-GB 4150	Teaching Pract-Stat/Or	1
MATH-GA 2802	Market Microstructure	1.5
	Credits	**2.5**
	Total Credits	**54**

Learning Outcomes

Upon successful completion of the program, graduates will:

1. Be skilled teachers.
2. Be able to conduct independent research.
3. Be able to effectively present their research findings.
4. Be highly proficient in mathematical statistics, data analysis, statistical computing and statistical modeling.

Policies

NYU Policies

University-wide policies can be found on the New York University Policy pages (https://bulletins.nyu.edu/nyu/policies/).

Stern Policies

Additional academic policies can be found on the Stern Graduate Academic Policies page (https://bulletins.nyu.edu/graduate/business/academic-policies/).