APPLIED STATISTICS FOR SOCIAL SCIENCE RESEARCH (MS)

Department Website (https://steinhardt.nyu.edu/ash/)

NYSED: 35963 **HEGIS:** 1702.00 **CIP:** 27.0501

Program Description

The Master of Science in Applied Statistics for Social Science Research (A3SR) provides students with rigorous training in applied statistics research techniques and strategies that can be applied to contemporary social, behavioral, and health science research. This MS program is a good choice for students who want to gain greater knowledge of statistics and its application to everyday problems and policies, and to sharpen their data-analysis and problem-solving skills.

The A3SR curriculum provides students with a firm foundation in statistical modeling tools and theoretical perspectives common within the social, behavioral, and health sciences, while allowing the opportunity to pursue their own interests and develop specialized skills. It prepares students to become applied statisticians and data scientists in the public or private sector, as well as for further academic study in fields that rely on quantitative research. The concentrations and electives can be tailored to students' substantive and methodological interests. A3SR faculty have particular strengths in causal inference, demography, missing data, model selection, multivariate analysis, multi-level modeling, networks, and surveys and sampling. They also have expertise on methods at the intersection between machine learning and statistics. Students are encouraged to work closely with faculty on research that ranges from applied statistical analysis to the development of customized statistical models.

Dual Degree Option

A dual degree option (https://steinhardt.nyu.edu/degree/ms-applied-statistics-mpa-public-and-nonprofit-management-and-policy/) offers students interested in contributing to public policy the opportunity to develop both their quantitative skills and their policy analysis and public management expertise by completing both an **MS in Applied Statistics** at NYU Steinhardt and an **MPA in Public and Nonprofit Management** at the NYU Wagner Graduate School of Public Service in two years. The MS program focuses on understanding and applying advanced statistical techniques critical to policy issues across the social, behavioral, and health sciences. The MPA program, with its Public Policy Analysis specialization, provides students with key frameworks from economics and political science alongside important skills in management and finance, and sets them up to play a leading role in designing, implementing, and evaluating policy that better serves the public good.

This dual degree option allows for 24 credits of coursework to apply to both degrees, so students can complete their MS and MPA in only two years of continuous, full-time study resulting in considerable financial savings.

Admissions

Admission to graduate programs in the Steinhardt School of Culture, Education, and Human Development requires the following minimum components:

- Résumé/CV
- Statement of Purpose
- Letters of Recommendation
- Transcripts
- Proficiency in English

See NYU Steinhardt's Graduate Admissions website (https://steinhardt.nyu.edu/admissions/how-apply/graduate-students/) for additional information on school-wide admission. Some programs may require additional components for admissions.

See How to Apply (https://steinhardt.nyu.edu/degree/ms-applied-statistics-social-science-research/how-apply/) for admission requirements and instructions specific to this program.

Program Requirements

This variable-credit program (34-43 credits) offers an accelerated option for students entering with prior statistical training. The program consists of theoretical foundations, statistical inference and generalized linear models, causal inference, messy data and machine learning, multilevel modeling, applied statistics electives, and unrestricted electives. A statistical consulting research seminar and options for internships provide practical learning experiences.

All students must select one of four concentrations: General Applied Statistics, Computational Methods, Data Science for Social Impact, or Measurement, Methodology, and Design. The concentrations allow students to tailor their studies and focus more specifically on training and preparation for their career or future research. Data Science for Social Impact prepares students to build research–practice partnerships, become knowledgeable of ethical concerns surrounding data, and effectively communicate research findings and their implications. Computational Methods provides more rigorous training in methodological theory and development, and is particularly appropriate for students who wish to progress to Ph.D. programs. General Applied Statistics offers maximal flexibility, allowing students to customize their programs of study by selecting from a broad set of statistics and related courses. Measurement, Methodology, and Design allows students to explore the principles and practical applications of creating and evaluating effective research. Applied statistics electives must be taken, selected from among the topics offered in the program. Finally, a small number of unrestricted electives may be taken from departments across the entire university.

Course	Title	Credits
Major Requirements		
Core Requirements		
APSTA-GE 2003	Interm Quantitative Methods: General Linear Model [1]	3
APSTA-GE 2004 or APSTA-GE 2122	Introductory Statistical Inference in R Frequentist Inference	2
APSTA-GE 2331	Data Science for Social Impact	3
APSTA-GE 2012	Causal Inference	3

APSTA-GE 2352	Practicum in Applied Statistics: Statistical Computing [1]	3
APSTA-GE 2044	Generalized Linear Models and Extensions	2
APSTA-GE 2017	Databases and Data Science Practicum	2
APSTA-GE 2047	Messy Data and Machine Learning	3
APSTA-GE 2351	Practicum in Applied Statistics: Applied Probability [1]	3
Electives		
Each student must have at least 10 elective credits, 4 of which must be APSTA-GE.		10
Program Electives		
By advisement. Students complete 4 credits of APSTA-GE courses. Electives may include APSTA-GE 2310 Internship for 1-2 credits.		
Concentrations		
Select one of the following concentrations (6 units minimum):		6
General Applied Statistics Concentration:		
By advisement. Students complete 6 credits of APSTA-GE coursework.		
Computational Methods Concentration:		
APSTA-GE 2123	Bayesian Inference	
Choose 4 credits from the following:		
APSTA-GE 2013	Missing Data	
APSTA-GE 2011	Supervised and Unsupervised Machine Learning	
APSTA-GE 2040	Multi-Level Modeling Growth Curve	
or APSTA-GE 2042	Multi-Level Modeling: Nested Data/Longitudinal Data	
Data Science for Social Impact Concentration:		
APSTA-GE 2062	Ethics of Data Science	
APSTA-GE 2355	Data Science Translation: Writing and Visualization	
Measurement, Methodology, and Design Concentration:		
Select two of the following:		
APSTA-GE 2139	Survey Research Methods	
APSTA-GE 2094	Modern Approaches in Measurement	
APSTA-GE 2134	Experimental & Quasi Experimental Design	
Unrestricted Electives		
6 credits of any NYU graduate level courses, including APSTA-GE electives.		
Culminating Experience		
APSTA-GE 2401	Statistical Consulting Research Seminar	3
Total Credits		**43**

[1] Indicates that the student with equivalent prior coursework may place out of this course.

Sample Plan of Study

Full-Time General Applied Statistics

Course	Title	Credits
1st Semester/Term		
APSTA-GE 2003	Interm Quantitative Methods: General Linear Model	3
APSTA-GE 2331	Data Science for Social Impact	3
APSTA-GE 2351	Practicum in Applied Statistics: Applied Probability	3
APSTA-GE 2352	Practicum in Applied Statistics: Statistical Computing	3
	Credits	**12**
2nd Semester/Term		
APSTA-GE 2004	Introductory Statistical Inference in R	2
APSTA-GE 2044	Generalized Linear Models and Extensions	2
APSTA-GE 2017	Databases and Data Science Practicum	2
Concentration or APSTA elective		3
	Credits	**9**
3rd Semester/Term		
APSTA-GE 2047	Messy Data and Machine Learning	3
APSTA-GE 2401	Statistical Consulting Research Seminar	3
Concentration or APSTA elective		3
Concentration or APSTA elective		3
	Credits	**12**
4th Semester/Term		
APSTA-GE 2012	Causal Inference	3
Concentration or APSTA elective		2
Unrestricted Elective		3
Unrestricted Elective		2
	Credits	**10**
	Total Credits	**43**

Full-Time Data Science for Social Impact

Course	Title	Credits
1st Semester/Term		
APSTA-GE 2003	Interm Quantitative Methods: General Linear Model	3
APSTA-GE 2331	Data Science for Social Impact	3
APSTA-GE 2351	Practicum in Applied Statistics: Applied Probability	3
APSTA-GE 2352	Practicum in Applied Statistics: Statistical Computing	3
	Credits	**12**
2nd Semester/Term		
APSTA-GE 2004	Introductory Statistical Inference in R	2
APSTA-GE 2044	Generalized Linear Models and Extensions	2
APSTA-GE 2017	Databases and Data Science Practicum	2
APSTA-GE 2062	Ethics of Data Science	3
	Credits	**9**
3rd Semester/Term		
APSTA-GE 2047	Messy Data and Machine Learning	3
APSTA-GE 2401	Statistical Consulting Research Seminar	3
APSTA or unrestricted elective		2
APSTA or unrestricted elective		3
	Credits	**11**
4th Semester/Term		
APSTA-GE 2012	Causal Inference	3
APSTA-GE 2355	Data Science Translation: Writing and Visualization	3
APSTA or unrestricted elective		2
APSTA or unrestricted elective		3
	Credits	**11**
	Total Credits	**43**

Full-Time Computational Methods

Course	Title	Credits
1st Semester/Term		
APSTA-GE 2003	Interm Quantitative Methods: General Linear Model	3
APSTA-GE 2331	Data Science for Social Impact	3
APSTA-GE 2351	Practicum in Applied Statistics: Applied Probability	3
APSTA-GE 2352	Practicum in Applied Statistics: Statistical Computing	3
	Credits	**12**
2nd Semester/Term		
APSTA-GE 2004	Introductory Statistical Inference in R	2
APSTA-GE 2044	Generalized Linear Models and Extensions	2
APSTA-GE 2017	Databases and Data Science Practicum	2
APSTA-GE 2123	Bayesian Inference	2
APSTA or unrestricted elective		2
	Credits	**10**
3rd Semester/Term		
APSTA-GE 2047	Messy Data and Machine Learning	3
APSTA-GE 2401	Statistical Consulting Research Seminar	3
APSTA-GE 2042	Multi-Level Modeling: Nested Data/Longitudinal Data	2
APSTA or unrestricted elective		3
	Credits	**11**
4th Semester/Term		
APSTA-GE 2012	Causal Inference	3
APSTA-GE 2013	Missing Data	2
APSTA or unrestricted elective		2
APSTA or unrestricted elective		3
	Credits	**10**
	Total Credits	**43**

Full-Time Measurement, Methodology, and Design

Course	Title	Credits
1st Semester/Term		
APSTA-GE 2003	Interm Quantitative Methods: General Linear Model	3
APSTA-GE 2351	Practicum in Applied Statistics: Applied Probability	3
APSTA-GE 2352	Practicum in Applied Statistics: Statistical Computing	3
APSTA-GE 2331	Data Science for Social Impact	3
	Credits	**12**
2nd Semester/Term		
APSTA-GE 2004	Introductory Statistical Inference in R	2
APSTA-GE 2044	Generalized Linear Models and Extensions	2
APSTA-GE 2017	Databases and Data Science Practicum	2
APSTA-GE 2094	Modern Approaches in Measurement	3
	Credits	**9**
3rd Semester/Term		
APSTA-GE 2047	Messy Data and Machine Learning	3
APSTA-GE 2401	Statistical Consulting Research Seminar	3
APSTA or unrestricted elective		3
APSTA or unrestricted elective		2
	Credits	**11**
4th Semester/Term		
APSTA-GE 2012	Causal Inference	3
APSTA-GE 2134	Experimental & Quasi Experimental Design	3
APSTA or unrestricted elective		3
APSTA or unrestricted elective		2
	Credits	**11**
	Total Credits	**43**

Part-Time Sample Plan

Course	Title	Credits
1st Semester/Term		
APSTA-GE 2003	Interm Quantitative Methods: General Linear Model	3
APSTA-GE 2351	Practicum in Applied Statistics: Applied Probability	3
	Credits	**6**
2nd Semester/Term		
APSTA-GE 2004	Introductory Statistical Inference in R	2
APSTA-GE 2044	Generalized Linear Models and Extensions	2
APSTA or unrestricted Elective		2
	Credits	**6**
3rd Semester/Term		
APSTA or unrestricted elective		3
	Credits	**3**
4th Semester/Term		
APSTA-GE 2352	Practicum in Applied Statistics: Statistical Computing	3
APSTA-GE 2331	Data Science for Social Impact	3
	Credits	**6**
5th Semester/Term		
APSTA-GE 2017	Databases and Data Science Practicum	2
Concentration course		3
A3SR or unrestricted elective		3
	Credits	**8**
6th Semester/Term		
APSTA or unrestricted elective		2
	Credits	**2**
7th Semester/Term		
APSTA-GE 2047	Messy Data and Machine Learning	3
APSTA-GE 2401	Statistical Consulting Research Seminar	3
	Credits	**6**
8th Semester/Term		
APSTA-GE 2012	Causal Inference	3
Concentration course		3
	Credits	**6**
	Total Credits	**43**

Learning Outcomes

Upon successful completion of the program, graduates will:

1. Build a strong foundation in statistical research techniques and apply them to address critical issues in contemporary social, behavioral, health science and policy research.
2. Develop core statistical programming skills.
3. Develop ability to communicate about statistical methods and results to a non-technical audience.
4. Ability to apply statistical methods in research or professional settings.
5. Develop proficiency in core statistical competencies.

Policies

Program Policies

Program Policy on Transfer Credit

Students may not transfer credit in from previously completed courses from another college or university towards this degree program.

Program Academic Standards

Successful completion of our department's graduate programs requires a strong foundation in theories and methods. Therefore, in addition to Steinhardt academic standards, students in the program must also:

- Maintain a minimum overall 3.0 GPA
- Complete all core and concentration courses with a grade of B- or better

- May not take any core or concentration courses pass/fail
- May only take up to 4 elective credits or one course (whichever is fewer) pass/fail

Course Repeat Policy

A student who does not complete a required course or a concentration course with a grade of B- or better must retake the course. The A3SR program has a limit of two non-satisfactory attempts (below the required B- grade) or three withdrawals for each course. If a student takes a required course twice and earns a grade below a B- both times, or withdraws from the same class three times, they could be recommended for dismissal from the program for failing to meet their departmental program standards and benchmarks.

Course repeats may impact your program length if:

- Repeating a course would place you over the maximum credit load for a term
- The repeated course is a prerequisite for a course required in your next semester
- The repeated course is not offered in the next semester

Students should be mindful of financial aid implications with any course repeats.

STEM OPT Benefits for International Students

If you're an international student, you may be able to work in the United States after graduation for an extended period of time. Most students studying on F-1 visas will be eligible for 12 months of Optional Practical Training (OPT) off-campus work authorization. F-1 students in this program may also be eligible for the STEM (Science, Technology, Engineering, or Mathematics) OPT extension, allowing you to extend your time in the United States to pursue degree-related work experience for a total of 36 months or 3 years. For more information on who can apply for this extension visit NYU's Office of Global Services: STEM OPT (http://www.nyu.edu/students/student-information-and-resources/student-visa-and-immigration/alumni/extend-your-opt/stem-opt.html).

NYU Policies

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

Steinhardt Academic Policies

Additional academic policies can be found the Steinhardt academic policies page (https://bulletins.nyu.edu/graduate/culture-education-human-development/academic-policies/).