APPLIED STATISTICS IN SOCIAL SCIENCE RESEARCH (MS)

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

NYSED: 35963 HEGIS: 1702.00 CIP: 27.0501

Degrees
MS Applied Statistics and Social Science Research

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.

The program is an initiative of the Center for Practice and Research at the Intersection of Information, Society, and Methodology (PRIISM) and is an integral part of the larger university-wide initiative in data science, in which several master's degrees are offered.

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 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 (34–44 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, survey research methods, multilevel modeling, applied statistics electives, and unrestricted electives. A statistical consulting research seminar and internship provide practical learning experiences.

All students must select one of three concentrations: General Applied Statistics, Computational Methods, or Data Science Social Impact. 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 PhD 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. Two applied statistics electives must be taken, selected from among the topics offered in the program or from a curated, approved list. Finally, a small number of unrestricted electives may be taken from departments across the entire university.

Course Title Credits

<table>
<thead>
<tr>
<th>Major Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Requirements</td>
</tr>
<tr>
<td>APSTA-GE 2003 Interim Quantitative Methods: General Linear Model 3</td>
</tr>
<tr>
<td>or STAT-GB 2301 Regression and Multivariate Data Analysis</td>
</tr>
<tr>
<td>APSTA-GE 2004 Introductory Statistical Inference in R 2</td>
</tr>
</tbody>
</table>
APSTA-GE 2331 Data Science for Social Impact 3
APSTA-GE 2012 Causal Inference 3

2 Indicates that a student with significant experience may qualify for reduced credit or may place out of this course.

APSTA-GE 2042 Multi-Level Modeling: Nested Data/Longitudinal Data 2
or APSTA-GE 2040 Multi-Level Modeling Growth Curve

3 Each student must have at least 8 elective credits, 4 of which must be APSTA-GE. Minimum of 10 elective credits for those that take APSTA-GE 2310 Internship for 0 credits.

APSTA-GE 2139 Survey Research Methods 3
or APSTA-GE 2134 Experimental & Quasi Experimental Design

4 If Internship is taken for 0 credits, then the two remaining credits must be made up via electives; may be waived if student has significant professional experience in the field.

Electives 3
Select 8-10 credits of the following: 8-10

Program Electives
Select 4-10 credits of APSTA-GE courses; not taken to meet any other requirement

Unrestricted Electives
Select 0-6 credits of any NYU graduate level courses. May opt for all APSTA-GE electives

Concentrations
Select one of the following concentrations (8 units minimum): 8

General Applied Statistics Concentration:
Three or more APSTA-GE courses not taken to fulfill another requirement totaling at least 8 credits

Computational Methods Concentration:

APSTA-GE 2011 Supervised and Unsupervised Machine Learning
APSTA-GE 2122 Frequentist Inference

Select two of the following:
APSTA-GE 2123 Bayesian Inference
APSTA-GE 2013 Missing Data
APSTA-GE 2017 Educational Data Science Practicum

Data Science for Social Impact Concentration:

APSTA-GE 2011 Supervised and Unsupervised Machine Learning
APSTA-GE 2062 Ethics of Data Science
APSTA-GE 2355 Data Science Translation: Writing and Visualization

Culminating Experience
APSTA-GE 2310 Internship 4 2
APSTA-GE 2401 Statistical Consulting Research Seminar 3

Total Credits 44

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

Full-Time General Applied Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSTA-GE 2003</td>
<td>Interim Quantitative Methods: General Linear Model</td>
<td>3</td>
</tr>
<tr>
<td>APSTA-GE 2331</td>
<td>Data Science for Social Impact</td>
<td>3</td>
</tr>
<tr>
<td>1st Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2nd Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2nd Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSTA-GE 2004</td>
<td>Introductory Statistical Inference in R</td>
<td>2</td>
</tr>
<tr>
<td>APSTA-GE 2044</td>
<td>Generalized Linear Models and Extensions</td>
<td>2</td>
</tr>
<tr>
<td>APSTA-GE 2042</td>
<td>Multi-Level Modeling: Nested Data/Longitudinal Data</td>
<td>2</td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Unrestricted elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3rd Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>4th Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSTA-GE 2012</td>
<td>Causal Inference</td>
<td>3</td>
</tr>
<tr>
<td>APSTA-GE 2401</td>
<td>Statistical Consulting Research Seminar</td>
<td>3</td>
</tr>
<tr>
<td>APSTA-GE 2139</td>
<td>Survey Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>or APSTA-GE 2134</td>
<td>or Experimental &amp; Quasi Experimental Design</td>
<td>3</td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5th Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSTA-GE 2310</td>
<td>Internship</td>
<td>2</td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5th Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Unrestricted Elective</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 44

Full-Time Data Science for Social Impact

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSTA-GE 2003</td>
<td>Interim Quantitative Methods: General Linear Model</td>
<td>3</td>
</tr>
<tr>
<td>APSTA-GE 2331</td>
<td>Data Science for Social Impact</td>
<td>3</td>
</tr>
<tr>
<td>1st Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration or APSTA elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2nd Semester/Term</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APSTA-GE 2011</td>
<td>Supervised and Unsupervised Machine Learning</td>
<td>2</td>
</tr>
</tbody>
</table>

Credits 2
Part-Time Sample Plan

1st Semester/Term
- APSTA-GE 2003: Intern Quantitative Methods: General Linear Model (3)

Credits: 6

Full-Time Computational Methods

1st Semester/Term
- APSTA-GE 2003: Intern Quantitative Methods: General Linear Model (3)
- APSTA-GE 2331: Survey Research Methods (3)
- A3SR Elective

Credits: 11

2nd Semester/Term
- APSTA-GE 2004: Introductory Statistical Inference in R (2)
- APSTA-GE 2044: Generalized Linear Models and Extensions (2)
- APSTA-GE 2042: Multi-Level Modeling: Nested Data/Longitudinal Data (2)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 12

3rd Semester/Term
- APSTA-GE 2004: Introductory Statistical Inference in R (2)
- APSTA-GE 2044: Generalized Linear Models and Extensions (2)
- APSTA-GE 2042: Multi-Level Modeling: Nested Data/Longitudinal Data (2)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 12

4th Semester/Term
- APSTA-GE 2004: Introductory Statistical Inference in R (2)
- APSTA-GE 2044: Generalized Linear Models and Extensions (2)
- APSTA-GE 2042: Multi-Level Modeling: Nested Data/Longitudinal Data (2)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 12

5th Semester/Term
- APSTA-GE 2139: Generalized Linear Models and Extensions (3)
- APSTA-GE 2134: Experimental & Quasi Experimental Design (3)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 10

6th Semester/Term
- APSTA-GE 2139: Generalized Linear Models and Extensions (3)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 11

7th Semester/Term
- APSTA-GE 2004: Introductory Statistical Inference in R (2)
- APSTA-GE 2044: Generalized Linear Models and Extensions (2)
- APSTA-GE 2042: Multi-Level Modeling: Nested Data/Longitudinal Data (2)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 12

8th Semester/Term
- APSTA-GE 2004: Introductory Statistical Inference in R (2)
- APSTA-GE 2044: Generalized Linear Models and Extensions (2)
- APSTA-GE 2042: Multi-Level Modeling: Nested Data/Longitudinal Data (2)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 12

9th Semester/Term
- APSTA-GE 2134: Experimental & Quasi Experimental Design (3)
- APSTA-GE 2122: Frequentist Inference (2)
- APSTA-GE 2123: Bayesian Inference (2)
- APSTA-GE 2013: Missing Data (2)

Credits: 11

Total Credits: 44

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

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/).