# MASTER OF SCIENCE IN THE FIELD OF QUANTITATIVE SOCIAL SCIENCES (STEM)

The interdisciplinary master of science in quantitative social sciences focuses on quantitative research techniques and strategies. The program integrates the perspectives and research methods of four social science disciplines: economics, political science, sociology, and statistics. Students are provided with rigorous training in quantitative research with an emphasis on written and oral communication regarding research techniques and findings applicable to problems relevant to a range of fields and industries.

This is a STEM designated program.

Visit the program website (https://politicalscience.columbian.gwu.edu/ms-quantitative-social-sciences/) for more information.

## ADMISSIONS

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| Admission deadlines: | Fall - April 1 (February 1 for fellowship consideration) |
| Standardized test scores: | GRE general test (institutional code 5246) |
| Language: | The Test of English as a Foreign Language (TOEFL), the academic International English Language Testing System (IELTS), or the PTE Academic is required of all applicants except those who hold a bachelor's, master's, or doctoral degree from a college or university in the United States or from an institution located in a country in which English is the official language, provided English was the language of instruction. Minimum scores: - Academic IELTS: an overall band score of 7.0 with no individual score below 6.0; or - TOEFL: 600 on paper-based or 100 on Internet-based; Duolingo 130 or - PTE Academic: 68 |
| | Two (2) letters of recommendation |
| | Degree of BA or BS in Political Science, Statistics, Economics, Sociology, or a related field |
| | Successful completion of an undergraduate course in statistics |
| Statement of purpose: | In an essay of 250-500 words, state your purpose in undertaking graduate study in your chosen field. Include your academic objectives, research interests, and career plans. Also, please discuss your related qualifications, including collegiate, professional, and community activities, and any other substantial accomplishments not already mentioned on the application. |
| International applicants only: | Please review International Applicant Information (https://columbian.gwu.edu/international-graduate-applicants (https://columbian.gwu.edu/international-graduate-applicants/)) carefully for details on required documents, earlier deadlines for applicants requiring an I-20 or DS-2019 from GW, and English language requirements. |

## REQUIREMENTS

The following requirements must be fulfilled:

The general requirements stated under Columbian College of Arts and Sciences, Graduate Programs (https://bulletin.gwu.edu/arts-sciences/#regulationsgraduatetext).

30 credits, including 12 credits in required core courses, 9 credits in selected quantitative courses, 3 credits in required skills courses, and 6 credits in elective courses.

| Code | Title | Credits |
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| **Required** | | |
| Core courses | | |
| QSS 6000 | Seminar in Quantitative Social Science | |
| QSS 6001 | Data Visualization | |
| QSS 6002 | Probability and Statistical Modeling | |
| QSS 6500 | Capstone Research | |
| Quantitative courses | | |
| Three courses (9 credits) selected from the following: | | |
| ECON 6335 | Applied Financial Derivatives | |
| ECON 6378 | Machine Learning for Economics | |
| PSC 8121 | Causal Inference | |
| or ECON 6379 | Causal Inference and Research Design | |
| or STAT 6230 | Causal Inference | |
| PSC 8124 | Multilevel Modeling | |
| PSC 8128 | Surveys and Experiments | |
| PSC 8185 | Topics in Empirical and Formal Political Analysis | |
| SOC 6291 | Methods of Demographic Analysis | |
| STAT 6217 | Design of Experiments | |
| STAT 6225 | Longitudinal Data Analysis | |
| STAT 6231 | Categorical Data Analysis | |

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| STAT 6240 | Statistical Data Mining |
| STAT 6250 | A/B Testing (Design and Analysis) |
| STAT 6260 | Statistical Deep Learning |
| STAT 6287 | Sample Surveys |
| Skills courses | |
| QSS 6005 | Topics in QSS Technical Skills (taken twice for a total of 3 credits) * |
| **Electives** | |
| Two courses (6 credits) selected from graduate courses in political science, sociology, statistics, or another program or department with the permission of the program's director of graduate studies. | |

*Technical skills courses are six-week modules for 1.5 credits per module. Students must take two technical skills courses, focused on different skills, in the same semester. Options might include Python, SQL & Databases, Machine Learning, Bayesian Statistics, and More in R. A fourth quantitative course may be substituted for the skills requirement with the approval of the program's director of graduate studies.