

# DATA SCIENCE & QUANTITATIVE ECONOMICS (M.S.)

## Admissions

The M.S. in data science & quantitative economics has the same admissions requirements as the M.A. in economics and the M.S. in data science.

These requirements are: completed online application, 3 letters of recommendation (for non-Fordham students, 2 letters for Fordham undergraduates), official transcripts from all prior undergraduate and/or graduate institutions, statement of intent, official GRE test scores, and official TOEFL or IELTS scores for non-native English speakers.

## English Proficiency Requirements

International applicants whose native language is not English are required to complete and submit to GSAS prior to matriculation their official scores from one of the following accepted English language competency exams:

- Test of English as a Foreign Language (TOEFL) - GSAS accepts the following TOEFL tests:
  - TOEFL iBT (including the Home Edition and Paper Edition)
  - TOEFL Essentials
- International English Language Testing System (IELTS)—Cambridge English Proficiency Level
- Duolingo English Test
- PTE Academic
- Cambridge English Qualifications - We accept the B2 First, C1 Advanced, or C2 Proficiency exams

Official TOEFL, IELTS, DET, PTE Academic, or Cambridge English Qualifications scores should be sent directly by the testing service to the Office of Graduate Admissions, Fordham University, Graduate School of Arts and Sciences (our ETS TOEFL score code #2259).

Preferred minimum score requirements:

Exam	Score
TOEFL iBT	100
IELTS	7.0 band score
DET	130
PTE Academic	68
Cambridge English Qualifications	185 Overall Score on the B2, C1 Advanced, or C2 Proficiency exam

## Exemptions to the English Language Requirement

Exemptions from this requirement can be requested by the applicant in her/his application, or can be made in writing by the applicant to fuga@fordham.edu. Exemptions are generally permitted for international applicants who:

1. are native English speakers from countries where English is an official language; and/or

2. have completed, within the past five years, at least two years of study at an undergraduate or graduate institution in the United States or in a country where English is the official language of instruction.

GSAS retains the right to request language evaluation from any applicant. The Fordham English Language Test (FELT), administered by Fordham's Institute of American Language and Culture (IALC), may be required for those students whose English proficiency scores do not meet GSAS program requirements. Additional coursework may also be recommended by the IALC.

Students are permitted to register for two GSAS courses during the academic term in which they are completing any IALC-recommended coursework, which generally occurs during their first semester of study.

Please note: Tuition costs associated with the learning of English as a second language are the responsibility of the student and will not be covered by a GSAS tuition scholarship. GSAS merit-based tuition scholarships are not applicable to the costs of additional coursework recommended by the IALC.

For more information about admissions to the Graduate School of Arts and Sciences, please visit their page on the Fordham website.

## Prerequisites

### Economics

An undergraduate degree in a field emphasizing economics and/or quantitative skills—such as a degree in economics or mathematical economics; or a degree in math, finance, psychology, computer science, or business with a minor in economics—is expected. The following courses or equivalent should be taken prior to beginning the M.S. in data science & quantitative economics program:

- Intermediate-level Macroeconomics and Microeconomics
- Math for Economists OR Calculus I and Linear Algebra
- Statistics I and Statistics II

If these classes were not completed with a previous degree, then the required classes will be added to a student's admission. These classes must be taken in the first semester or prior to beginning the program (e.g., during the summer or previous semester). Alternatively, we offer a "bridge course," ECON 5012 Foundations of Economics, for students in quantitative fields without an economics background. This bridge course can be taken concurrently with courses that fulfill degree requirements.

### Data Science

- Applicants with undergraduate degrees in non-computer science areas are welcome.
- An undergraduate degree in a field emphasizing quantitative skills is expected, such as a degree in computer science, information science, engineering, math, physical science, health science, business, economics, psychology, social science, or urban and city planning.
- Knowledge of discrete math, probability and statistics, including permutations, combinations, descriptive statistics, and basic probabilities concepts.
- Basic programming knowledge and a familiarity with Python programming is expected. This knowledge can be acquired via completion of CISC 5380 Programming with Python.

Admitted students who seek to bypass CISC 5380 Programming with Python must take a placement examination (CISC 0940), which is administered by the Computer and Information Sciences department prior to the beginning of each entry term. The exam covers fundamentals of Python programming language. Students who earn a grade lower than a B are required to enroll in CISC 5380 Programming with Python in their first semester of study. This bridge course can be taken concurrently with courses that fulfill degree requirements.