DATA ANALYTICS (M.S.)

Program Highlights
- Designed to meet the demands of an ever-evolving job market
- Develop in-depth knowledge of manipulating large data sets and building computational models
- Explore specific areas of interests, such as Cybersecurity, Economics, Biology, Psychology, Computational Finance, or Urban Studies
- Hands on experience with cutting-edge technologies such as Tableau, Spark, Deep Learning and Natural Language Processing

Program Basics
- Curriculum requires 10 courses for a total of 30 credits, including five core courses, four electives, and a Capstone Project.
- A master's thesis is optional – if taken, it consists of two subsequent courses which replace the Capstone Project and one elective.
- One (1) internship (optional – if taken, this replaces the Capstone Project)
- Designed as a one-to-two year program
- Evening courses to accommodate working professionals

Admissions

Prerequisites
- 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, which is administered by the 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.

Guidelines and Information

Completed applications will include each of the following items:

Official degree transcripts confirming prior degree conferral should be ordered at least one month prior to the application deadline. Please ensure that they are sent directly to the Office of Admissions (fuga@fordham.edu) via secure electronic delivery. If electronic delivery is not available, please request that your transcripts be submitted directly via post, in a sealed envelope, to: Graduate School of Arts and Sciences, Office of Admissions, Fordham University, 441 E. Fordham Rd., Bronx, NY 10458. Please note: you may upload unofficial copies of your transcripts to your application while the Office of Admissions awaits receipt of your official transcripts. Please ensure that all official transcripts from previously attended post-secondary institutions are submitted in English, or are accompanied by a certified English translation. Transcripts and credentials conversion information is available on the GSAS International Students page.

Official GRE scores are required if an applicant wishes to be considered for GSAS merit-based financial aid. GREs for this program are otherwise recommended. The scores should be sent directly by the testing service to the Office of Graduate Admissions, Fordham University, Graduate School of Arts and Sciences – Code #2259.

Resume/CV (submit via the online application)

Statement of intent (up to 500 words, submitted electronically, via the online application)

Three letters of recommendation (submitted directly by referees via the online application)

English Proficiency

International applicants whose native language is not English are required to complete and submit to GSAS prior to matriculation their official scores from the Test of English as a Foreign Language (TOEFL). GSAS will also consider a student’s International English Language Testing System (IELTS)—Cambridge English Proficiency Level language testing results.

Official TOEFL or IELTS scores should be sent directly by the testing service to the Office of Graduate Admissions, Fordham University, Graduate School of Arts and Sciences – Code # 2259. TOEFL minimum 85*, IELTS equivalent 6.5. Please consult the English Proficiency web page for additional information.

*Applicants with TOEFL scores below 85 may still apply.

Tuition Rate for Professional Master's Programs

Please visit the GSAS Tuition and Fees page to view the tuition rate for the Computer and Information Science programs.

Application Deadlines

For information see Application Deadlines.

Conditional Acceptances

There are no conditional acceptances, only changes to degree requirements such as added coursework taken while students are in the program.

Requirements

Degree Requirements

The master’s program in Data Analytics requires 30 credits of coursework (ten classes), which will typically be completed in one to two years. Classes are offered in the evenings and during weekends. Please consult the Admissions Requirements page for more information about applying to the program.
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five Core Courses (see below)</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>Four elective (4) courses from one or more of the following eight (8) thematic clusters</td>
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<td>12</td>
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**Computer and Data Science**

- Bioinformatics and Health Informatics courses
  - Course | Title | Credits |
  - CISC 5750 | Information Security and Ethics | 3 |
  - CISC 6640 | Privacy and Security in Big Data | 3 |
  - CISC 6650 | Forensic Computing | 3 |
  - CISC 6680 | Intrusion Detection and Network Forensics | 3 |

**Bioinformatics and Health Informatics courses**

- Course | Title | Credits |
- CISC 6500 | Bioinformatics | 3 |
- CISC 6550 | Systems Neuroscience | 3 |
- BISC 7502 | Eukaryotic Molecular Biology | 4 |

**Financial Informatics courses**

- Course | Title | Credits |
- CISC 5352 | Financial Programming and Applications | 3 |
- CISC 6350 | Advanced Financial Programming | 3 |
- ECON 6950 | Financial Econometrics | 3 |
- ECON 6910 | Applied Econometrics | 3 |

**Urban and City Informatics courses**

- Course | Title | Credits |
- URST 5000 | Issues in Urban Studies | 3 |
- URST 6200 | Research Skills Urban Studies | 3 |
- BISC 7529 | Principles of Geographical Information Science | 4 |

**Election and Government Informatics courses**

- Course | Title | Credits |
- POSC 5100 | American Political Behavior | 3 |
- POSC 5130 | Political Institutions and Processes | 3 |
- POSC 5251 | Political Survey Research | 3 |

**Behavior Informatics courses**

- Course | Title | Credits |
- PSYC 6850 | Evaluation of Psychological and Social Programs | 3 |
- PSYC 7804 | Regression with Lab | 3 |
- PSYC 7830 | Structural Equation Modeling | 3 |
- PSYC 7920 | Item Response Theory | 3 |

**Media Informatics courses**

- Course | Title | Credits |
- PMMA 6103 | Data Journalism and Interactive Graphics | 3 |
- PMMA 6205 | Online Analytics and Metrics | 3 |

### Thematic Clusters

**Computer and Data Science courses**

- Course | Title | Credits |
- CISC 5550 | Cloud Computing | 3 |
- CISC 5640 | Nosql Database Systems | 3 |
- CISC 5700 | Cognitive Computing | 3 |
- CISC 6000 | Deep Learning | 3 |
- CISC 6210 | Natural Language Processing | 3 |
- CISC 6325 | Database Systems | 3 |
- CISC 6525 | Artificial Intelligence | 3 |
- CISC 6745 | Data Visualization | 3 |

### Cybersecurity courses

- Course | Title | Credits |
- CISC 5009 | Network Essentials | 3 |
- CISC 5650 | Cybersecurity Essentials | 3 |