MASTER OF SCIENCE IN THE FIELD OF DATA ANALYTICS (STEM)

Administered jointly through the GW's Departments of Computer Science (https://www.cs.seas.gwu.edu/) and Engineering Management and Systems Engineering (https://www.emse.seas.gwu.edu/), the master of science in data analytics aims to address the growing demand for professionals skilled in big data and data analytics in government, industry and research organizations.

Through courses led by the faculties of the School of Engineering and Applied Science and the School of Business, this program is conducted in small cohorts and covers topics in computer science, business analytics, and systems engineering, while focusing on the foundations of analytics from a technical engineering perspective.

As part of their program requirements, students choose either the computer science or the engineering management and systems engineering track.

Students in the program should expect the following program outcomes:

- Apply data science and analytics techniques in the decision-making process of a wide range of organizations.
- Demonstrate the ability to store, clean and transform data.
- Demonstrate improvements in the decision-making process by using and applying analytics techniques to interpret results
- Design and implement computing infrastructure and algorithmic techniques for big data analytics.
- Explore the engineering foundations that propel the fields of data science and analytics.
- Gain hands-on experience with analytical tools for big data.
- Pursue or enhance careers as data analysts or data scientists.

This is a STEM designated program.

ADMISSIONS

Admission deadlines:	Fall - January 15
	Spring – September 1
Standardized test scores:	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 6.5 with no individual score below 6.0
	- TOEFL: 550 on paper-based or 81 on Internet-based
	- PTE Academic: 53; applicants requesting funding consideration must have 68.
Recommendations required:	Two (2) recommendations required for M.S. applicants. If possible, one recommendation should be from your advisor at the institution from which you earned your highest degree.
Prior academic records:	Transcripts are required from all colleges and universities attended, whether or not credit was earned, the program was completed, or the credit appears as transfer credit on another transcript. Unofficial transcripts from all colleges and universities attended must be uploaded to your online application. Official transcripts are required only of applicants who are offered admission.
	If academic records are in a language other than English, a copy in the original language and an English language translation must be uploaded. Transcript evaluations should not be uploaded. Applicants who have earned a degree from an Indian university are required to submit individual semester marksheets.
Statement of purpose:	In an essay of 250 to 500 words, state your purpose in undertaking graduate study at The George Washington University; describe your academic objectives, research interests, and career plans; and discuss your related qualifications, including collegiate, professional, and community activities, and any other substantial accomplishments not already mentioned.
Additional requirements:	Bachelor's degree with a GPA of at least 3.0 on a 4.0 scale for the last 60 hours of coursework; two courses in mathematics beyond pre-calculus; one year of science with laboratory; courses in computer science using a structured language, discrete structures, data structures, and computer architecture.
International applicants only:	Please follow this link - https://graduate.admissions.gwu.edu/international-student-application-requirements (https://graduate.admissions.gwu.edu/international-student-application-requirements/) - to review the International Applicant Information carefully for details on required documents, earlier deadlines for applicants requiring an I-20 or DS-2019 from GW.

For additional information about the admissions process visit the SEAS Admissions Frequently Asked Questions (https://graduate.engineering.gwu.edu/admissions-frequently-asked-questions/) page.

Contact for questions:

engineering@gwu.edu
202-994-1802 (phone)
202-994-1651 (fax)

Hours: 9:00 am to 5:00 pm, Monday through Friday

REQUIREMENTS

The following requirements must be fulfilled: 30 credits, including 15 credits in required courses and 15 credits in required and elective courses in one track.

Code	Title	Credits
Required		
EMSE 6765	Data Analysis for Engineers and Scientists	
or CSCI 6362	Probability for Computer Science	
CSCI 6444	Introduction to Big Data and Analytics	
EMSE 6586	Data Management Systems for Data Analytics	
or CSCI 6441	Database Management Systems	
EMSE 6574	Programming for Analytics	
SEAS 6402	Data Analytics Capstone	
Additional coursework		
Five additional courses are required. At least three of these courses (two required and one elective) must be in either the computer science track or the engineering management and systems engineering track, effectively constituting a concentration in one of the two tracks. With the advisor's approval, the two remaining elective courses may be taken outside the selected track and may include courses outside SEAS.		
Computer science track		
Required		
CSCI 6212	Design and Analysis of Algorithms	
CSCI 6364	Machine Learning	
Electives		
One elective CSCI course.		
Two additional elective courses, which may be taken outside the track and may include courses outside of SEAS, with the advisor's approval.		
Engineering management and systems engineering track		
Required		
EMSE 6575	Applied Machine Learning for Analytics	
EMSE 6577	Data-Driven Policy	
Electives		
One elective EMSE course.		
Two additional elective courses, which may be taken outside the track and may include courses outside of SEAS, with the advisor's approval.		

Graduation and Scholarship Requirements

Students are responsible for knowing the university's minimum GPA requirement for graduation and scholarships. Please visit the Graduation and Scholarship Requirements (https://bulletin.gwu.edu/engineering-applied-science/#graduation_requirements_ms) section on this site to read the requirements.

Students should contact the department for additional information and requirements.

Program Restrictions

Normally, only 6000 level courses (or higher) may be counted toward the requirements for the graduate degree.