

Data Analytics 5 Year B.S./M.S.

The College of Arts & Sciences and the College of Engineering & Design offer students an opportunity to earn both their undergraduate and graduate degrees through its five-year B.S./M.S. Data Analytics program. This program enables qualified students to earn, in a continuous plan of study, both a B.S. and a M.S. in Data Analytics in five years.

Upon completion of the B.S. program, graduates are expected to:

- Write reports and make presentations containing visual data or statistical results.
- Utilize database management systems and spreadsheet programs to collect, organize and display data.
- Use standard techniques of mathematics and statistics in order to address problems or explore phenomenon that are prevalent in various fields.
- Develop linkages between their interdisciplinary intellectual inquiries and their own ethical positions in terms of contemporary challenges facing individuals, communities and societies.

Upon completion of the M.S. program, graduates are expected to:

- Integrate the knowledge of mathematics, statistics and computer science to collect, analyze and interpret data.
- Use data to drive organizational decisions and optimize performance.
- Conduct analysis for advanced data mining strategies to optimize model performance.
- Make recommendations based on the evaluation of the ethical, legal and political issues of data usage and its implications for a given application, market or population.

Requirements

Eligible undergraduate students who would like to pursue a five-year B.S./M.S. Data Analytics degree should apply directly to the five-year program by the end of their first year to take maximum advantage of this accelerated option. Students who qualify for the five-year degree will need to complete a formal application with Graduate Admissions by no later than the beginning of their junior year. Students must satisfy separate admission requirements for both undergraduate and graduate programs. Admission to the undergraduate program does not guarantee admission to the graduate program.

Students will begin taking graduate-level courses during the fall semester of their fourth year.

Qualified students who have already been accepted to the five-year B.S. /M.S. Data Analytics program will also need to complete a formal application with Graduate Admissions. When submitting the formal application to Graduate Admissions, the following must be submitted or completed:

1. A completed application for graduate admission, marking the M.S. Data Analytics box under the Special Programs Selection section
2. Cumulative grade point average of 3.0 or higher
3. Two letters of recommendation
4. Current résumé
5. Statement of purpose

Data Analytics

A four-year program leading to the bachelor of science degree

Major Courses

CSIS1000	Problem Solving and Programming Concepts	3
CSIS1101	Computer Science I	3
CSIS2030	Database Concepts	3
CSIS2080	Database Design	3
DMSM2025	Introduction to Data Visualization	3
DMSM2050	Spreadsheets for Data Analysis	3
FIT1040	Spreadsheet Design for Business Solutions	3
MATH2220	Linear Algebra	3
MATH4900	Applied Statistics	3

Major Electives

Choose 15 credits from the following courses or declare a minor: **		15
CYB3038	HCI/Usable Security	
ITEC3050	Information Security with Cryptography	
Choose three of the following:		
CSIS1112	Computer Science II	
ENG2010	Introduction to Technical Communication	

MATH2020	Discrete Mathematics	
PRMG2010	Introduction to Project Management & Project Membership	
Applied/Experiential Learning		
Choose 9 credits from the following:		9
ASCI4799	College of Arts & Sciences Internship ^{1c}	
DEE3999	Directed Experiential Education ^D	
RSCH3830	Undergraduate Research Experience	
RSCH4020	Honors Directed Academic Experience	
Study Abroad ^{5a}		
Related Professional Studies		
CAR0010	Career Management	1
FYS1020	First-Year Seminar	1
A&S Core Experience		
Communications Foundation Courses		9
ENG1020	Rhetoric & Composition I	
ENG1021	Rhetoric & Composition II	
ENG1030	Communication Skills	
Integrative Learning		6
Two ILS courses, one at the 2000 level, one at the 4000 level		
Arts and Humanities		6
PHIL3240	Ethics: A Global Perspective	
One course from ART, HIST, HUM, LIT, or REL		
Mathematics		6
MATH1035	Quantitative Analysis I (or higher, based on student's placement) ^{***}	
MATH2035	Quantitative Analysis II	
Science		3
One course from BIO, CHM, PHY or SCI		
Social Sciences		6
ECON1001	Macroeconomics	
One course from ANTH, GEND, LEAD, PSCI, PSYC, RES or SOC		
A&S Electives		6
MATH2001	Statistics I	
or MATH2010	Introduction to Biostatistics	
MATH2002	Statistics II	
Free Elective [#]		
15 credits selected from 1000-4999 numbered offerings within the university		15
Graduate Courses ^{****}		
DATA5025	Tools for Data Analytics	3
DATA5100	Statistical Analysis	3
DATA5400	Introduction to Predictive Modeling	3
DATA5600	Research Methods in Data Analytics	3
Total Credits		122.0

* Students are responsible for meeting prerequisites.

** Students should consult with their advisor when selecting a minor.

*** Students that do not place in MATH1035 Quantitative Analysis I, must take an extra course, MATH1020 Fundamentals of Algebra, as a prerequisite. If needed this counts as a free elective.

**** Students use 3 credits from Applied/Experiential Learning and 9 free elective credits for graduate-level courses in the Data Analytics MS during their 4th year.

^{1c}Typically, internships require a minimum of six credits. Students interested in a 9 or 12-credit internship can apply additional experiential learning and free elective credits, if available. Students are strongly encouraged to contact a faculty advisor before scheduling internship and free elective credits.

^D Directed Experiential Education (DEE) opportunities are based on project availability with community partners and student eligibility. For more information, visit Experiential Education & Career Services (EE&CS).

^{5a}To be eligible to count toward Applied/ Experiential Learning, a Study Abroad offering must meet certain requirements. Contact JWU Global to discuss eligible Study Abroad options for this degree program.

In addition to classes, free elective credits may be applied to a number of options such as internship, study abroad, Directed Experiential Education courses and courses in a specialization or minor as relevant. For Accelerated Master's program students, up to three graduate-level courses may apply.

Students are strongly encouraged to contact a faculty advisor before scheduling free elective credits.

Data Analytics

Master of Science

Core Courses

DATA5025	Tools for Data Analytics †	3
DATA5050	Data Management	3
DATA5100	Statistical Analysis †	3
DATA5150	Data Mining	3
DATA5200	Data Visualization	3
DATA5300	Big Data Analytics	3
DATA5350	Text & Web Mining Analytics	3
DATA5400	Introduction to Predictive Modeling †	3
DATA5515	Advanced Topics in Predictive Analytics	3
DATA5550	Optimization Simulation	3
DATA5600	Research Methods in Data Analytics †	3
DATA5700	Data Analytics Capstone	3
Total Credits		36.0

† These graduate courses will fulfill the bachelor of science requirements in the 4th year. Please note: The bachelor of science is not awarded until all graduate-level courses applying to the undergraduate degree have been successfully completed.

NOTE: Students must pass MATH0010 Pre-Algebra or have equivalent placement scores to enroll in required math course(s).

Note: Students must pass ENG0001 Writing Workshop or have equivalent placement scores to enroll in ILS 2000-level courses

In collaboration with academic colleges across all JWU campuses, JWU Global Study Abroad programs offer a variety of international options for major, minor, arts and sciences, and elective credit at many affordable price points for students during the academic year, break periods, and summer. Faculty-led, exchange, affiliate, and direct-enroll programs range in duration from one week to a full semester or full year. Financial aid may be applied and scholarships are available. Visit the study abroad website for information, program descriptions and online applications. Where will you go?