

Data Analytics - Bachelor of Arts

For information, contact the Department of Statistics, 262 McVey Data Science Building (DSB), statistics@miamioh.edu.

Data Analytics combines statistical methods, programming skills and deep knowledge in a field of application to extract meaning from large, unstructured or complex data sets with the goal of informing policy, decisions, or scholarly research. Students select a concentration in one of four areas of application:

- Bioinformatics
- Geospatial Analytics
- Social Data Analytics
- Sport Analytics

Students majoring in the Geospatial Analytics concentration may not co-major in Analytics. Students majoring in the Bioinformatics concentration may not minor in Bioinformatics. Students majoring in the Sport Analytics concentration may not minor in Sport Analytics. Students majoring in the Social Data Analytics concentration may count no more than nine (9) credit hours toward this major and a major in Political Science, Gerontology, or Sociology, and they may count no more than six (6) credit hours toward a minor in Political Science, Gerontology or Sociology.

Program Requirements

(3-8 prerequisite hours, 18 core hours, 18-19 concentration hours; 36-38 total hours)

Prerequisites for this program include:

- Introductory Statistics (AP Statistics, STA 261, STA 301, or ISA 225);
- Precalculus (MTH 104 or MTH 123 or MTH 125) or Calculus 1 (AP Calculus or MTH 141 or MTH 151) or an ACT Math score of at least 26 or an SAT Math score of at least 600 or at least 16 on the Miami International Math Placement Test.

Code	Title	Credit Hours
Core Courses - required for all concentrations		
MTH 133	Mathematical Foundations of Data Analytics	3-4
or STA 250	Basic Math for Analytics	
or ISA 250	Basic Math for Analytics	
STA/POL 308	Introduction to Programming and Scripting for Data Analytics	3
STA 363	Introduction to Statistical Modeling	3
or ISA 291	Applied Regression Analysis in Business	
or POL 306	Applied Research Methods	
STA 309	Building, Managing and Exploring Data Sets in Analytics	3
ENG/STC 285	Professional Communication for Data Analytics	3
Select one of the following:		3
CSE/CIT 262	Technology, Ethics, and Global Society	

ENG/IMS/JRN 424	Ethics and Digital Media	
MJF 301	Media Law and Ethics	
PHL 131	Introduction to Ethics	
PHL 205	Science and Culture	
PHL/HST/GIC 286	Data, Ethics, and Society	
Concentration		18-19
Select one of the concentrations shown below.		
Students may not select multiple concentrations.		
Total Credit Hours		36-38

Concentration in Bioinformatics

Code	Title	Credit Hours
BIO/MBI 116	Biological Concepts: Structure, Function, Cellular, and Molecular Biology	4
BIO/CSE/MBI 256	Introduction to Programming for the Life Sciences	3
BIO/CHM/CSE/MBI 466	Bioinformatics Computing Skills	3
BIO/CSE/MBI 485	Bioinformatics Principles	3
BIO, MBI or CHM at the 200-level or above (BIO 342, MBI 365 or BIO 444 are recommended).		6
Total Credit Hours		19

Concentration in Geospatial Analytics

Code	Title	Credit Hours
Select one of the following:		
3-4		
GEO 101	Global Forces, Local Diversity	
GEO 121	Earth's Physical Environment	
GEO 122	Geographic Perspectives on the Environment	
GEO 201	Geography of Urban Diversity	
GLG 261	Geohazards and the Solid Earth	
Select all of the following:		
GEO 242	Mapping a Changing World	3
GEO 441	Geographic Information Systems	3
GEO 442	Advanced Geographic Information Systems	3
GEO 448	Techniques and Applications of Remote Sensing	3
Select one of the following:		3
GEO 443	Python Programming for Geospatial Applications	
GEO 460	Advanced Systematic Geography	
Total Credit Hours		18-19

Concentration in Social Data

Code	Title	Credit Hours
Select one of the following two emphases:		
9		
Political Science emphasis		
Select one of the following:		

POL 221	Comparative Politics
POL 241	American Political System
POL 261	Public Administration
POL 271	World Politics

Select two more POL courses at the 300 or 400 level. No course may be counted for both the Political Science emphasis and the Advanced Data Courses requirement in this concentration.

Gerontology/Sociology emphasis

Select one of the following:

SOC 153	Sociology in a Global Context
GTU 154	Aging in American Society
GTU 254	Global Aging

Select two of the following:

SOC 257	Population
SOC 262	Research Methods
SOC/GTY 318	Social Forces and Aging
SOC/GTY 357	Medical Sociology
GTU 365	Social Policy and Programs in Gerontology
GTU 440	Gerontology Capstone Internship
GTU 456	Aging & Health

Advanced Data Courses

Select three of the following, with at least one at the 400 level: 9-10

GTU 362	Data & Decision Making in Aging
GTU/POL 474	Using Large Datasets in the Social Sciences
GTU 479	Research on Inequality in Aging & Health
GTU/POL 491	Social Network Analysis
POL 307	Public Opinion Laboratory
POL 365	Decision-Making in Public Affairs

Total Credit Hours **18-19**

Concentration in Sport Analytics

Code	Title	Credit Hours
SLM 275	Principles of Sport Analytics	3
SLM 314	Coding for Sport Analytics	3
SLM 413	Sport Economics	3
SLM 416	Sport Marketing	3
SLM 418	Applied Sport Analytics	3
SLM 472	Sport Administration	3

Total Credit Hours **18**

Note: Students seeking the major in Data Analytics meet the College of Arts and Science Writing Requirement by taking ENG 285/STC 285.