

The program requirements for the Bachelor of Science degree with a major in Data Analytics and a specialization in **Biomedical and Public Health Analytics** are given below. A minimum of 138 total degree hours are required for graduation.

The Required Core courses follow a strict prerequisite structure. Some courses are only offered once per year. Failure to successfully enroll in and complete these courses *will* delay graduation.

Data Analytics Major Requirements

Course Number	Course Title	Credit Hours	Terms Offered
Prerequisites			
CSE 1223 or 1224 ^a	Intro to Computer Programming in Java or Python	3	AU/SP/SU
Math 1152 ^b	Calculus II	5	AU/SP/SU
CHEM 1110/1210	Chemistry I	5	AU/SP/SU
Biology 1113	Energy Transfer and Development	4	AU/SP/SU
Required Core			
Math 2568	Linear Algebra	3	AU/SP/SU
ISE 3230	Systems Modeling and Optimization	3	AU
CSE 2221 ^b	Software I: Software Components	4	AU/SP/SU
CSE 2231	Software II: Development and Design	4	AU/SP/SU
CSE 2321	Foundations I: Discrete Structures	3	AU/SP/SU
CSE 2421 or 3430	Systems I: Computer Systems and Organization	4	AU/SP/SU
CSE 3241	Databases I: Computer Architecture	3	AU/SP/SU
CSE 3244 or 5242	Data Management in the Cloud or Advanced Database Systems	3	AU/SP
CSE 5243	Data Mining	3	AU/SP
CSE 5544 or ISE 5760	Data Visualization	3	AU/SP
STAT 3201	Probability for Data Analytics	3	AU/SP
STAT 3202	Statistical Inference for Data Analytics	4	AU/SP/SU
STAT 3301	Statistical Modeling for Discovery I	3	AU
STAT 3302	Statistical Modeling for Discovery II	3	SP
STAT 4620	Statistical Learning	2	AU
STAT 3303	Statistical Decision Making	3	SP
TOTAL		51	

^a CSE 1222 or CSE placement level A can also fulfill this prerequisite; however, 1223 or 1224 is *strongly preferred*.

^b Math 1152 and CSE 2221 must be completed before applying to the Data Analytics major program.

Biomedical and Public Health Analytics Specialization

MOLGEN 4500.xx or 4606	Molecular Genetics	3-4	AU/SP/SU
BMI 5710	Introduction to Biomedical Informatics	3	AU
PUBHLTH 5015	Public Health Analytics	3	AU
Elective	Choose one course from list below	2-3	AU/SP/SU
STAT 4911	Capstone in Data Analytics	4	SP
TOTAL		15-17	

Specialization Electives: Choose ONE of the following:

BMI 5730	Bioinformatics	3
BMI 5740	Research Informatics	3
BMI 5750	Methods in Biomedical Informatics	3
BMI 5760	Public Health Informatics	3
BMI 5770	Health Analytics: Data to Discovery to Dissemination	3
BMI 5780	Programming for Biomedical Informatics	3
PUBHBIO 5280	Genomic Data Analysis	2
PUBHEPI 5421	Mathematics of Infectious Disease Dynamics	3
GEOG 5226	Spatial Simulation and Modeling	3

General Education and College of Arts & Sciences Requirements

Students must satisfy the General Education requirements for the Bachelor of Science degree in the College of Arts and Sciences. Math 1151^c is required for the major core curriculum; it is suggested that students use this course to satisfy the category indicated in the table below. Students in the Data Analytics major satisfy the GE's embedded literacy requirements by taking Stat 3301 (embedded literacy in data analysis) and Stat 3302 (embedded literacies in advanced writing and technology).

GE Category ^d	Suggested Course	Category Credit Hours
Launch Seminar (GENED 1201)		1
F: Writing and Information Literacy		3
F: Mathematical and Quantitative Reasoning/Data Analysis	Math 1151 ^c (5 cr. hrs.)	3–5
F: Literary, Visual and Performing Arts		3
F: Historical and Cultural Studies		3
F: Natural Science	CHEM 1110/1210	4–5
F: Social and Behavioral Sciences		3
F: Race, Ethnicity, and Gender Diversity		3
T: Citizenship for a Diverse and Just World		4–6
T: Student Choice		4–6
Reflection Seminar (GENED 4001)		1
World Languages		12
ARTSSCI 1100.xx Survey		1
Minimum Total Credit Hours (w/Math 1151 and CHEM 1110/1210)		52

^c Math 1151 may be replaced by Math 1140 and 1141.

^d F: GE Foundations; T: GE Theme.

Sample Four-Year Curriculum

This should be used as a **guide** only. Semester offerings are subject to change. Students should meet with the Data Analytics academic advisor every semester to ensure an on-time graduation.

Year	Autumn		Spring	
	Course	Hours	Course	Hours
1	ASC 1100.10	1	GENED 1201	1
	MATH 1151/1141/1161/1181H	5	MATH 1152/2162/1172/2182H	5
	CSE 1223, 1224, or equiv	3	CSE 2221	4
	CHEM 1110 or 1210 (GE Nat Sci)	5	GE World Language 1	4
	GE Writing and Info Literacy	3	BIO 1113	4
	Total: 17		Total: 18	
2	CSE 2231	4	MATH 2568	3
	CSE 2321	3	CSE 2421 or 3430	4
	STAT 3201	3	STAT 3202	4
	GE World Language 2	4	GE World Language 3	4
	GE Race, Ethnicity, and Gender Diversity	3	MOLGEN 4500.xx or 4606	3
	Total: 17		Total: 18	
3	ISE 3230	3	CSE 3244	3
	CSE 3241	3	STAT 3302	3
	STAT 3301	3	GE Literary, Visual and Performing Arts	3
	BMI 5710	3	GE Citizenship for a Diverse and Just World	3
	GE Citizenship for a Diverse and Just World	3	GE Thematic Pathway Choice ^e	3
	Elective	2	Elective	2
	Total: 17		Total: 17	
4	CSE 5243	3	CSE 5544 or ISE 5760	3
	STAT 4620	2	STAT 3303	3
	PUBHLTH 5015	3	GE Historical and Cultural Studies	3
	BPH Specialization Elective ^f	2-3	STAT 4911 Capstone	4
	GE Thematic Pathway Choice ^e	3	GENED 4001	1
	GE Social and Behavioral Sciences	3	Elective	3
	Total: 17		Total: 17	

^e The 4–6 GE Thematic Pathway Choice credit hours must be taken in the same theme.

^f From approved list of major specialization elective courses.