

# BACHELOR OF SCIENCE (BS) DATA ANALYTICS: BIOMEDICAL AND PUBLIC HEALTH ANALYTICS SPECIALIZATION

## Major Prerequisites (22 hours)

These courses may overlap with the General Education curriculum where appropriate. Courses in **BOLD** must be completed before submitting an application to the Data Analytics major program.

Department	Course	Hours	Term Offered
Math	<b>MATH 1151</b> (1161 or 1181H) – Calculus I	5	AU/SP/SU
	<b>MATH 1152</b> (1172, 2162 or 2182H) – Calculus II	5	AU/SP/SU
Computer Science & Engineering	<b>*CSE 1223</b> – Computer Programming in Java or <b>*CSE 1224</b> – Computer Programming in Python	3	AU/SP/SU
Chemistry	CHEM 1110/1210/1250/1610 – Chemistry I	5	AU/SP/SU
Biology	BIO 1113 – Energy Transfer and Development	4	AU/SP/SU

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

## Core Requirements (51 hours)

The Data Analytics Core courses follow a strict pre-requisite structure. Some courses are only offered once per year. Failure to successfully enroll in and complete these courses will delay graduation.

Department	Course	Hours	Terms Offered
Math	MATH 2568 – Linear Algebra	3	AU/SP/SU
Industrial & Systems Engineering	ISE 3230 – Systems Modeling and Optimization	3	AU
Computer Science & Engineering	<b>CSE 2221</b> – Software I: Software Components	4	AU/SP/SU
	CSE 2231 – Software II: Development & Design	4	AU/SP/SU
	CSE 2321 – Foundations I: Discrete Structures	3	AU/SP/SU
	CSE 2421 or 3430 – Systems I: Computer Systems	4	AU/SP/SU
	CSE 3241 – Databases I: Computer Architecture	3	AU/SP/SU
	CSE 3244 or 5242 – Adv. DB & Cloud Computing	3	AU/SP
	CSE 5243 – Data Mining	3	AU/SP
	CSE 5544 or ISE 5760 – Data Visualization	3	AU/SP
Statistics	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

## Biomedical and Public Health Analytics Specialization (15-17 hours)

MOLGEN 4500 or 4606 – Molecular Genetics	3-4	AU/SP/SU
BMI 5710 – Introduction to Biomedical Informatics	3	AU
PUBHLTH 5015 – Public Health Data Analytics	3	AU
Biomedical and Public Health elective – Choose one course from back of sheet	2-3	AU/SP
STAT 4911 – Capstone in Data Analytics ( <b>SP Senior year</b> )	4	SP

## GENERAL EDUCATION

Please visit [artsandsciences.osu.edu/academics/current-students/advising/ge](https://artsandsciences.osu.edu/academics/current-students/advising/ge) for a complete list of the General Education curriculum requirements.

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ELECTIVES: BIOMEDICAL INFORMATICS AND PUBLIC HEALTH ANALYTICS			
COURSE	TITLE	HOURS	PREREQUISITES
Choose <b>one</b> of the following:			
BMI 5720	Intro to Imaging Informatics	3	None
BMI 5730	Intro to Bioinformatics	3	None
BMI 5740	Intro to Research Informatics	3	None
BMI 5750	Methods in Biomedical Informatics	3	Basic knowledge of computer science principles, statistical methods, and medical terminology
BMI 5760	Public Health Informatics	3	None
BMI 5770	Health Analytics: Data to Discovery to Dissemination	3	None
PUBHEPI 5420	Modeling Infectious Disease in Humans and Animals	3	Junior standing or above
PUBHBIO 5280	Intro to Genomic Data Analysis	2	Junior standing or above, Math 1151 or 1156, Stat 2450 or higher, Biology 1113 or MolGen 5660
PUBHEPI 5421	Mathematics of Infectious Disease Dynamics	3	Math 1152 or 1172
GEOG 5226	Spatial Simulation and Modeling	3	None