

B.S. Environmental Data Science – Genetics, Genomics, & Bioinformatics

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.

First Year

Fall

Course	Prerequisite	Credit
FW1050 – Natural Resource Professional (Essential Ed: Seminar)		2
FW2051 – Field Techniques		2
BL1400 – Principles of Biology		3
BL1410 – Principles of Biology lab		1
CS1121 – Intro to Programming I	MA1031 (C) or higher	3
DATA1100 – Practical Data Science Tools		1
UN1015 – Composition (<i>Essential Education</i>)		3
Total		15

Spring

Course	Prerequisite	Credit
CH1150 – University Chemistry I	MA1031 (C) or higher or Placement	3
CH1151 – University Chemistry I lab	CH1150 (C)	1
CS1122 – Intro to Programming II	CS1121	3
DATA1200 – Data Science w/ Python	MA1030 (C) or higher	3
MA1135 – Calculus for Life Sciences	Placement	4
<i>Essential Education: Foundations in the Human World</i>		3
Total		17

Second Year

Fall

Course	Prerequisite	Credit
FW2060 – Environmental Sustainability		3
FW3020 – Forest Ecology	FW2010 (C), FW2051 (C)	3
CS2311 – Discrete Structures	CS1121 and MA1135	3
MA2720 – Statistical Methods	MA1030 or higher or placement	4
<i>Essential Education: SHAPE</i>		3
<i>Essential Education: Activities</i>		1
Total		17

Spring

Course	Prerequisite	Credit
FW3200 – Biometrics & Data Analysis	MA2720	4
FW3540 – Intro to GIS	FW2051 & MA2720	4
CS2321 – Data Structures	CS1122	3
MA2330 – Intro to Linear Algebra	MA1135	3
<i>Essential Education: Arts & Culture</i>		3
Total		17

Third Year

Fall

Course	Prerequisite	Credit
FW4082 – Gene Expression Data Analysis	CS1121	3
CS3425 – Intro to Database Systems	CS2321	3
DATA2201 – Foundations of Data Science	DATA1200 & CS1122 & MA2330	3
Ethics Directed Elective		3
<i>Essential Education: Intercultural Competency</i>		3
Total		15

Spring

Course	Prerequisite	Credit
FW2100 – Intro to Biochemistry	CH1150	3
FW3320 – Forest Genetics & Genomics	BL1400	3
<i>Essential Education: Communication Intensive</i>		3
<i>Essential Education: Experience</i>		3
<i>Essential Education: Activities</i>		1
Total		13

Fourth Year

Fall

Course	Prerequisite	Credit
FW4800 – Communications for Natural Resources		2
BL3300 – Intro to Genomics	FW3320	3
Bioinformatics Directed Elective or Free Elective		3
Database Directed Elective or Free Elective		3
<i>Essential Education: Activities</i>		1
Total		12

Spring

Course	Prerequisite	Credit
FW3075 – Intro to Biotechnology		3
FW4500 – Env. Data Sci. Capstone		3
Bioinformatics Directed Elective or Free Elective		3
Database Directed Elective or Free Elective		3
Free Elective		2
Total		14

Grand Total = 120 Credits

Database Electives (choose one)		
Course #	Course Title & Credits	Semester / Prereqs
CS4801	Foundations of Machine Learning (3)	Fall / DATA2201 & MA2720
CS4811	Artificial Intelligence (3)	Fall, Spring / CS2311 & CS2321 & CS3425 & MA3720
CS4821	Data Mining (3)	Spring / CS3425 & MA2330 & MA2720

Bioinformatics Electives (choose one)		
Course #	Course Title & Credits	Semester / Prereqs
FW4099	Programming Skills for Bioinformatics (3)	Fall, odd years / CS1121
FW4128	Conservation Genetics (3)	Spring / BL1400 & BL1410