

Bachelor of Science in Bioinformatics

Program Curriculum

120 credits

DSU General Education Requirements

All DSU General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to DSU's minimum General Education standards in American Institutions, English, and Mathematics.

Code	Title	Hours
General Education Core Requirements (catalog.dixie.edu/programs/generaleducation/#gerequirementstext)		
English		3-7
Mathematics		3-5
American Institutions		3-6
Life Sciences		3-10
Physical Sciences		3-5
Laboratory Science		0-1
Fine Arts		3
Literature/Humanities		3
Social & Behavioral Sciences		3
Exploration		3-5

Bioinformatics Core Requirements

Code	Title	Hours
BIOL 1610 & BIOL 1615	Principles of Biology I (LS) and Principles of Biology I Lab (LAB) ¹	5
BIOL 1620 & BIOL 1625	Principles of Biology II and Principles of Biology II Lab	5
BIOL 3010	Evolution	3
BIOL 3030	Principles of Genetics	4
BIOL 3150 & BIOL 3155	Biostatistics and the Scientific Method and Biostatistics and the Scientific Method Lab	3
BIOL 3300	Introduction to Bioinformatics	3
BIOL 3550 & BIOL 3555	Eukaryotic Cell Biology and Eukaryotic Cell Biology Lab	4
BIOL 4300 & BIOL 4305	Molecular Biology and Molecular Biology Laboratory	4
BIOL 4310	Advanced Bioinformatics	3
BIOL 4810R or BIOL 4820R	Independent Research I Independent Research II	1-2
CHEM 1210 & CHEM 1215	Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB) ¹	5
CHEM 1220 & CHEM 1225	Principles of Chemistry II and Principles of Chemistry II Lab	5
CHEM 2310 & CHEM 2315	Organic Chemistry I and Organic Chemistry I Lab	5
CHEM 2320 & CHEM 2325	Organic Chemistry II and Organic Chemistry II Lab	5
CHEM 3510 & CHEM 3515	Biochemistry I and Biochemistry I Lab	4
CS 1400	Fundamentals of Programming ¹	3
CS 1410	Object Oriented Programming ¹	3
CS 2420	Introduction to Algorithms and Data Structures	3

CS 3310	Discrete Mathematics	3
CS 3510	Advanced Algorithms/Data Structures	3
CS 4307	Database Design & Management	3
MATH 1210	Calculus I ¹	4
MATH 1220	Calculus II	4
MATH 2270	Linear Algebra	3
MATH 3400	Probability & Statistics	3

¹ Course may be used to meet both Bioinformatics Core and General Education requirements.

Code	Title	Hours
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Recommended Elective Courses

The following courses, though not required, should be considered when planning elective coursework. Please contact your academic advisor for more information.

CS 3005	Programming in C++	3
MATH 2280	Ordinary Differential Equation	3
MATH 3500	Numerical Analysis	3

Graduation Requirements

1. Complete a minimum of 120 college-level credits (1000 and above).
2. Complete at least 40 upper-division credits (3000 and above).
3. Complete at least 30 upper-division credits at DSU for institutional residency, with at least 15 credits earned in the last 45 credits
4. Cumulative GPA 2.0 or higher.
5. Grade C or higher required in each Bioinformatics core course

Course	Title	Hours
1st Year		
Fall Semester		
BIOL 1610 & BIOL 1615	Principles of Biology I (LS) and Principles of Biology I Lab (LAB)	5
ENGL 1010	Introduction to Writing (EN)	3
CS 1400	Fundamentals of Programming	3
General Education (Literature/Humanities)		3
SSC 1010	Trailblazer Connections	2
Hours		16
Spring Semester		
BIOL 1620 & BIOL 1625	Principles of Biology II and Principles of Biology II Lab	5
ENGL 2010	Intermediate Writing Selected Topics: (EN)	3
CS 1410	Object Oriented Programming	3
General Education (American Institutions)		3
Hours		14
2nd Year		
Fall Semester		
CHEM 1210 & CHEM 1215	Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB)	5
MATH 1210	Calculus I	4
BIOL 3010	Evolution	3
CS 2420	Introduction to Algorithms and Data Structures	3
Hours		15
Spring Semester		
CHEM 1220 & CHEM 1225	Principles of Chemistry II and Principles of Chemistry II Lab	5
MATH 1220	Calculus II	4

BIOL 3030	Principles of Genetics	4
General Elective		3
Hours		16
3rd Year		
Fall Semester		
BIOL 3300	Introduction to Bioinformatics	3
BIOL 3550 & BIOL 3555	Eukaryotic Cell Biology and Eukaryotic Cell Biology Lab	4
CHEM 2310 & CHEM 2315	Organic Chemistry I and Organic Chemistry I Lab	5
General Education (Social & Behavioral Sciences)		3
Hours		15
Spring Semester		
BIOL 4300 & BIOL 4305	Molecular Biology and Molecular Biology Laboratory	4
CHEM 2320 & CHEM 2325	Organic Chemistry II and Organic Chemistry II Lab	5
CS 3310	Discrete Mathematics	3
General Education (Fine Arts)		3
Hours		15
4th Year		
Fall Semester		
BIOL 3150 & BIOL 3155	Biostatistics and the Scientific Method and Biostatistics and the Scientific Method Lab	3
BIOL 4100		3
CHEM 3510 & CHEM 3515	Biochemistry I and Biochemistry I Lab	4
MATH 3400	Probability & Statistics	3
General Elective		2
Hours		15
Spring Semester		
BIOL 4310		3
BIOL 4820R	Independent Research II	2
CHEM 3520	Biochemistry II	3
CS 4307	Database Design & Management	3
General Education (Exploration)		3
Hours		14
Total Hours		120