

# Bachelor of Science in Bioinformatics

The Bachelor of Science in Bioinformatics degree has three basic components:

1. General Education and Institutional Requirements (some may also be included in program requirements)
2. Bioinformatics Core Requirements
3. Electives: college-level courses from any prefix to meet Graduation Requirements

## DSU General Education & Institutional Requirements

All DSU General Education and Institutional 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
<b>Institutional Requirement in Computer Literacy</b> (catalog.dixie.edu/programs/generaleducation/#gerequirementstext)		
Computer Literacy		0-6
<b>General Education Core Requirements</b> (catalog.dixie.edu/programs/generaleducation/#gerequirementstext)		
English		3-7
Information Literacy		0-1
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
Two (2) Global & Cultural Perspectives Courses		0-6
<b>Bioinformatics Core Requirements</b>		
BIOL 1610 & BIOL 1615	Principles of Biology I and Principles of Biology I Lab <sup>1</sup>	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		
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		
BIOL 4810R or BIOL 4820R	Independent Research I Independent Research II	1-2
CHEM 1210 & CHEM 1215	Principles of Chemistry I and Principles of Chemistry I Lab <sup>1</sup>	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 <sup>1</sup>	3
CS 1410	Object Oriented Programming <sup>1</sup>	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 <sup>1</sup>	4
MATH 1220	Calculus II	4
MATH 2270	Linear Algebra	3
MATH 3400	Probability & Statistics	3

<sup>1</sup> Course may be used to meet both Bioinformatics Core and General Education requirements.

### Recommended Elective Courses

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

BIOL 3800		
BIOL 4100		
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
<b>1st Year</b>		
<b>Fall Semester</b>		
BIOL 1610 & BIOL 1615	Principles of Biology I and Principles of Biology I Lab	5
ENGL 1010	Introduction to Writing	3
CS 1400	Fundamentals of Programming	3
General Education (Literature/Humanities)		3
LIB 1010	Information Literacy	1
	Hours	15
<b>Spring Semester</b>		
BIOL 1620 & BIOL 1625	Principles of Biology II and Principles of Biology II Lab	5
ENGL 2010	Interm Writing Selected Topics:	3
CS 1410	Object Oriented Programming	3
General Education (American Institutions)		3
	Hours	14
<b>2nd Year</b>		
<b>Fall Semester</b>		
CHEM 1210 & CHEM 1215	Principles of Chemistry I and Principles of Chemistry I Lab	5
MATH 1210	Calculus I	4
BIOL 3010	Evolution	3

CS 2420	Introduction to Algorithms and Data Structures	3
Hours		15
<b>Spring Semester</b>		
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
<b>3rd Year</b>		
<b>Fall Semester</b>		
BIOL 3300		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
<b>Spring Semester</b>		
BIOL 4300 & BIOL 4350	Molecular Biology and Animal Behavior	6
CHEM 2320 & CHEM 2325	Organic Chemistry II and Organic Chemistry II Lab	5
CS 3310	Discrete Mathematics	3
General Education (Fine Arts / GLOCUP)		3
Hours		17
<b>4th Year</b>		
<b>Fall Semester</b>		
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		3
Hours		16
<b>Spring Semester</b>		
BIOL 4310		3
BIOL 4820R	Independent Research II	2
CHEM 3520	Biochemistry II	3
CS 4307	Database Design & Management	3
General Education (Exploration / GLOCUP)		3
Hours		14
Total Hours		122