

IOWA STATE UNIVERSITY
UNDERGRADUATE B.S. IN BIOINFORMATICS AND COMPUTATIONAL BIOLOGY

DEGREE REQUIREMENTS 2025-26 CATALOG

The degree requires 120.5 credits. At least 32 credits must be taken at ISU.

(Numbers in parentheses refer to credits; unless noted, classes are offered both fall and spring)

*Course lists found here: <https://bcbio.las.iastate.edu/approved-course-lists>

I. UNIVERSITY REQUIREMENTS: *These apply to all ISU degree programs.*

- _____ ENGL 1500 (3) Critical Thinking and Communication **Minimum C**
 - _____ ENGL 2500 (3) or ENGL 250H (3) Written, Oral, Visual, and Electronic Communication **Minimum C**
 - _____ LIB 1600 (1) Library Instruction
 - _____ International Perspectives* (3)
 - _____ U. S. Cultures and Communities* (3) **Certain courses also meet a College requirement for Arts and Humanities or Social Sciences (dual-count)*
 - _____ Advanced English: ENGL 3090 (3) Report and Proposal Writing **or** ENGL 3120 (3) Biological Communication **or** ENGL 3140 (3) Technical Writing **Minimum C**
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II. COLLEGE REQUIREMENTS:

College of Liberal Arts and Sciences (LAS)

- _____ 3 years of a single foreign language in high school or 4-8 credits of World Languages (students who have 2 years of a foreign language only need to complete a 102 level course in the same language)
 - _____ Social Sciences* (9 credits)
 - _____ Arts and Humanities* (12 credits)
 - _____ LAS 2030 (1 credit)
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III. MAJOR REQUIREMENTS:

Core Courses: Minimum of 38.5 credits

- _____ GEN 1100 (1) BCBio and Genetics Orientation *fall only*
 - _____ GEN 3130 & L (4) Principles of Genetics and Genetics Laboratory
 - _____ COM S 1270 (4) Introduction to Computer Programming
 - _____ COM S 2270 (4) Introduction to Object-oriented Programming
 - _____ COM S 2280 (3) Introduction to Data Structures
 - _____ COM S 2300 (3) Discrete Computational Structures
 - _____ COM S 3110 (3) Design and Analysis of Algorithms
 - _____ MATH 1650 (4) Calculus I **and** MATH 166 (4) Calculus II
 - _____ BCBIO 3220 (3) Introduction to Bioinformatics and Computational Biology *fall only*
 - _____ BCBIO 4010 (3) Bioinformatics of Sequences *alternating falls, odd years*
 - _____ BCBIO 4060 (3) Bioinformatics of Omics
 - _____ BCBIO 4900 Independent Study **or** BCBIO 4910 Team Research Projects (1-5 credits)
 - _____ Department Approved list: Select 3-9 Credits from list*
- NOTE: Must have 8.0 crs of 3000+ level COM S, MATH, or BCBIO taken at ISU with grade of C or higher*

Complementary Courses: Minimum of 31 credits

- _____ **General Biology:** BIOL 2110 & 2110L (4) Principles of Biology I **and** BIOL 212 & 212L (4) Principles of Biology
- _____ **Advanced Biology:** BIOL 3140 (3) Molecular Cell Biology **or** BIOL 3150 (3) Biological Evolution **or** GEN 4090 (3) Molecular Genetics
- _____ **General Chemistry:** CHEM 1630 & L (5) College Chemistry and Lab **or** CHEM 1770 & L (5) General Chemistry I **and** CHEM 1780 (3) General Chemistry II
- _____ **Organic Chemistry:** CHEM 2310 & L (4) Elementary Organic Chemistry **or** CHEM 3310 & L (4) Organic Chemistry I **and** CHEM 3320 & L (4) Organic Chemistry II
- _____ **Physics:** PHYS 1150 & L (5) **or** PHYS 1310 & L (5) General Physics I **or** PHYS 2310 & L (5) Classical Physics I
- _____ **Statistics:** STAT 3300 (3) Probability and Statistics for Computer Science **and** STAT 4830 (3) Empirical Methods for the Computational Sciences

Additional elective coursework to meet 120.5 credits. Some electives may need to be at the 3000+ level to reach the 45 credits of advanced (3000+) coursework required by the College of Liberal Arts.