

BIOINFORMATICS AND COMPUTATIONAL BIOLOGY GRADUATE ACADEMIC CERTIFICATE

There is a large and growing demand for graduates with training in bioinformatics and computational biology. These areas are vital to the biotechnology industry, the medical sciences, and conservation biology. This certificate will provide graduate students who are pursuing graduate degrees in other areas with recognition for taking multiple courses of the BCB curriculum, and thus building a strong foundation in bioinformatics and computational biology. For more information, please email bcb@uidaho.edu or visit the BCB Program office in Life Sciences South (Room 441D).

All required coursework must be completed with a grade of B or better (O-10-b (<https://catalog.uidaho.edu/general-requirements-academic-procedures/o-miscellaneous/>)).

| Code | Title | Hours |
|---|--|-----------|
| BIOL 5220 | Molecular Evolution | 3 |
| CS 5615 | Computational Biology: Sequence Analysis | 3 |
| MATH 5630 | Mathematical Genetics | 3 |
| Select 3 credits from the following: ¹ | | 3 |
| BIOL 4210 | Advanced Evolution | |
| BIOL 4440 | Genomics | |
| BIOL 4560 | Computer Skills for Biologists | |
| BIOL 5450 | Phylogenetics | |
| BIOL 5470 | Virology | |
| BIOL 5850 | Prokaryotic Molecular Biology | |
| BIOL 5870 | Cellular and Molecular Basis of Disease | |
| CS 5211 | Parallel Programming | |
| CS 5701 | Artificial Intelligence | |
| CS 5731 | Evolutionary Computation | |
| CS 5712 | Machine Learning | |
| MATH 4280 | Numerical Methods | |
| MATH 4510 | Probability Theory | |
| MATH 4520 | Mathematical Statistics | |
| MATH 5380 | Stochastic Models | |
| PLSC 5420 | Biochemistry | |
| PLSC 5880 | Genetic Engineering | |
| PHYS 5330 | Statistical Mechanics | |
| STAT 5190 | Multivariate Analysis | |
| STAT 5650 | Computer Intensive Statistics | |
| Total Hours | | 12 |

Courses to total 12 credits for this certificate

¹ Three credits in a different area than the student's disciplinary focus. This course must be approved by the BCB director or another member of the BCB governing board.

1. The student will demonstrate an augmented understanding in bioinformatics, mathematics, and computational sciences.
2. The student will have the capability to participate in interdisciplinary research and industry projects and be able to explain Bioinformatics and Computational Biology (BCB) concepts (from the biological, mathematical, and computational sciences) to people with widely varying backgrounds, from professionals in other fields to lay people.
3. The student will use and understand a common 'language' that allows those with a background in one of the BCB disciplines to communicate and collaborate in interdisciplinary projects with colleagues from other disciplines.