

# Graduate Certificate in Bioinformatics

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This certificate program will provide bioinformatics training for students from diverse backgrounds with interests in applications of mathematics and computer programming in biology. With an interdisciplinary approach, students will be introduced to the use of computational skills, mathematical modeling, and computing techniques to study biology relevant to basic and biomedical sciences in agricultural, environmental, or health-related areas. The training is appropriate for those who have taken introductory courses in biology, mathematics, and computer programming during their undergraduate studies.

## Admission Requirements

Admission to the program requires admission to the Graduate School. Prerequisites to admission include Molecular Cell Biology (BIOL 3314), Elementary Data Structures (CS 2401), and Elementary Statistical Methods (STAT 2480), or equivalents, with a minimum grade of "B" in each course.

## Degree Plan

This certificate program requires completion of 15 credit hours of courses: Bioinformatics I (BINF 5351), Bioinformatics II (BINF 5352), plus 6 credit hours of elective courses from a prescribed list, and a 3-credit hours free elective course approved by the graduate advisor.

Code	Title	Hours
<b>List of Prescribed Elective Courses</b>		
BINF 5110	Biology Seminar/Bioinformatics	1
BINF 5111	Chem. Sem. for Bioinformatics	1
BINF 5112	CS Seminar for Bioinformatics	1
BINF 5113	Math Sem. for Bioinformatics	1
BINF 5341	Anal./Model of Bio Structures	3
BINF 5354	Post-Genomic Analysis	3
BIOL 5316	Biosystematics	3
BIOL 5326	Advances Immunological Concept	3
BIOL 5329	Physiology of Bacterial Cell	3
BIOL 5340	Structure/Funct Macromolecules	3
BIOL 5344	Molecular Pathogenesis	3
CHEM 5329	Contem Topics Organic Chemistr	3
CHEM 5339	Contemp Topics in Biochemistry	3
CS 4342	Database Systems	3
CS 5341	Advanced Computer Architecture	3
CS 5350	Advanced Algorithms	3
CS 5351	Interval Computations	3
MATH 5330	Comp Methods of Linear Algebra	3
MATH 5335	Techniques in Optimization	3
STAT 5329	Statistical Programming	3
STAT 5336	Categorical Data Analysis	3
STAT 5386	Stochastic Processes	3
STAT 5388	Multivariate Data Analysis	3
STAT 5391	Time Series Analysis	3
STAT 5392	Statistical Computing	3
STAT 5428	Intro to Statistical Analysis	4