

**BIOINFORMATICS**

Biology in the 21st century is no longer purely laboratory-based, but is becoming an information-based science as well. Bioinformatics is an area of science that incorporates computational approaches to solving biological problems. Bioinformaticists must organize a phenomenal amount of biological sequence information. The information may be used to identify how genetic information is related, and the laboratory scientist can design experiments to test these connections. Laboratory scientists, in turn, generate enormous amounts of data that Bioinformaticists must organize and make available to other biologists around the world. This degree and certificate are the result of collaboration between the CTIS and BIO/Health divisions. It is a joint offering. Program information, admission criteria details and counseling information can be found at the Bioinformatics website www.foothill.fhda.edu/biolprograms/bioinfo/.

CAREER OPPORTUNITIES

The field of Bioinformatics is rapidly evolving and growing. New methods of storing and accessing data are needed for Biologists to make efficient use of the data. Students who complete this certificate will be suitable for entry-level positions in biotech or pharmaceutical companies that use computers to analyze biological data.

ASSOCIATE DEGREE REQUIREMENTS*

The Associate of Science degree in Bioinformatics requires the following:

- English proficiency: English 1A, or ESL 26, or equivalent.
- Mathematics proficiency: Math 103/105, or equivalent.
- A minimum of 90 total units including:
 - All General Education requirements (see reverse)
 - BIOL 12 Human Genetics (4 Units)
OR BIOL 1D Molecular Genetics (4 Units)
 - A Career Certificate in Bioinformatics (see below)
 - Other electives and graduation requirements as appropriate

CAREER CERTIFICATE REQUIREMENTS (48 units)***Prerequisites**

To enter the program, the following classes, or their equivalent, are required:

CIS 50A	Using the computer: PC (Windows)	(5 units)
COIN 51	Fundamentals of Internet technology	(5 units)
MATH 101	Algebra I	(5 units)
English 110,	or ESL 25 or equivalent	(5 units)

Required Courses

- All core classes in mathematics (5 units)
- All core classes in Biotechnology (13 units)
- BTEC 66 HPLC recommended not required (2 units)
- All core classes in Computer Science (30 units)

Biotechnology core classes (13 units)

BTEC 51A	Cell Biology for Biotechnology	(3 units)
BTEC 52A	Molecular Biology for Biotechnology	(3 units)
BTEC 65	DNA Electrophoretic Systems	(1 unit)
BTEC 68	Polymerase Chain Reaction	(1 unit)
BTEC 71	DNA Sequencing & Bioinformatics	(2 units)
BTEC 76	Intro to Microarray Data Analysis	(2 unit)
BTEC 64	Protein Electrophoretic Systems	(1 unit)

Math core classes (5 units)

MATH 10	Statistics	(5 units)
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Computer Science core classes (30 units)

CIS 27A	Computer Science I: JAVA	(5 units)
CIS 52A	Intro to data management Systems	(5 units)
CIS 52B	Introduction to Oracle SQL	(5 units)
CIS 68A	Introduction to Linux and UNIX	(5 units)
CIS 68E	Introduction to Perl	(5 units)
COIN81	Bioinformatics Tools and Databases	(5 units)

* A grade of C or better is required in all major classes. All courses pertaining to the major must be taken for a letter grade. In addition, a GPA of 2.0 or higher is required in all Core and Support courses for the Degree.

Academic Year 2007-2008