Bioinformatics Concentration (9376)

Associate of Applied Science Degree

Bioinformatics develops and uses computer software to analyze and manage biological data. Bioinformatics is fundamental to modern biological research and to the development of individualized medicine that will combine genome analysis, medical records, and results of clinical trials and research to tailor treatments and prevention regimen. Graduates of this program will fill the need for scientists with knowledge of biology, genetics, molecular biology, database management, and computer programming. This program is a hybrid technical program that contains approximately equal amounts of Lakeland's biotechnology science and information technology/ computer science courses. Job opportunities include biology and biomedical research, healthcare, and biomedical informational services sectors.

A minimum GPA of 2.0 and a grade of "C" or above is required for all science, math and program specific courses. Satisfactory/ Unsatisfactory grades may not be used to fulfill health program requirements.

ADMISSION PROCEDURES

Students must meet specific admission requirements for this program. The admission requirements for the Bioinformatics program are:

- Complete college application(s)
- Submit high school transcript as well as any college transcript(s)
- Meet with the Biotechnology Science program director to obtain a program application form
- Meet with a counselor to review program prerequisites and requirements
- Completion of high school chemistry with a grade of "C" or above or successful completion of CHEM 1100 Elementary Chemistry I: Intro to Inorganic Chemistry
- Successful completion of MATH 0950 Intermediate Algebra or placement into MATH 1650 College Algebra (A)
- Successfully complete the CIS Tech Prep program OR have waived with equivalent high school or college coursework the following course:
  - ITIS 1005 Computer Essentials or ITIS 1007 Principles of Information Technology and Computer Science

OR

Complete ITIS 1005 Computer Essentials or ITIS 1007 Principles of Information Technology and Computer Science with a grade of "C' or better

Course	Title	Credit Hours
First Semester		
BIOL 1510	Principles of Biology I	4
CHEM 1500	General Chemistry I	5
ENGL 1110 or ENGL 1111	English Composition I (A) [1] or English Composition I (B)	3
FYEX 1000	First Year Experience	1
Select course(s) from the Arts and Humanities Electives list		3
	Credit Hours	**16**
Second Semester		
BIOS 1500	Introduction to Biochemistry	4
ITCS 1010	Programming Logic	3
ITON 1205	Network+ and Networking Essentials	2
Select course(s) from the Related Electives list		4
	Credit Hours	**13**
Summer		
ITDB 1401	SQL Programming and Database Design	3
ITIS 1520	Microsoft Office Excel: Skills and Techniques	3
	Credit Hours	**6**

Third Semester		
BIOS 2500	Recombinant DNA Technology	4
ITCS 1870	Python Programming I	3
ITDB 1405	Oracle PL/SQL Programming	2
ITON 1748	Linux Administration I	3
MATH 1550	Statistics (A)	4
	Credit Hours	**16**
Fourth Semester		
BIOS 2400	Tissue Culture	3
BIOS 2550	Introduction to Bioinformatics	1
BIOS 2700	Internship	3
BIOS 2800	Biotechnology Science Seminar	1
COMM 1000	Effective Public Speaking	3
Select course(s) from the Social and Behavioral Science Electives list		3
	Credit Hours	**14**
	Total Credit Hours	**65**

[1] English course selection is based on placement test results (ENGL 1111 English Composition I (B) is 4 credits, only 3 credits apply to the degree).

This course is designated as a technical course in the program. Students must earn a "C" grade or higher in the course to fulfill the college's graduation requirements policy.

ELECTIVES

Course	Title	Credit Hours
Related Electives		
BIOL 1520	Principles of Biology II	4
BIOL 2700	Microbiology	4
MATH 1650	College Algebra (A)	4
Arts and Humanities Electives		
ARTS 1120	Art Appreciation	3
ARTS 2220	Survey of Art I	3
ARTS 2230	Survey of Art II	3
ENGL 2250	Survey of American Literature I	3
ENGL 2260	Survey of American Literature II	3
ENGL 2280	Survey of British Literature I	3
ENGL 2290	Survey of British Literature II	3
HUMX 1100	Introduction to Humanities	3
MUSC 1200	Music Appreciation	3
MUSC 1215	World Music	3
MUSC 1800	Popular Music: Rock, Jazz, Country, and Hip-Hop	3
MUSC 2200	Music History and Literature I	3
MUSC 2250	Music History and Literature II	3
PHIL 1500	Introduction to Philosophy	3
PHIL 2000	Comparative Religion	3
PHOT 1000	History of Photography	3
Social and Behavioral Sciences Electives		
ANTH 1160	Introduction to Cultural Anthropology	3
ECON 1150	Basic Economics	3
ECON 2500	Principles of Macroeconomics	3
ECON 2600	Principles of Microeconomics	3
GEOG 1500	Introduction to Geography	3
GEOG 1600	World Regional Geography	3

HIST 1150	Western Civilization I: Antiquity Through the Reformation	3
HIST 1250	Western Civilization II: Age of Revolution Through the Present	3
HIST 2150	U.S. History: Colonization Through Reconstruction	3
HIST 2250	U.S. History: Reconstruction to the Present	3
POLS 1300	U.S. National Government	3
POLS 2500	Modern Political Ideologies	3
PSYC 1500	Introduction to Psychology	3
SOCY 1150	Principles of Sociology	3