

# Biology – Biotechnology

School of Arts and Sciences



Biotechnology is the application of scientific and engineering principles to the processing of materials by biological agents to provide goods and services. Those people most interested in biotechnology possess an interest in biology, scientific research, solving human problems and enjoy being on the “cutting edge” of technological advances. Biotechnologists work in a variety of disciplines including agriculture, environmental science, pharmacology, genetics and medicine.

The biotechnology program at Ursuline College is a joint program between Ursuline and Lakeland Community College. It is based on a 3:1 model where three years are spent at Ursuline College obtaining the requirements for a Bachelor of Arts degree in biology and one year is spent taking technology courses in Lakeland Community College's bioscience technology certificate program.

## Biotechnology

Students who are interested in careers in the rapidly expanding field of biotechnology will be able to combine hands-on technical experiences gained at Lakeland with the philosophical and traditional liberal arts science education offered by Ursuline College.

This degree can be completed in four years and students will have the opportunity to work with state of the art laboratory equipment and apparatus such as fluorescence microscopy, laminar flow cabinets, HPLC, PCR and biofermenters.

Option 1		
CH 103/L General Chemistry I & Lab		3/I
CH 104/L Chemistry II & Lab		3/I
BI elective (300 or 400 level)		4
Option 2		
CH 105/L Principles of Chemistry I		3/I
CH 106/L Principles of Chemistry II		3/I
CH 104/L Chemistry II & Lab or BIOS 1500 Intro to Biochemistry*		3/I
Biotechnology Requirements		
MAT 212 Statistics		3
BI 200/L Introductory Biology - Biodiversity, Form, Function and Ecology		3/I
BI 205/L Introductory Biology - Cells, Genetics, Energy Transfer and Evolution		3/I
BI 333/L Environmental Microbiology or 420 Molecular Biology		3/I 3
BI 430/L Cellular and Biochemical Processes		3/I
BI 435 Genetics		3/I
BI 400 Service Learning		1
BI 451 Departmental Seminar: Evolution		3
PH 260 Bioethics		3
11 credits at the BI 300/400 level		11
Lakeland Community College requirements for A.A.S. Bioscience technology		3I
<b>TOTAL CREDITS</b>		<b>81/82</b>

\*Subject to departmental approval

## Career Opportunities

Graduates of the Biology program pursue their interests in a variety of careers. Some obtain entry-level jobs to gain experience and develop their work skills; others seek additional education to enter specialized professional programs. Technologists must obtain clinical experience and become licensed to practice as professional audiologists, dietitians, occupational and physical therapists, perfusionists and as medical records technologists/administrators. Research biologists may work in academia, in government or in private research laboratories; industries also hire biologists to conduct research, do product development and testing. Similar post-graduate training enables individuals concentrating in environmental studies to obtain employment as environmental engineers, environmental attorneys and as health-safety analysts and inspectors. Often additional education and/or experience enables biology graduates to obtain more responsible positions with better compensation. Opportunities for biologists in education are as varied as those in technology and research. Teachers of biology are commonly employed in various educational institutions at the pre-college and college levels; museums, botanical gardens, aquariums, zoos, science centers and outdoor education programs offer the biology graduate many opportunities. Biologists are also employed by private corporations as training specialists to provide instruction and curriculum development as well as technical competence.

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