

BIOTECHNOLOGY

Program code: BIOT-AS

Location: Capital, Middlesex

Program Description

The Biotechnology Associate of Science Degree is designed to prepare students with a comprehensive background and laboratory technical skills for the purpose of immediate entry into laboratory positions.

Learning Outcomes

Successful graduates will have gained the following skills and knowledge, which will provide them with the flexibility to quickly adapt to a variety of employment or educational options in biotechnology and science.

1. Conduct themselves as laboratory technicians in a biotechnology laboratory with the basic skills and knowledge required to function effectively in a research setting, adherence to Good Laboratory Practices (GLP) and safety guidelines and procedures.
2. Demonstrate proficiencies in both basic and advanced principles of chemistry and biology that are required by a person working as a laboratory technician or planning to enter into a four-year college science program.
3. Explain the basic principles of genetics, molecular biology, cell biology, chemistry, biochemistry, and microbiology.
4. Employ sterile technique in the handling of microbial cultures with knowledge of what is safe and what is hazardous.
5. Prepare solutions and perform accurate measurements using precision instruments such as spectrometers and micropipettes.
6. Demonstrate skills in the use of molecular laboratory techniques including cloning to create recombinant deoxyribonucleic acid (DNA) constructs, polymerase chain reaction (PCR), protein purification, and immunoblotting.
7. Utilize computers to collect and analyze experimental data and to document data in clear and concise technical reports.
8. Evaluate biotechnology techniques that are utilized in original scientific research literature and communicate their significance using the appropriate scientific terminology.
9. Recognize the ethical issues that are relevant to the field of biotechnology.

This program has articulation agreements with the Biomolecular Sciences Program at Central Connecticut State University and the Biology and Biochemistry Programs at Eastern Connecticut State University.

Degree Requirements

Code	Title	Credits
General Education Courses		
ENG 1010	Composition	3
MATH 1200	Statistics I	3
Elective ARHX - Arts & Humanities Course		3-4
CHEM 1210	General Chemistry I	4
Elective SBSX - Social / Behavioral Science Course		3
COMM 1301	Public Speaking	3
CCS 1001	College and Career Success	3

Program Courses

Choose one of the following:		3-4
MATH 1012	Trigonometry with Embedded Algebra	
MATH 1600	College Algebra (Recommended)	
CHEM 1220	General Chemistry II	4
BIO 1210	General Biology I	4
BIO 1220	General Biology II	4
BIO 1810 or BIO 2822	Basic Techniques in Biotechnology Molecular Biotechniques	4
BIO 2350	Microbiology	4
ENG 1020 or ENG 1080	Composition II and Literature Composition II: Technical Writing	3
Choose one of the following: ¹		3-4
BIO 1809	Principles of Biotechnology	
BIO 2095	Biotechnology Internship	
Advanced Elective from list below		
Advanced Science Electives		
Choose two of the following:		8
BIO 2020 or CHEM 2410	Biochemistry Biochemistry	
BIO 2830	Advanced Techniques in Biotechnology	
BIO 2630	Molecular Genetics	
BIO 2840	Fundamentals of Biomanufacturing	
BIO 2865	Principles of Synthetic Biology	
CHEM 1120	Principles of Organic Chemistry and Biochemistry	
CHEM 2310	Organic Chemistry I	
CHEM 2320	Organic Chemistry II	
CHEM 2510	Instrumental Analysis	

Total Credits 59-62

¹ Students currently employed in the Biotechnology field may prefer to select an Advanced Science Elective.

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