

# BIOTECHNOLOGY CERTIFICATE

**Program code:** BIOT-CC

**Location:** Middlesex, Naugatuck Valley

## Program Description

The Biotechnology Certificate is designed to prepare students with technical skills for the purpose of entry into laboratory positions or to strengthen the skills of students currently employed in laboratory settings.

## Learning Outcomes

Successful graduates will have gained the following skills and knowledge, which can be applied to industrial or academic laboratory settings.

1. Conduct themselves as professional laboratory technicians capable of following laboratory 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.
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.
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 or polymerase chain reaction (PCR).
7. Utilize computers to collect and analyze experimental data and to document data in clear and concise technical reports.
8. Develop biotechnology techniques based on research in primary scientific literature.

## Certificate Requirements

Code	Title	Credits
<b>Required Courses</b>		
ENG 1020 or ENG 1080	Composition II and Literature Composition II: Technical Writing	3
Choose one of the following:		3-4
BIO 1809	Principles of Biotechnology	
BIO 2095	Biotechnology Internship	
Advanced Science Elective (choose from list below)		
BIO 1810 or BIO 2822	Basic Techniques in Biotechnology Molecular Biotechniques	4
<b>Advanced Science Electives</b>		
Internship students or students currently employed in the Biotechnology field may prefer to select an additional Advanced Science Elective.		
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
<b>Total Credits</b>	<b>18-19</b>

**Total Credits: 18**