



BIOTECHNOLOGY

PROGRAM DESCRIPTION

There are two Biotechnology programs: The Advanced Biotechnology Certificate (ABC), for applicants who hold a science degree, and the Biotechnology Laboratory Technician (BLT), which is an Associate of Applied Science degree. Both programs are designed to educate students in laboratory skills necessary for employment in various industry and research laboratories.

ADVANCED BIOTECHNOLOGY CERTIFICATE:

This certificate program prepares students to apply scientific principles and technical skills in support of a variety of laboratories. The program includes instruction in cGLP practices and procedures; techniques for analysis, testing and inspection; laboratory instrumentation and equipment operation and maintenance; laboratory and materials handling safety; and computer applications that would apply to the broad spectrum of biotechnology industries including health and medical, industrial and environmental, food and agriculture, as well as other emerging industries in the growing field of biotechnology. In short, this program teaches one how to work in a lab. **This advanced certificate program requires a prior degree award in a science field as well as specific science course work, or permission of the Director of Biosciences.**

BIOTECHNOLOGY LABORATORY TECHNICIAN AAS:

This Biotechnology Laboratory Technology curriculum prepares students who do not have a science background to acquire and apply scientific principles and technical skills in support of a variety of laboratories in the biotechnology arena. The program includes instruction in cGLP practices and procedures; techniques for analysis, testing and inspection; laboratory instrumentation and equipment operation and maintenance; laboratory and materials handling safety; and computer applications that would apply to the broad spectrum of biotechnology industries including research, health and medical, industrial and environmental, food and agriculture, biodiesel fuels, as well as other emerging industries in the growing field of biotechnology.



**THIS PROGRAM IS
SUSPENDED FOR
THE 2020-2021
ACADEMIC YEAR.**

PROGRAM OUTCOMES

- Demonstrate critical thinking skills and trouble-shooting abilities necessary to manage work in a biotechnology lab.
- Practice successful strategies to work with nucleic acids, evidenced by demonstrating the ability to transform bacteria with GFP.
- Possess the ability to maintain mammalian cell lines evidenced by demonstrated ability to resolve contaminated culture issues.
- Possess the knowledge and entry-level skills necessary to obtain recombinant proteins from a biomass.
- Demonstrate the ability to implement safety procedures relating to instrumentation and hazards of biotechnology labs.
- Make scientific presentations in a professional manner.

REAL JOBS available in: agriculture, wheat breeding, food science and safety, genetics, biofuels, molecular biology, diagnostics and pharmaceutical manufacturing.

ADMISSION REQUIREMENTS

Advanced Biotechnology Certificate: Degree in a Science field, Submit official transcripts & ABC Program Application, and schedule interview with the Director of Bioscience

Biotechnology Laboratory Technician AAS: Completion of prerequisite courses, Submit official transcripts & BLT Program application, and schedule interview with the Director of Bioscience

Biotechnology Course Curriculum

Associates in Applied Science

65 Credit Hours

Pre-Requisite ** Lab Required		18 Credit Hours
COURSE NO.	COURSE TITLE	CREDITS
BSC 110	Biology **	5
BSC 205	Microbiology **	5
CHM 110	Chemistry **	5
MAT 110	Intermediate Algebra or higher	3

Above must have been taken within 5 years of acceptance into program.

Technical Specialty Courses 33 Credit Hours

COURSE NO.	COURSE TITLE	CREDITS
BIO 210	Laboratory Operations **	4
BIO 225	Laboratory Safety **	2
BIO 226	Laboratory Safety Lab	1
BIO 250	Biotechnology Techniques **	3
BIO 251	Biotechnology Techniques Lab	2
BIO 260	Molecular Techniques **	2
BIO 261	Molecular Techniques Lab	3
BIO 270	Cell Culture Techniques **	2
BIO 271	Cell Culture Techniques Lab	3
BIO 280	Biomanufacturing Techniques **	2
BIO 281	Biomanufacturing Techniques Lab	3
BIO 290	Biotechnology Internship	5
EMP 1901	Global Employment Standards	1

** Online Course

Suggested Technical Electives 5 Credit Hours

COURSE NO.	COURSE TITLE	CREDITS
BIO 230	Biohazardous Risk Reduction	2
BUS 141	Medical Terminology	3
CIS 116	Database Management	2
CIS 100	Software Applications	3
CRT 100	Principles of Information Assurance	1
ALH 101	Phlebotomy	3
NTR 105	Nutrition	3
WLD 110	Welding Metallurgy	1
MAT 145	Elementary Statistics	3

† Additional Technical Elective listed in [back of catalog](#); see an advisor for more information

General Education Requirements 9 Credit Hours

COURSE NO.	COURSE TITLE	CREDITS
English		3 Required
COM 105	English Composition I	3
Additional General Education		6 Required

General education elective list is located on [page 028](#).

Certificate B Requirements

32 Credit Hours

Technical Specialty Courses		32 Credit Hours
COURSE NO.	COURSE TITLE	CREDITS
Fall Semester		
BIO 210	Laboratory Operations **	4
BIO 225	Laboratory Safety **	2
BIO 226	Laboratory Safety Lab	1
BIO 250	Biotechnology Techniques **	3
BIO 251	Biotechnology Techniques Lab	2
Spring Semester		
BIO 260	Molecular Techniques **	2
BIO 261	Molecular Techniques Lab	3
BIO 270	Cell Culture Techniques **	2
BIO 271	Cell Culture Techniques Lab	3
Summer Semester		
BIO 280	Biomanufacturing Techniques **	2
BIO 281	Biomanufacturing Techniques Lab	3
BIO 290	Biotechnology Internship	5

** Online Course