

BIOTECHNOLOGY (A.S.)

ASSOCIATE OF SCIENCE

Biotechnology utilizes biological systems or living organisms to create products and solve real-world problems. From employing bacteria to produce human insulin, to genetically changing a patient's own immune system cells so they can better fight cancer, the biotech industry continues to expand and innovate. The Associate of Science Degree for Biotechnology is aimed at preparing students for positions in the biotechnology industry, including biological technicians and biomanufacturing production technicians. Students must demonstrate knowledge of basic biochemistry and biotechnology concepts, and industrial regulations. The program will produce conscientious technicians that can navigate the high demand, professional, and interdisciplinary environment of the biomanufacturing and related fields.

Program Student Learning Outcomes

- Demonstrate the importance of maintaining a safe and productive work environment through utilizing safety data sheets, appropriate personal protective equipment, and following relevant safety guidelines and procedures.
- Safely operate and troubleshoot standard industry equipment and instrumentation.
- Perform calculations related to solution preparation and data analysis.
- Aseptically grow and maintain microbial cell cultures.
- Explain and apply the processes in the biomanufacturing industry.
- Understand and distinguish between the different types of documents used in the industry for recording and maintaining data and procedures and apply the principles of Good Documentation Practices when working with these documents.
- Explain and follow the guidelines outlined in Good Manufacturing Practices and Good Laboratory Practices.
- Perform and understand the concepts of techniques involving nucleic acid and protein purification and separation.

Program Requirements

Code Number	Course Title	Units
Required Courses		
BIOL 120	Introduction To Biological Science	4.0
MATH 112	Elementary Statistics	4.0
ET 103	Industrial Process Control	2.0
CHEM 110	Elementary Chemistry	4.0
BTEC 120	Introduction to Biotechnology	4.0
CHEM 111	General Chemistry	5.0
CHEM 112	General Chemistry	5.0
BTEC 150	Biomanufacturing Fundamentals	4.0
BTEC 180	Quality and Regulatory Affairs in Biotechnology	3.0
BIOL 201	Principles of Biology	5.0
Total Units		40

ASSOCIATE OF SCIENCE REQUIREMENTS

Completion of a minimum of 60 semester units to include (1) the courses listed above, (2) the AA degree general education requirements, and (3) a grade of "C" or better in all courses required by major