Biotechnology, AAS

Program Description

The Associate of Applied Science Degree in Biotechnology will train students to harness cellular and molecular processes in living & non-living organisms to develop technologies and products that help improve lives and the health of the planet. Students accomplish this through an interdisciplinary study of relevant science disciplines, including the biological sciences, chemical sciences, and biotechnology.

This program provides knowledge and experience through lecture and laboratories that immerses students in the biotechnology field's ever-evolving techniques, protocols, practices, and careers, qualifying them for entry-level positions in the biotechnology industry. This degree is specifically designed for students transferring with a Biotechnology Certificate from Dixie Tech looking continue their education and earn an AAS degree. Students will analyze and solve problems associated with biotechnology in medicine, agriculture, livestock, the environment and other related sectors. Local support for this program comes from the following local biotechnology companies, Soft Cell Biological Research, Soft Cell Laboratories, Intermountain- Precision Genomics, Red Mesa Science and Refining, Deseret Laboratories, and Gene Stat. These companies will provide internships, mentorship, and employment opportunities for students in the program. Ultimately, we see the program creating a pipeline for the local and regional biotechnology industry.

Program Curriculum

63 credits

GENERAL EDUCATION & INSTITUTIONAL REQUIREMENTS

The required General Education courses for the Associate of Applied Science degree at Utah Tech include a course in English, Quantitative Reasoning and Human Relations.

Code	Title	Hours
General Education Requirement		
COMM 2110	Interpersonal Communication (SS, GC)	3
or PSY 1010	General Psychology (SS, GC)	
ENGL 1010	Introduction to Writing (EN)	3-4
or ENGL 1010D	Introduction to Writing (EN)	
General Education (Fine Arts)		3

Biotechnology Requirements

Code	Title	Hours
BIOL 1610 & BIOL 1615	Principles of Biology I (LS) and Principles of Biology I Lab (LAB)	5
BIOL 2060 & BIOL 2065	Principles of Microbiology and Principles of Microbiology Lab	4
BIOL 2890R	Introductory Life Science Internship	2
BTEC 1010	Fundamentals of Biotechnology	3
BTEC 2010	DNA Methods and Analysis	2
BTEC 2020	Protein Purification and Analysis	2
BTEC 2030	Cell Culture Techniques	2
BTEC 2040	Advanced Nucleic Acids Laboratory	3
CHEM 1210 & CHEM 1215	Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB)	5
MATH 1050	College Algebra / Pre-Calculus (MA) (or higher)	4
Total Hours		**32**

Graduation Requirements

1. Complete a minimum of 63 college-level credits (1000 and above).
2. Complete at least 20 semester hours of credits at Utah Tech for institutional residency.
3. Cumulative GPA of 2.0 or higher

Graduation Plan

1st Year

Fall Semester	Hours	Spring Semester	Hours
BIOL 1610 & BIOL 1615	5	BIOL 2060 & BIOL 2065	4
BTEC 1010	3	ENGL 2010	3
ENGL 1010	3	MATH 1050	4
SSC 1010	2	BTEC 2010	2
General Education (Fine Art) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3	GE Electives	2
	16		**15**

2nd Year

Fall Semester	Hours	Spring Semester	Hours
BTEC 2030	2	BTEC 2040	3
GE Elective (Social/Behavioral Sciences)	3	BIOL 2890R	2
Elective	3	GE Elective (Literature/Humanities)	3
GE Elective (American Institutions)	3	General Elective	3
CHEM 1210 & CHEM 1215	5	General Elective	2
		BTEC 2020	2
	16		**15**

Total Hours 62

AAS Biotechnology Program Learning Outcomes

At the successful completion of this program, students will be able to:

1. Outline the foundational concepts of biology including cellular, organismal, ecological, and evolutionary biology.
2. Apply laboratory techniques used in molecular biology, industry, and careers in biotechnology.
3. Analyze scientific data and interpret results..
4. Integrate knowledge of biology, biotechnology, and ethics in oral and written assignment.
5. Apply critical thinking to assess existing and emergent biotechnology techniques, protocols and discoveries.