

**Associate of Science Degree
Certificate of Accomplishment
Biotechnology 30.5-31 Units**

The field of biotechnology (a field of applied biology that involves the use of living organisms and bioprocesses in engineering, technology, medicine, and other applications) touches nearly every aspect of each of our lives.

An associate of science degree may be earned by completing a minimum of 60 units of degree credit coursework, including the major requirements and breadth requirements, with a minimum grade point average of 2.0. Students must complete all courses for the major with a grade of C or better. The Biotechnology A.S. degree is appropriate for students wishing to obtain entry-level employment in the biotechnology industry while preparing to advance their career by transferring to a 4-year university.

Required core biotechnology courses: (20 units)

3 units	BIOSC 172	Introduction to Biotechnology
3 units	BIOSC 157	Foundations in Biotechnology
1 unit	BIOSC 159	Foundations in Biotechnology Lab
4 units	BIOSC 147	Cell and Molecular Biology
5 units	CHEM 120	General College Chemistry
4 units	ENGL 1A	Composition and Reading

Plus 4 units from the following laboratory courses:

4 units	BIOSC 148	General Microbiology
1 unit	BIOSC 182	GLP and GMP; Principles and Compliance
1 unit	BIOSC 183	Mammalian Cell Culture
1 unit	BIOSC 184	ELISA Methodology and Assay Development
1 unit	BIOSC 185	Polymerase Chain Reaction, Theory and Application
1 unit	BIOSC 186	Protein Purification and Analysis
1 unit	BIOSC 187	DNA Manipulation and Cloning
2 units	BIOSC 172L	Introduction to Biotechnology Lab

Plus 3 units the following business and communication courses:

3 units	SPCH 120	Public Speaking
3 units	ENGL 166	Technical Communication
3 units	BUS 125	Report Writing
3 units	BUS 120	Introduction to Management
3 units	BOT 248	Business Correspondence

Plus 3.5-4 units the following computer and data proficiency courses:

4 units	MATH 164	Introduction to Probability and Statistics
4 units	CIS 135	Introduction to Computers
3.5 units	CIS 200	Microsoft Access/Information Processing
3.5 units	CIS 201	Microsoft Excel/Information Processing

**Certificate of Achievement
Biotechnology Technician 16.5-17 Units**

A certificate of achievement may be earned by completing all the courses required for this certificate with a grade of C or better. The Biotechnology Technician Certificate of Achievement provides classroom and hands-on laboratory training needed for entry-level employment in the areas of manufacturing, quality control, quality assurance, and research and development in the biotechnology industry.

Required core biotechnology courses: (7 units)

3 units	BIOSC 172	Introduction to Biotechnology
3 units	BIOSC 157	Foundations to Biotechnology
1 unit	BIOSC 159	Foundations in Biotechnology Lab

Plus 3 units from the following advanced laboratory courses:

4 units	BIOSC 147	Cell and Molecular Biology
4 units	BIOSC 148	Microbiology
1 unit	BIOSC 182	GLP and GMP; Principles and Compliance
1 unit	BIOSC 183	Mammalian Cell Culture
1 unit	BIOSC 184	ELISA Methodology & Assay Development
1 unit	BIOSC 185	Polymerase Chain Reaction, Theory and Applications
1 unit	BIOSC 186	Protein Purification and Analysis
1 unit	BIOSC 187	DNA Manipulation and Cloning

Plus 3 units from the following business and communication courses:

3 units	SPCH 120	Public Speaking
3 units	ENGL 166	Technical Communication
3 units	BUS 125	Report Writing
3 units	BUS 120	Introduction to Management
3 units	BOT 248	Business Correspondence

Plus 3.5 -4 units from the following computer and data proficiency courses:

4 units	CIS 135	Introduction to Computers
4 units	MATH 164	Introduction to Probability and Statistics
3.5 units	CIS 200	Microsoft Access/Information Processing
3.5 units	CIS 201	Microsoft Excel-Information Processing