



## Biotechnology

Associate in Science | Code: 22027 | 61 credits

CIP (1341010100)

Effective Term: Fall 2024 (2247)

The Biotechnology Program will expose students to a breadth of topics and emphasizes hands-on learning in a variety of techniques and procedures necessary for employment in the bioscience industry. The Program includes modules designed to enhance critical thinking and technical communication skills. It focuses on developing broad transferable skills and stresses understanding and demonstration of laboratory/industry protocols and regulations, bio-safety and safe operating procedures, ethical and environmental issues, product generation/formulation, quality control, validation, instrumentation, and computing.

### GENERAL EDUCATION REQUIREMENTS (15.00 Credits)

#### **COMMUNICATIONS (3.00 credits)**

ENC 1101	English Composition 1	(3 credits)	Prerequisite: Student must meet the Developmental Education reading and writing requirements in State Rule 6A- 10.0315 (by course, placement score, or eligible exemption).
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#### **HUMANITIES (3.00 credits)**

HUM 1020	Humanities	(3 credits)
PHI 2010	Introduction to Philosophy	(3 credits)

#### **MATHEMATICS (3.00 credits)**

MAC 1105	College Algebra	(3 credits)	Prerequisite: MAT 1033*
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\*Note: Students must seek advisement for proper mathematics course from discipline chairperson.

#### **NATURAL SCIENCE (3.00 credits)**

BSC 2010	Principles of Biology	(3 credits)	Pre/Corequisite: CHM 1045; Corequisite: BSC 2010L
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#### **SOCIAL SCIENCE (3.00 credits)**

AMH 2010	History of the US to 1877	(3 credits)
AMH 2020	History of the US since 1877	(3 credits)
POS 2041	American Federal Government	(3 credits)

### COMPUTER COMPETENCY

Test type(s) needed:

Computer Competency Test (CCT)

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CGS 1060C	Introduction to Computer Technology & Applications
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### MAJOR COURSE REQUIREMENTS (23.00 credits)

BSC 2010L	Principles of Biology 1 Laboratory	(2 credits)	Corequisite: BSC 2010
BSC 2426	Biotechnology Methods and Applications 1	(3 credits)	Corequisite: BSC 2426L
BSC 2426L	Biotechnology Methods & Applications 1 Laboratory	(2 credits)	Corequisite: BSC 2426
BSC 2427	Biotechnology Methods and Applications 2	(3 credits)	Prerequisites: BSC 2426, BSC 2426L; Corequisite: BSC 2427L
BSC 2427L	Biotechnology Methods & Applications 2 Laboratory	(2 credits)	Prerequisites: BSC 2426, BSC 2426L; Corequisite: BSC 2427
BSC 2943L	Bioscience Internship	(3 credits)	
CHM 1045	General Chemistry and Qualitative Analysis	(3 credits)	Prerequisite: CHM1025 or a passing score on the CART exam, MAC 1105; Corequisite: CHM 1045L

CHM 1045L	General Chemistry and Qualitative Analysis Lab	(2 credits)	Prerequisite: MAC1105, CHM1025 or a passing score on the CART exam; Corequisite: CHM 1045
STA 2023	Statistical Methods	(3 credits)	Prerequisites: MAT 1033 or MGF 1131
<b><u>MAJOR COURSE ELECTIVE (23.00 credits)</u></b>			
BSC 2423C	Methods & Applications of Cell Culture & Protein Biotechnology	(4 credits)	Prerequisites: BSC 2427, BSC 2427L
CHM 1025	Introductory Chemistry	(3 credits)	Prerequisite: MAT 1033*
CHM 1046	General Chemistry and Qualitative Analysis	(3 credits)	Prerequisite: CHM 1045; Corequisite: CHM 1046L
CHM 1046L	General Chemistry & Qualitative Analysis Laboratory	(2 credits)	Prerequisite: CHM 1045L; Corequisite: CHM 1046
CHM 2200	Survey of Organic Chemistry	(3 credits)	Prerequisite: CHM 1046; Corequisite: CHM 2200L
CHM 2200L	Survey of Organic Chemistry Laboratory	(1 credits)	Prerequisite: CHM 1046L; Corequisite: CHM 2200
CHM 2210	Organic Chemistry 1	(3 credits)	Prerequisite: CHM 1046; Corequisite: CHM 2210L
CHM 2210L	Organic Chemistry 1 Laboratory	(2 credits)	Prerequisite: CHM 1046L; Corequisite: CHM 2210
CHM 2211	Organic Chemistry 2	(3 credits)	Prerequisite: CHM 2210; Corequisite: CHM 2211L
CHM 2211L	Organic Chemistry 2 Laboratory	(2 credits)	Prerequisite: CHM 2210L; Corequisite: CHM 2211
ETI 1040	Introduction to Bioscience Manufacturing	(3 credits)	
ETI 1040L	Introduction to Bioscience Manufacturing Lab	(2 credits)	Corequisite: ETI 1040
ETI 1172	Introduction to Quality Assurance	(3 credits)	
CGS 1021	Scientific Computing	(4 credits)	Corequisite: STA 2023
MAT 1033	Intermediate Algebra	(3 credits)	Prerequisites: MAT0022C, or MAT0028, Or MAT0057 or by placement score, or eligible exemption.
MCB 2010	Microbiology	(3 credits)	Prerequisites: BSC 2010, BSC 2010L or BSC 2085, BSC 2085L, CHM 1033, CHM 1033L, or CHM 1045, CHM 1045L
MCB 2010L	Microbiology Laboratory	(2 credits)	Prerequisites: BSC 2010, BSC 2010L or BSC 2085, BSC 2085L, CHM 1033, CHM 1033L, or CHM 1045, CHM 1045L Corequisite: MCB 2010
PCB 2061	Genetics	(3 credits)	Prerequisite: BSC 2010, BSC 2010L

♦**Note:** Students must seek advisement for proper mathematics course from discipline chairperson.