

Biotechnology 2008-2009

The Biotechnology program is designed to prepare students to work as Biotechnology technicians in this rapidly expanding field that includes research and development, quality control, manufacturing, or related areas. Biotechnology is a broad term spanning several different disciplines. Specific career opportunities could require skills related to genetic engineering of plants or microorganisms, gene therapy to correct human health problems, DNA fingerprinting, vaccine development, or production of food, drugs and other consumer products.

The program is structured to allow students to develop marketable job skills while incorporating the requirements for a two-year liberal arts degree. Most of the credits will transfer to four-year institutions. The program includes many lab-based courses, which enables students to apply what they learn in chemistry, math and statistics, biology, microbiology, genetics and molecular biology. Specific skills such as written and oral communications, critical thinking, problem-solving, computer skills and small group collaboration are an integral part of the program. Students participate in internships in cooperation with potential employers.

Students planning to transfer to a four-year program after completion of this program should take CHM 165 and 175 instead of CHM 122 and 132. CHM 263 and 273 may also be taken depending on the program being considered. In addition, many four-year programs will require calculus (MAT 211 and/or 217), and physics (PHY 213 and 223) which can be taken at DMACC. Additional credit hours in humanities and the social sciences may also be helpful. Please check with the program chairperson for Biotechnology or an advisor for additional information or assistance.

Locations: Ankeny

Selected courses in this program are offered at other campuses

Program Entry Requirements

Complete an application, satisfy the assessment requirement and attend any required information/registration session. In addition, students must complete:

1. One year of high school chemistry or Academic Achievement Chemistry I & II or successful completion of CHM 122
2. Two years of high school algebra or MAT 063 and MAT 073
3. Demonstration of satisfactory writing skills on college entrance or assessment exam.

Students start fall or spring term.

Graduation Requirements

To earn a Biotechnology AS degree, a student must complete all course work as prescribed and maintain a 2.0 grade point average.

Required Courses

BIO 104	Introductory Biology w/Lab	3
ENG 105	Composition I	3
BIO 112	General Biology I	4
ENG 106	Composition II	3
MAT 157	Statistics	4
BIO 113	General Biology II	4
BIO 187	Microbiology w/Lab	4
SPC 101	Fundamentals of Oral Communication	3
BIO 250	Cell & Molecular Biology-Nucleic Acids	5
BIO 251	Cell and Molecular Biology-Proteins	5
BIO 146	Genetics	3
BIO 249	Biotechnology Internship	3

Option Courses

Select 3 Credits from Option 1		
AA/AS Core Humanities	Opt 1	3
Select 6 Credits from Option 2		
AA/AS Core Social and Behavioral Sciences	Opt 2	6
Select 1 Course from Option 3		
CSC 110	Intro to Computers	Opt3 3
ENG 108	Comp II: Technical Writing	Opt3 3
Select 2 Courses from Option 4 OR 2 Courses from Option 5		
CHM 122*	Intro to General Chemistry	Opt4 4
CHM 132*	Intro Organic/Biochemistry	Opt4 4
CHM 165	General/ Inorg Chemistry I	Opt5 4
CHM 175	General/ Inorg Chemistry II	Opt5 4

*Students who plan to transfer to a four-year school should take CHM 165 and 175 in place of CHM 122 & 132.

Total minimum credits required to complete this program 64

PROGRAM INFORMATION BRIEF (CONT.)

Fixed Costs

Tuition \$ 107.00 per credit

The costs for each program are estimates and subject to change.

Varied Costs

	Term 1	Term 2	Term 3	Term 4	Term 5
Books (approximate)	430	330	280	230	180
Supplies	120	120	125	125	120

Approximate total for program: \$9,100.00

What Kind of Work Will You Do?

- Record, analyze, summarize and present data
- Properly use, calibrate and maintain laboratory equipment
- Prepare reagents and chemicals used in the laboratory
- Design and conduct basic laboratory experiments or processes
- Use current technology such as gel electrophoresis, chromatography, or protein and DNA analysis for research, manufacturing or quality control processes

What Skills and Abilities Will You Need?

- Critical thinking and problem solving
- Good interpersonal skills
- Ability to work effectively in groups or teams
- Effective oral and written communication skills
- Accuracy and attention to detail
- A good understanding of concepts of biology, chemistry, math and computers
- Self-motivation and ability to complete projects on time

What Else Should I Consider about this Program or Career Choice?

- This is a competitive and rapidly changing field. You need to continually learn new things and to keep your skills up to date.
- This field requires attention to detail and an ability to recognize and solve problems.
- Some parts of the job can be very repetitive.
- There is opportunity for advancement, but it will often require additional formal education in addition to demonstrated performance as described above.
- This is a rapidly growing field with more than 200 companies in Iowa searching for students trained in biotechnology. Many employing companies also provide financial support to employees who want to continue their formal education.
- Anticipated average starting salary \$24,960 (2006-2007 Placement Report)

Biotechnology (2008-2009)

RECOMMENDED HIGH SCHOOL COURSES:

Composition, Speech, Algebra I, Algebra II, Geometry, Trigonometry, Anatomy, Biology, Chemistry, Physics, Physiology, Principles of Technology, Psychology, Sociology, Computer Science, Keyboarding

Des Moines Area Community College shall not engage in or allow discrimination covered by law. This includes harassment based on race, color, national origin, creed, religion, gender, sexual orientation, age, and disability. Veteran status in educational programs, activities, employment practices, or admission procedures is also included to the extent covered by law. Individuals who believe they have been discriminated against may file a complaint through the College Discrimination Complaint Procedure. Complaint forms may be obtained from the Human Resources Department, the campus Provost's office, or the EEO/AA Officer. Persons who wish additional information or assistance may contact the EEO/AA Officer, Human Resources, Bldg. 1, 515-964-6301. For requests for accommodations, the Accommodation/Section 504/ADA Coordinator can be contacted at 515-964-6857.