



Biotechnology A.A.S.

Career Community: Science and Mathematics

Curriculum Code: 0212

Effective: Fall 2023 – Summer 2028

Description

The Biotechnology degree is a laboratory-intensive curriculum which emphasizes the wide-ranging applications of DNA technology including the preparation of gene libraries, Polymerase Chain Reaction forensic DNA methods and bioinformatics. Graduates will be able to work in many areas of biotechnology, such as human genetic disease research, improvement of disease-resistance in plants, enhanced crop production, pharmaceutical research, biological cleanup of environmental pollution, forensic science, or genome sequencing projects. Near the end of the degree the Science Department will make every effort to arrange for internships in university or industrial research laboratories for students who wish to gain further experience. If you plan to transfer to a four-year school, please see an academic advisor before enrolling. Not all courses in this program transfer to all colleges as equivalent. Students planning to transfer should see an academic advisor before enrolling in any course. This program is designed for students interested in molecular biology, biochemistry, genetics, biotechnology, and forensic technologies.

Milestone

In addition to the required General Education courses in Math and English, completion of BIOL 127, BIOL 203, BIOL 204, CHEM 151, and CHEM 161 with a 2.0 or higher is a key component for success in completing this program. Knowledge obtained in these courses is the foundation for learning in other required courses. Students are encouraged to contact their faculty if they need additional assistance with learning the concepts presented in these courses.

Additional Information

BIOL 260, BIOL 275, and CHEM 262 are only offered during Fall semester. BIOL 276 and ISCI 245 are only offered during Spring semester.

Contact Information

For further information, including career options, course substitutions and waivers, etc., contact the Science Department in the Arts and Sciences Building, Room 3203, telephone number 517-483-1092, or the Academic Advising Department, Gannon Building - StarZone, telephone number 517-483-1904.

General Education – Applied Degrees, Recommended Courses

(For the full list of options, see [General Education](#))

- English Composition or Applied English
Science and Mathematics Career Community Courses meet this requirement.
- English Composition (second course)/Communication or Applied Communication
Science and Mathematics Career Community Courses meet this requirement.

- Humanities and Fine Arts or Social Sciences or Applied Social Sciences Program of Study Required Courses meet this requirement.
- Mathematics or Applied Mathematics Science and Mathematics Career Community Courses meet this requirement.
- Natural Sciences Lab or Applied Science and Technology Lab Science and Mathematics Career Community Courses meet this requirement.

Science and Mathematics Career Community Courses - *These courses are required for all Science and Math programs. Some courses meet General Education requirements for Michigan Transfer Agreement (MTA).*

Course Code	Course Title	Credit / Billing Hours
ACAD 100	First-Year Experience	1 / 1
ANTH 270 or ECON 120 or ECON 201 or EDUC 204 or EDUC 220 or GEOG 120 or GEOG 200 or POLS 120 or POLS 240 or POLS 260 or PSYC 200 or SOCL 120	Cultural Anthropology Power, Authority and Exchange Principles of Economics-Micro Educational Psychology Introduction to Education Introduction to Geography World Regional Geography American Political System Introduction to Public Policy Comparative Political Systems Introduction to Psychology Introduction to Sociology	3 / 3 4 / 4 4 / 4 3 / 3 3 / 3 3 / 3 4 / 4 4 / 4 4 / 4 3 / 3 3 / 3 4 / 4 4 / 4
BIOL 120 or BIOL 127 or GEOL 221 or GEOL 230 or PHYS 251	Environmental Science Cell Biology Physical Geology Environmental Geology Physics I with Calculus	4 / 6 4 / 6 4 / 6 4 / 6 5 / 7
CHEM 151	General Chemistry Lecture I	4 / 4
CHEM 161	General Chemistry Lab I	1 / 3
COMM 120 or COMM 130 or ENGL 122 or ENGL 132	Dynamics of Communication Fundamentals Public Speaking Composition II Honors Composition II	3 / 3 3 / 3 4 / 4 4 / 4
ENGL 121 or ENGL 131	Composition I Honors Composition I	4 / 4 4 / 4
MATH 120 or MATH 126 or MATH 151	College Algebra Pre-calculus Calculus I	4 / 4 5 / 5 4 / 4

Notes:

ACAD 100 may be waived when students meet one of the following College-approved waiver criteria:

- Completion of 12 college-level credits with minimum grades of 2.0 shown on the LCC transcript (including transfer, if applicable), or
- Employment in the field of, or a field related to, the degree being sought, or
- For Health Careers students, successful completion of CHSE 100.

Students wishing to waive ACAD 100 should contact their

advisor. Choose BIOL 127 and MATH 126 for this degree.

Program of Study Required Courses

Course Code	Course Title	Credit / Billing Hours
BIOL 127	Cell Biology	4 / 6
BIOL 203	Microbiology	3 / 3
BIOL 204	Microbiology Laboratory	1 / 3
BIOL 270	Human Genetics	3 / 3
BIOL 275	Molecular Biology I	4 / 6
BIOL 276	Molecular Biology II	4 / 6
CHEM 151	General Chemistry Lecture I	4 / 4
CHEM 152	General Chemistry Lecture II	3 / 3
CHEM 161	General Chemistry Lab I	1 / 3
CHEM 162	General Chemistry Lab II	1 / 3
CHEM 251	Organic Chemistry Lecture I	4 / 4
CHEM 262	Quantitative Analysis	3 / 6
ISCI 245	S.T.E.M. Workplace Practices	4 / 6
MATH 126	Precalculus	5 / 5
STAT 215	Intro to Probability and Stats	4 / 4

Note: If BIOL 127, CHEM 151 and CHEM 161, and MATH 126 were completed as part of the Career Community block, do not repeat enrollment.

Program of Study Required Courses, Limited Choice – Select a minimum of 2 credits

Course Code	Course Title	Credit / Billing Hours
BIOL 128	Organismal Biology	4 / 6
BIOL 260	Botany	4 / 6
CHEM 252	Organic Chemistry Lecture II	4 / 4
CHEM 272	Organic Chemistry Laboratory	2 / 6
CITF 110	Intro Computer Info Systems	3 / 3
CJUS 210	Intro to Forensic Science	3 / 3
PHYS 221	Introductory Physics I	4 / 6
SCIN 287	Science Technology Internship	2-4 / 2-4

Minimum Total Credit Hours

60 credits / 73 billing hours

Recommended Course Sequence

Semester I (Fall)
ACAD 100
ENGL 121 or ENGL 131
CHEM 151 – Milestone course
CHEM 161 – Milestone course
MATH 126

Semester II (Spring)
COMM 120 or COMM 130 or ENGL 122 or ENGL 132
BIOL 127 – Milestone course
CHEM 152
CHEM 162
ISCI 245

Semester III (Summer)
ANTH 270, CHDV 101, ECON 120, ECON 201, ECON 213, ECON 260, EDUC 204, EDUC 220, GEOG 200, POLS 120, POLS 240, POLS 260, PSYC 200 or SOCL 120
STAT 215

Semester IV (Fall)
BIOL 203 – Milestone course
BIOL 204 – Milestone course
BIOL 275
CHEM 251
CHEM 262

Semester V (Spring)
BIOL 270
BIOL 276
Limited Choice

LCC makes every effort to limit revisions to the pathways during their effective timeframe. However, the College reserves the right to update certificate and degree title changes, and make course changes as needed, without prior notice.