

BIOTECHNOLOGY

Associate of Applied Science Degree

LO, MA

Purpose: This program is designed to prepare graduates for employment in entry-level positions at biotechnology and pharmaceutical companies, as laboratory, research, or manufacturing technicians. Coursework will develop an understanding of basic scientific principles in biology and chemistry, and will emphasize laboratory techniques and procedures such as solution and media preparation, DNA purification and analysis, electrophoresis, chromatography, maintenance of cells in culture, and quality control techniques.

Transfer Information: Transfer is **not** the primary purpose of an A.A.S. program, but NOVA has articulation agreements that facilitate the transfer of this and other career-oriented programs to selected senior institutions. Many of the courses within the program are accepted for transfer to almost any senior institution. Students interested in transfer should contact their faculty advisor early in their program.

Recommended Preparation: Students should be proficient in high school English, Algebra and Biology.

| Two Years | | Credits |
|----------------------|---|----------------|
| 1st Semester | | |
| BIO | 101 General Biology or BIO 173 Biology for Biotechnology | 4 |
| CHM | 111 College Chemistry I | 4 |
| ENG | 111 College Composition I | 3 |
| ITE | 115 Intro to Computer Applications & Concepts | 3 |
| SDV | 101 Orientation to Biotechnology | <u>1</u> |
| | Total | 15 |
| 2nd Semester | | |
| BIO | 170 Biotechnology Methods | 2 |
| BIO | 253 Biotechnology Concepts | 3 |
| CHM | 112 College Chemistry II | 4 |
| MTH | 157 Elementary Statistics | <u>4</u> |
| | Total | 13 |
| 3rd Semester | | |
| BIO | 205 General Microbiology | 4 |
| ¹ _____ | Social Science Elective | <u>3</u> |
| | Total | 7 |
| 4th Semester | | |
| BIO | 206 Cell Biology | 4 |
| ² _____ | Biotechnology Science Elective | 3 |
| ³ ENG | 115 Technical Writing | 3 |
| ⁴ PED/RPK | Elective | 2 |
| ¹ _____ | Social Science Elective | <u>3</u> |
| | Total | 15 |
| 5th Semester | | |
| ⁵ _____ | Biotechnology Applied Science Elective | 4 |
| ⁶ _____ | Biotechnology Experiential Learning Elective | 3 |
| BIO | 254 Capstone Seminar in Biotechnology | 2 |
| ⁷ _____ | Humanities/Fine Arts Elective | 3 |
| ⁸ SPD | 126 Interpersonal Communication | <u>3</u> |
| | Total | 15 |

Total credits for the A.A.S. Degree in Biotechnology = 65.

¹ The social science elective may be selected from the social/behavioral sciences courses listed under General Education Electives.

² Biotechnology elective in the science category may be selected from BIO 256 (General Genetics, 4 cr.), CHM 260 (Introductory Biochemistry, 3 cr.) or MDL 215 (Immunology, 2 cr.) Students who choose MDL 215 must take one additional credit in the Biotechnology Experiential Learning category.

³ Students who plan to transfer to a university may wish to consider taking ENG 112 College Composition II.

⁴ The PED requirement may be met by one of the following options: PED 116, 2 cr.; PED 116, 1 cr. plus a PED activities course, 1 cr.; or PED 116, 1 cr., plus any RPK activities course. PED 116 is offered as both a 1-credit and a 2-credit course.

⁵ Biotechnology elective in the applied science category may be selected from BIO 251 (Biotechnology I: Protein Research, 4 cr.) or BIO 252 (Biotechnology II: DNA Research, 4 cr.).

⁶ Biotechnology electives in the experiential learning category may be selected from BIO 290 (Coordinated Internship), BIO 296 (On-Site Training in Biotechnology), BIO 297 (Cooperative Education), BIO 298 (Seminar and Project), and BIO 299 (Supervised Study). A total of 3 credits in this category is required, from a combination of 1-3 credits in any of these courses.

⁷ Humanities/fine arts elective may be selected from the humanities/fine arts courses listed under General Education Electives.

⁸ Students can also substitute SPD 100, 110, 115, 227 or 229.