

BIOTECHNOLOGY, A.A.S.

Location(s): MA
NOVA Code: 1490

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 academic advisor early in their program.

Individuals wishing to enroll in the A.A.S. in Biotechnology should follow these steps for admission, starting at least one semester prior to when they wish to enroll in the program:

- Attend an information session or schedule an advising appointment with a Biotechnology academic advisor.
 - This can be completed prior to or after steps 2-4. Students are encouraged to seek information very early in the process.
- Apply to NOVA.
 - Students may choose to enroll in the A.S. in General Studies (<https://catalog.nvcc.edu/programs/general-studies-as/>) prior to their acceptance into the program.
- Take the College placement test for English and Mathematics in one of the College's Testing Centers (located on each campus).
- Complete pre-admission requirements for the program. Students applying to the A.A.S. program must have documentation of the following:
 - placement into college-level English (ENG 111 College Composition I),
 - placement into MTH 161 PreCalculus I or higher, and
 - completion of BIO 101 General Biology I with a "C" or better. Students who are currently enrolled in BIO 101 General Biology I may apply to the program and be admitted on a provisional basis after meeting with and if recommended by a biotechnology faculty advisor until their final grade is submitted. If a student has taken BIO 101 General Biology I or any of the course requirements at another institution, he/she must submit official transcripts and if applicable, foreign transcripts, and submit a formal evaluation of the courses/degree, along with a Request for Evaluation of Transcripts Form (125-049 (<https://dashboard.nvcc.edu/Eforms/125-049/>)), for each institution.
- Apply to the program.
 - Apply to the program by emailing the Biotechnology application form (<https://www.nvcc.edu/academics/programs/biotechnology/apply.html>) to Dr. Xin Zhou at xzhou@nvcc.edu. An advising session will be scheduled if not already completed.

Students will be notified within 2 - 4 weeks as to whether they have been accepted or not.

- Receive the *Biotechnology Program Handbook* and register for core biotechnology classes, BIO 250 Biotechnology Research Methods and Skills and BIO 253 Biotechnology Concepts.

Two Years

Course	Title	Credits
1st Semester		
BIO 101	General Biology I ¹	4
ENG 111	College Composition I	3
MTH 161	PreCalculus I (or Higher)	3
SDV 100 or SDV 101	College Success Skills or Orientation to:	1
Social/Behavioral Sciences Elective (https://catalog.nvcc.edu/general-education-electives/#ge_soc_beh_sci_elec)		3
Credits		14
2nd Semester		
CHM 111	General Chemistry I	4
ENG 112	College Composition II	3
Humanities/Fine Arts Elective (https://catalog.nvcc.edu/general-education-electives/#ge_hum_fa_elect)		3
Select one of the following:		4
BIO 102	General Biology II	
BIO 251	Protein Applications in Biotechnology	
BIO 252	Nucleic Acid Methods	
BIO 256	General Genetics	
Credits		14
3rd Semester		
CHM 112	General Chemistry II	4
Select one of the following CST Electives:		3
CST 100	Principles of Public Speaking	
CST 110	Introduction to Human Communication	
CST 126	Interpersonal Communication	
CST 229	Intercultural Communication	
Credits		7
4th Semester		
BIO 147	Basic Laboratory Calculations for Biotechnology	1
BIO 165	Principles in Regulatory and Quality Environments for Biotechnology	2
BIO 205	General Microbiology	4
BIO 250	Biotechnology Research Methods and Skills	3
BIO 253	Biotechnology Concepts	3
Credits		13
5th Semester		
BIO 180	Introduction to Careers in Biotechnology	1
BIO 206	Cell Biology	4
BIO 251 or BIO 252	Protein Applications in Biotechnology or Nucleic Acid Methods	4
BIO 254	Capstone Seminar in Biotechnology	2
BIO 255	Bioinformatics and Computer Applications in Biotechnology	2
Credits		13
6th Semester		
BIO 296	On-Site Training in: ²	3
Credits		3
Total Credits		64

Electives should be chosen with the advice of an academic advisor to meet the requirements of the intended transfer institution.

¹ Must complete with a "C" or better.

² Students must be approved by the Biotechnology program coordinator(s) for an internship. Criteria for approval include successful completion of biotechnology courses (including a demonstrated proficiency of basic lab skills), a professional work ethic, and an ability to work well with others. Please see a Biotechnology academic advisor for assistance in determining and placement or for approval of a topic for a Project or Supervised Study.