

Biochemistry and Molecular Biology Major

Major Requirements

Degree Type: B.A. or B.S.
Minimum Credits Required: 120

University Degree Requirements

For complete details on these and other university degree requirements, refer to the Degree and Graduation Requirements (<https://catalog.ndsu.edu/academic-policies/undergraduate-policies/degree-and-graduation/>) section in the University Catalog.

1. Minimum of 120 semester credits (some programs may exceed this minimum).
2. Complete the University General Education requirements.
3. Minimum institutional GPA of 2.00 based on work taken at NDSU.
4. Minimum of 30 credits in resident at NDSU.
5. Minimum of 36 upper level credits (courses numbered 300 or higher).
6. Students with transfer credit must meet the NDSU 30 credits in residence (#4). Of these 30 credits in residence, a minimum of 15 credits must be in courses numbered 300 or above, and 15 credits must be in the student's declared major curricula.

University General Education Requirements

A list of university approved general education courses along with the administrative policies governing the requirement and the categories is available here (<https://catalog.ndsu.edu/academic-policies/undergraduate-policies/general-education/>).

Code	Title	Credits
Category C: Communication		12
Category R: Quantitative Reasoning		3
Category S: Science and Technology		10
Category A: Humanities and Fine Arts		6
Category B: Social and Behavioral Sciences		6
Category W: Wellness		2
Category D: Cultural Diversity		
Category G: Global Perspectives		
Category L: Digital Literacy		
Total Credits		39

Major Requirements

Code	Title	Credits
Biochem & Molecular Biology Requirements		
BIOC 460	Foundations of Biochemistry and Molecular Biology I ²	3
BIOC 460L	Foundations of Biochemistry I Laboratory	1
BIOC 461	Foundations of Biochemistry and Molecular Biology II ²	3
BIOC 473	Methods of Biochemical Research ²	4
BIOC 474	Methods of Recombinant DNA Technology ²	3
BIOC 483	Cellular Signal Transduction Processes and Metabolic Regulations ²	3
BIOC 487	Molecular Biology of Gene Expression	3
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory ¹	4
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory ¹	4
CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	4

CHEM 342 & 342L	Organic Chemistry II and Organic Chemistry II Laboratory	4
CHEM 380	Chemistry and Biochemistry Junior Seminar	1
CHEM 431	Analytical Chemistry I	3
CHEM 491		2
ENGL 321 or ENGL 324	Writing in the Technical Professions Writing in the Sciences	3
MATH 165	Calculus I	4
MICR 350 & 350L	General Microbiology and General Microbiology Lab	5
PHYS 211 & 211L	College Physics I and College Physics I Laboratory	4
PHYS 212 & 212L	College Physics II and College Physics II Laboratory	4
STAT 330	Introductory Statistics	3
BIOL 315 or PLSC 315	Genetics Genetics	3
STEM Electives		
Select any level course from the following prefixes: ANSC, BIOL, BIOC, BOT, CE, CHEM, CSCI, ECE, IME, MATH, ME, MICR, PSCI, PHYS, PPTH, or STAT.		6-8
Science Electives (300-400 Level)		
Select 300-400 level courses from the following prefixes: ANSC, BIOL, BIOC, BOT, CHEM, CSCI, MICR, PSCI, PHYS, PPTH, or STAT. No more than 6 credits from one prefix may apply. Research credits (CHEM 494/BIOC 494; CHEM 493/BIOC 493) may count towards 3 of these credits.		9
Total Credits		91-93

¹ Students may take the higher level CHEM 150/160 for CHEM 121/121L and CHEM 151/161 for CHEM 122/122L.

² Students in the accelerated program may substitute the 600 level course equivalent to use in both the undergraduate and graduate degree programs. No more than 15 credits of 600 level coursework can apply to the undergraduate degree program.

Degree and Program Notes:

- Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.
- This major is eligible as an accelerated program for the student to earn a B.S. in Biochemistry & Molecular Biology and a M.S. in Biochemistry. Students may complete either a thesis or non-thesis option in the master's program.