Biochemistry and Molecular Biology

Department Information

- **Department Location:** Ladd Hall
- **Department Phone:** 701-231-8694
- **Department Email:** ndsu.chemistry@ndsu.edu
- **Department Web Site:** [www.ndsu.edu/chemistry/](http://www.ndsu.edu/chemistry/)
- **Credential Offered:** B.S.; B.A.
- **Plan Of Study Sample:** [bulletin.ndsu.edu/programs-study/undergraduate/biochemistry-molecular-biology/#planofstudytext](http://bulletin.ndsu.edu/programs-study/undergraduate/biochemistry-molecular-biology/#planofstudytext)

Major Requirements

**Major: Biochemistry & Molecular Biology**

**Degree Type:** B.A. or B.S.

**Minimum Degree Credits to Graduate:** 120

**University Degree Requirements**

1. Satisfactory completion of all requirements of the curriculum in which one is enrolled.
2. Earn a minimum total of 120 credits in approved coursework. Some academic programs exceed this minimum.
3. Satisfactory completion of the general education requirements as specified by the university.
4. A minimum institutional GPA of 2.00 based on work taken at NDSU.
5. At least 36 credits presented for graduation must be in courses numbered 300 or higher.
6. Transfer Students: Must earn a minimum of 60 credits from a baccalaureate-degree granting or professional institution.
   a. Of these 60, at least 36 must be NDSU resident credits as defined in #7.
   b. Within the 36 resident credits, a minimum of 15 must be in courses numbered 300 or higher and 15 credits in the major field of study.
7. At least 36 credits must be NDSU resident credits. Resident credits include credits registered and paid for at NDSU.

For complete information, please refer to the Degree and Graduation Requirements section of this Bulletin.

**University General Education Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 110</td>
<td>College Composition I</td>
<td>12</td>
</tr>
<tr>
<td>ENGL 120</td>
<td>College Composition II</td>
<td></td>
</tr>
<tr>
<td>COMM 110</td>
<td>Fundamentals of Public Speaking</td>
<td></td>
</tr>
</tbody>
</table>

For complete information, please refer to the Degree and Graduation Requirements section of this Bulletin.
Biochemistry and Molecular Biology

* May be satisfied by completing courses in another General Education category.
† General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review major requirements to determine if specific courses can also satisfy these general education categories.

A list of university approved general education courses and administrative policies are available here (http://bulletin.ndsu.edu/academic-policies/undergraduate-policies/general-education/#genedcoursertext).

College Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Arts (BA) Degree – An additional 12 credits Humanities and Social Sciences and proficiency at the second year level in a modern foreign language.</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences</td>
<td>6</td>
<td></td>
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</tbody>
</table>

* Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student’s major.

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 460</td>
<td>Foundations of Biochemistry and Molecular Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 460L</td>
<td>Foundations of Biochemistry I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>BIOC 461</td>
<td>Foundations of Biochemistry and Molecular Biology II</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 473</td>
<td>Methods of Biochemical Research</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 474</td>
<td>Methods of Recombinant DNA Technology</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 483</td>
<td>Cellular Signal Transduction Processes and Metabolic Regulations</td>
<td>3</td>
</tr>
<tr>
<td>BIOC 487</td>
<td>Molecular Biology of Gene Expression</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 150 &amp; 150L</td>
<td>General Biology I and General Biology I Laboratory</td>
<td>4</td>
</tr>
</tbody>
</table>
PHYS 251 & 251L
University Physics I and University Physics I Laboratory (May satisfy general education category S) 5

PHYS 252 & 252L
University Physics II and University Physics II Laboratory (May satisfy general education category S) 5

STAT 330
Introductory Statistics (May satisfy general education category R) 3

BIOL 315
Genetics 3

or PLSC 315
Genetics 3

Upper-Level Science Electives
300-400 level courses in BIOL, BIOC, BOT, ZOO, 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

* CHEM 364 Physical Chemistry I & CHEM 365 Physical Chemistry II will satisfy this requirement and 2 credits of upper-level science electives.

Degree Notes:
• Except for courses offered only as pass/fail grading, no course may be taken Pass/Fail.

Minor Requirements

Minor: Biochemistry and Molecular Biology

Required Credits: 16

Minor Requirements

Code Title Credits
Required Courses
All minor courses must be selected in consultation with a Biochemistry adviser. 16

Total Credits 16

Minor Requirements and Notes
• A minimum of 8 credits must be taken at NDSU.
• The student and adviser will complete a substitution form with the courses to be used for the biochemistry minor. This form will also require the signature of the department chairperson before being submitted to the Office of Registration and Records for verification of minor program completion.
• Note: This minor will not be available for view in the Student Advisement/Requirement Report in Campus Connection.