MOLECULAR AND BIOMEDICAL BIOLOGY, BACHELOR OF SCIENCE

To obtain a BS in Molecular and Biomedical Biology (MBB), a student must fulfill university, college, and department requirements. Minimum hour requirements follow:

1. 46 hours of University General Education courses

Most commonly, MBB majors do not complete 46 hours of coursework solely for the purpose of meeting university General Education requirements. Instead, they often do the following:

- Test out of at least three hours of fundamental academic skills,
- Take six hours of coursework that meets both the six hours of diversity requirements and six hours of distribution requirements,
- Meet the seven-hour University General Education natural sciences distribution requirement through completing major courses.

In such cases, the number of credit hours taken solely to meet General Education requirements is reduced to 30 or fewer.

1. 12 hours college breadth requirement (Track 1 only)
2. 72 hours of major courses
3. Elective hours as required for a total of 120 hours

TOTAL HOURS: 120

Requirements

The Bachelor of Science in Molecular and Biomedical Biology degree requires 36-45 credits of biology courses of which 18 credits must be 3000-4000 level courses. The course requirements are below.

### Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1450</td>
<td>BIOLOGY I</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 1750</td>
<td>BIOLOGY II</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 2140</td>
<td>GENETICS</td>
<td>4</td>
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<tr>
<td>BIOL 3020</td>
<td>MOLECULAR BIOLOGY OF THE CELL</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 3240</td>
<td>INTRODUCTION TO IMMUNOLOGY</td>
<td>3</td>
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</table>

### Biochemistry Lecture and Lab

Select one of the following: 4

- BIOL 4650 & BIOL 4654: BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY
- CHEM 4650 & CHEM 4654: BIOCHEMISTRY I and BIOCHEMISTRY I LABORATORY
- CHEM 4610: BIOCHEMISTRY OF METABOLISM

### Additional Courses

Select three of the following, at least two must be lab-based: 10-13

- BIOL 4130: MOLECULAR GENETICS
- BIOL 4140: CELLULAR BIOLOGY
- BIOL 4450 & BIOL 4454: VIROLOGY and VIROLOGY LABORATORY
- BIOL 4640: MICROBIAL PHYSIOLOGY
- BIOL 4850 & BIOL 4830: DEVELOPMENTAL BIOLOGY and DEVELOPMENTAL GENETICS
- BIOL 4860: COMPARATIVE GENOMICS
- BIOL/CHEM 4660 & BIOL/CHEM 4664: BIOCHEMISTRY II and BIOCHEMISTRY II LABORATORY

### Required Chemistry Sequence

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 1180 &amp; CHEM 1184: GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LABORATORY</td>
<td>4</td>
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<tr>
<td>CHEM 1190 &amp; CHEM 1194: GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LABORATORY</td>
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<tr>
<td>CHEM 2250: ORGANIC CHEMISTRY I</td>
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<tr>
<td>CHEM 2260: ORGANIC CHEMISTRY II</td>
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<tr>
<td>CHEM 2274: ORGANIC CHEMISTRY LABORATORY</td>
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### Mathematics

Eight hours in mathematics or statistics are required and must include one of the following calculus courses: 8

- MATH 1930: CALCULUS FOR THE MANAGERIAL, LIFE, AND SOCIAL SCIENCES
- MATH 1940: CALCULUS FOR BIOMEDICINE
- MATH 1950: CALCULUS I

It is preferred that BIOL 2140 be taken at UNO and not at a community college.

To complete the degree, students may choose one of the following two tracks:

#### Track 1: Molecular Biotechnology

This track will position students to excel in graduate or professional schools, as well as industry jobs in Biotechnology. Students will have about 10 hours of free electives with this track.

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<tbody>
<tr>
<td>BIOL 4550: BIOTECHNOLOGY INTERNSHIP</td>
<td>3</td>
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#### Six hours in Information, Innovation, and Development

- BIO 2000: FOUNDATIONS OF BIOINFORMATICS
- BIO 3000: APPLIED BIOINFORMATICS
- ITIN 1110: INTRODUCTION TO IT INNOVATION
- ITIN 2220: APPLIED IT INNOVATION
- ENTR 3710: ENTREPRENEURIAL FOUNDATIONS
- ACCT 2010: PRINCIPLES OF ACCOUNTING I
- MGMT 3490: MANAGEMENT
- STAT 4410: INTRODUCTION TO DATA SCIENCE

Track 1 Total Credits: 72-75

#### Track 2: Biomedical Sciences

This is a path to prepare students for success in medical school programs. Students will have about 4 hours of free electives with this track. Required minor in Medical Humanities ([http://catalog.unomaha.edu/undergraduate/college-arts-sciences/medical-humanities](http://catalog.unomaha.edu/undergraduate/college-arts-sciences/medical-humanities)). BIOL 1060 Intro to Health Careers must be taken as part of the minor and nine credits must be in upper division (3000 or higher) courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>Track 2 Total Credits</td>
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<td>78-81</td>
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