BIOCHEMISTRY AND MOLECULAR BIOLOGY, B.S.

Requirements

The biochemistry and molecular biology major requires 49 credits of BIO, BMB, or CHM courses, and students will need to take at least two courses from these requirements each semester for adequate progress in the major. The list of required Biology courses for BMB majors will change from these requirements each semester for adequate progress in the major. Prospective BMB majors entering Wake Forest University in Fall 2019 or later should take BIO 214 & 213 L in their first year as their first courses in biology. BIO 113 and BIO 114 will only be offered through the Spring 2020 semester, with enrollment restricted to non-first year students.

**Elective Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BMB 301</td>
<td>Special Topics in Biochemistry and Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BMB 376</td>
<td>Biophysical Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>BMB/BIO 381</td>
<td>Epigenetics</td>
<td>3</td>
</tr>
<tr>
<td>BMB/BIO 382</td>
<td>Molecular Signaling</td>
<td>3</td>
</tr>
<tr>
<td>BMB/BIO 383</td>
<td>Genomics</td>
<td>3</td>
</tr>
<tr>
<td>BIO 317/318</td>
<td>Plant Physiology and Development</td>
<td>3-4</td>
</tr>
<tr>
<td>BIO 336/337</td>
<td>Development</td>
<td>3-4</td>
</tr>
<tr>
<td>BIO 351</td>
<td>Vertebrate Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIO 362</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 365</td>
<td>Biology of the Cell</td>
<td>3</td>
</tr>
<tr>
<td>BIO 367</td>
<td>Virology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 368/369</td>
<td>The Cell Biological Basis of Disease</td>
<td>3-4</td>
</tr>
<tr>
<td>BIO 373</td>
<td>Cancer Biology</td>
<td>3</td>
</tr>
<tr>
<td>CHM 324</td>
<td>Medicinal Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM 334</td>
<td>Chemical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHM 341</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CSC/BIO 385</td>
<td>Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>CSC/BIO 387</td>
<td>Computational Systems Biology</td>
<td>3</td>
</tr>
<tr>
<td>PHY/BIO 307</td>
<td>Biophysics</td>
<td>3</td>
</tr>
<tr>
<td>PHY 320</td>
<td>Physics of Biological Macromolecules</td>
<td>3</td>
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</tbody>
</table>

**Electives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMB 395</td>
<td>Senior Research Project (Senior year only; guided by a faculty member)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Co-Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MST 112</td>
<td>Calculus with Analytic Geometry II</td>
<td>4</td>
</tr>
<tr>
<td>PHY 113</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td>or PHY 123</td>
<td>General Physics I Honors</td>
<td></td>
</tr>
<tr>
<td>PHY 114</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>or PHY 124</td>
<td>General Physics II Honors</td>
<td></td>
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</tbody>
</table>

* These biology and chemistry core courses should be completed in the first two years of study.

** At least two semesters or summers of research are required for research performed in a laboratory at Wake Forest University or the Wake Forest School of Medicine.

*** Should also be completed by the end of the third year.

Elective courses must be selected from the following list. For course descriptions, see the relevant department's listing in this publication. Additional elective courses may have been approved since publication of this bulletin. The program coordinator maintains a complete list of all approved elective courses. Students choosing the concentration in molecular biology can take any two from the list, while students choosing the biochemistry concentration must take either BMB 376 or CHM 341 and one other elective.

**Honors**

Highly qualified majors may be eligible to graduate with honors in biochemistry and molecular biology if their research project is of sufficient quality. To be awarded the distinction “Honors in Biochemistry and Molecular Biology,” a graduating student must have a minimum GPA
of 3.0 in all courses and a 3.3 in required and elective BIO, BMB, and CHM courses. Honors students will have begun research before their senior year. Students interested in pursuing an honors degree must obtain preapproval from the program coordinator during the fall of the senior year and enroll in BMB 395 during their senior year. The student must prepare an honors paper describing his or her independent research project, written in the form of a scientific paper, which must be submitted to, and approved by, an advisory committee. Honors students are also required to make a short oral presentation at the end of their senior year. For additional information, please consult the program coordinator or BMB faculty advisors.