# Biophysics, Minor

Biophysics is concerned with the application of the concepts and methods of physics to the solution of biological problems and to the understanding of biological processes. Students who complete the biophysics minor achieve a grasp of physics as it relates to solving biological problems, a general understanding of the nature of biological problems and of proteins and cell membranes in particular and of several techniques based on physics principles that are used in biological investigations.

## Minor in Biophysics

Cognate requirements for the minor are one year each of introductory biology and introductory chemistry as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1001</td>
<td>General Biology 1</td>
<td>3</td>
</tr>
<tr>
<td>&amp; BIOL 1002</td>
<td>General Biology 2</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1001</td>
<td>General Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 1002</td>
<td>General Chemistry 2</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credit Hours: 14

### Biophysics Minor Course Requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 2111</td>
<td>Organic Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 2112</td>
<td>Organic Chemistry 2</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 2113</td>
<td>Organic Chemistry for Majors 1</td>
<td>3</td>
</tr>
<tr>
<td>&amp; CHEM 2114</td>
<td>Organic Chemistry for Majors 2</td>
<td>3</td>
</tr>
<tr>
<td>BISC 2050</td>
<td>Organic Chemistry for the Health Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Required Introduction to Organic Chemistry: Choose one of the following.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 1410</td>
<td>Calculus for the Biological Sciences</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1450</td>
<td>Calculus 1</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Required Differential and Integral Calculus: Choose one of the following.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 1001</td>
<td>General Physics 1</td>
<td>3</td>
</tr>
<tr>
<td>&amp; PHYS 1002</td>
<td>General Physics 2</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 1003</td>
<td>General Physics with Introductory Calculus 1</td>
<td>3</td>
</tr>
<tr>
<td>&amp; PHYS 1004</td>
<td>General Physics with Introductory Calculus 2</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 1013</td>
<td>Classical and Modern Physics with Calculus 1</td>
<td>3</td>
</tr>
<tr>
<td>&amp; PHYS 1014</td>
<td>Classical and Modern Physics with Calculus 2</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Physics Course Requirements:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 4046</td>
<td>The Physical Basis of Biological Structure and Function (or equivalent by consent of Physics Dept)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 4065</td>
<td>Experimental Methods in Molecular Biophysics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 4956</td>
<td>Undergraduate Research in Physics</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credit Hours: 21-29

1. PHYS 4956 Undergraduate Research in Physics must be taken for 3 cr. hrs.

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- Academic Censure - Undergraduate (https://bulletin.marquette.edu/policies/academic-censure/undergraduate/)
- Academic Integrity (https://bulletin.marquette.edu/policies/academic-integrity/)
- Academic Misconduct (https://bulletin.marquette.edu/policies/academic-misconduct-policy/)
• Academic Program Definitions (https://bulletin.marquette.edu/policies/academic-programs-defined/)
• Academic Standing (https://bulletin.marquette.edu/policies/academic-standing/)
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Biophysics, Minor
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• Transfer Credit Policy (https://bulletin.marquette.edu/arts-sciences/policies/transfer-credit-policy/)