# Biochemistry (MS)

## Master of Science Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Core Courses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCH 701</td>
<td>Macromolecular Structure</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>BCH 703</td>
<td>Macromolecular Synthesis and Regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCH 705</td>
<td>Molecular Biology Of the Cell</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCH 801</td>
<td>Seminar In Biochemistry</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Elective Courses</strong></td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>See &quot;Elective Courses&quot; listed below</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2, 3</td>
</tr>
<tr>
<td></td>
<td><strong>Thesis</strong></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BCH 695</td>
<td>Master's Thesis Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Hours</strong></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Every semester for 2 years, 4 credit hours total; 1/semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Students may choose other courses approved in conjunction with the academic committee</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Credit hours flexible to meet 30 total hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Elective Courses

Select at least three courses below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH 552</td>
<td>Experimental Biochemistry</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCH 553</td>
<td>Biochemistry of Gene Expression</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCH 555</td>
<td>Proteins and Molecular Mechanisms</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCH 560</td>
<td>Molecular Biology for Teachers</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCH 571</td>
<td>Regulation of Metabolism</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCH 590</td>
<td>Special Topics in Biochemistry</td>
<td>1-6</td>
<td></td>
</tr>
<tr>
<td>BCH 701</td>
<td>Macromolecular Structure</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCH 703</td>
<td>Macromolecular Synthesis and Regulation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BCH 705</td>
<td>Molecular Biology Of the Cell</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Requirements

- Successful completion of the M.S. degree requires a minimum of 30 credit hours.
- At least 18 credit hours of letter-graded courses ("A," "B," "C," etc.) must be included in the program.

## Accelerated Bachelor's/Master's Degree Requirements

In addition to the standard University and Biochemistry requirements for a B.S. in Biochemistry, students must complete 30 credit hours at the graduate level for the Master's degree component. This is accomplished as outlined below:

### Undergraduate Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH 552</td>
<td>Experimental Biochemistry</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BCH 553</td>
<td>Biochemistry of Gene Expression</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>or BCH 555 Proteins and Molecular Mechanisms</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 400-level Courses with a 500-level Counterpart

See "400/500 Level Courses" listed below

### Graduate Core Courses

Select one additional course:
GN 701  Molecular Genetics
BCH/GN 761  Advanced Molecular Biology Of the Cell
MB 714  Microbial Metabolic Regulation
MB 718  Introductory Virology
PO 757  Comparative Immunology

Research/Scholarship/Education Course

<table>
<thead>
<tr>
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<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCH 685</td>
<td>Master's Supervised Teaching</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BCH 693</td>
<td>Master's Supervised Research</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCH 695</td>
<td>Master's Thesis Research</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Hours 30

1 Indicates courses double counted for both Bachelor's and Master's degree
2 Students may choose other courses approved in conjunction with the academic committee

400/500-Level Courses

Select two courses listed below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 463/563</td>
<td>Molecular Origins of Life</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>BIO 488/588</td>
<td>Neurobiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GN 441/541</td>
<td>Human and Biomedical Genetics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Faculty

Joe Barycki
Dennis Brown
Linda Kay Hanley-Bowdoin
Eric S. Miller
Melanie Simpson
Colleen Jennifer Doherty
Michael B. Goshe
Charles C. Hardin
Thomas Makris
Flora Meilleur
Robert B. Rose
Joshua J. Strable
Guozhou Xu
Ruben Rellan Alvarez
Abdulkerim Eroglu
Arion Kennedy
Xiaoqing Liu
Ryan Charles Sartor
Joshua Strable
Jose Trinidad Ascencio-Ibanez
Raquel Hernandez
David G. Presutti
Paul Douglas Swartz
Cynthia L. Hemenway
Horace R. Horton
Joseph Stephan Kahn
James Arthur Knopp
Earl S. Maxwell
William Laubach Miller
James W. Moyer
Ron Ross Sederoff
Harold E. Swaisgood
Elizabeth C. Theil
Paul L. Wollenzien
Jason Locasale
Michael Milburn
Whitney Stutts
Peter Thompson