CHEMISTRY B.S.

(American Chemical Society Certified)

The courses required for the B.S. degree provide a solid education in chemistry for the professional chemist and in preparation for graduate work in most areas of chemistry. These requirements meet the latest certification standards of the American Chemical Society.

Bachelor of Science - Chemistry

College Humanities & Sciences

Degree Specific Credits: 94

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (http://catalog.umt.edu/academics/general-education-requirements) of the catalog.

Summary

<table>
<thead>
<tr>
<th>Lower Core Courses</th>
<th>45</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Chemistry</td>
<td></td>
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<tr>
<td>Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td></td>
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<tr>
<td>Mathematics</td>
<td></td>
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<tr>
<td>Computer Science</td>
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<tr>
<td>Upper Division Core Courses</td>
<td>33</td>
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<tr>
<td>Analytical Chemistry</td>
<td></td>
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<tr>
<td>Physical Chemistry</td>
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<tr>
<td>Inorganic Chemistry</td>
<td></td>
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<tr>
<td>Biochemistry</td>
<td></td>
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<tr>
<td>Mathematics</td>
<td></td>
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<tr>
<td>Advanced Electives</td>
<td>3-9</td>
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<tr>
<td>Modern Foreign Language</td>
<td>10</td>
</tr>
<tr>
<td>Ethics</td>
<td>3</td>
</tr>
<tr>
<td>Total Hours</td>
<td>94-100</td>
</tr>
</tbody>
</table>

Lower Core Courses

Rule: All courses in all subcategories listed are required

45 Total Credits Required

General Chemistry

- CHMY 141N College Chemistry I 5
- CHMY 142N & CHMY 142N College Chemistry I Lab 2
- CHMY 143N College Chemistry II 5
- CHMY 144N & CHMY 144N College Chemistry II Lab 2

Total Hours 10

Minimum Required Grade: C-

Organic Chemistry

- CHMY 221 Organic Chemistry I 3

- CHMY 222 Organic Chemistry II 3
- CHMY 224 Organic Chemistry II Lab 2

Total Hours 10

Minimum Required Grade: C-

Physics

- PHSX 215N Fund of Physics w/Calc I 4
- PHSX 216N Physics Laboratory I w/Calc 1
- PHSX 217N Fund of Physics w/Calc II 4
- PHSX 218N Physics Laboratory II w/Calc 1

Total Hours 10

Minimum Required Grade: C-

Mathematics

- M 171 Calculus I 4
- M 172 Calculus II 4
- M 273 Multivariable Calculus 4

Total Hours 12

Minimum Required Grade: C-

Computer Science

- CSCI 250 Computer Modeling/Science Majors 3

Total Hours 3

Upper Division Core Courses

Rule: All courses in all subcategories listed are required

33 Total Credits Required

Analytical Chemistry

- CHMY 311 Analytical Chem-Quant Analysis 4
- CHMY 421 Advanced Instrument Analysis 4

Total Hours 8

Minimum Required Grade: C-

Physical Chemistry

- CHMY 371 Phys Chem-Qntm Chm & Spectrscopy 4
- CHMY 373 Phys Chem-Kntcs & Thrmodynamic 4

Total Hours 8

Minimum Required Grade: C-

Inorganic Chemistry

- CHMY 401 Advanced Inorganic Chemistry 3
- CHMY 402 Advanced Inorganic Chem Lab 2
- CHMY 403 Descriptive Inorganic Chem 3

Total Hours 8

Minimum Required Grade: C-

Biochemistry

- BCH 480 Advanced Biochemistry I 3
### BCH 486 Biochemistry Research Lab

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 6

Minimum Required Grade: C-

### Mathematics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 311</td>
<td>Ordinary Differential Equations and Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 3

Minimum Required Grade: C-

### Advanced Electives

**Rule:** Choose 3 to 9 credits from the listed courses.

**Note:** 3 credits maximum of CHMY 492 or CHMY 499 may be applied toward degree requirements.

Other classes in chemistry, physics, geology, biochemistry, or mathematics may be used to meet the Advanced Electives requirement with approval of the Chemistry Adviser.

2 additional Advanced Electives of at least 3 credits each may be substituted for the Modern Language requirement with approval of the Chemistry Adviser.

Select 3-9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHMY 391</td>
<td>Special Topics/Expmntl Crse</td>
<td>3-9</td>
</tr>
<tr>
<td>CHMY 442</td>
<td>Aquatic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHMY 465</td>
<td>Organic Spectroscopy</td>
<td></td>
</tr>
<tr>
<td>CHMY 491</td>
<td>Special Topics/Expmntl Crse</td>
<td></td>
</tr>
<tr>
<td>CHMY 492</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>CHMY 499</td>
<td>Senior Thesis/capstone</td>
<td></td>
</tr>
</tbody>
</table>

Total Hours 3-9

Minimum Required Grade: C-

### Modern Foreign Language

**Rule:** Complete 2 semesters (10 credits) of a modern language or 2 additional advanced elective courses

**Note:** 2 Advanced Elective courses worth at least 3 credits each may be substituted for the Modern Foreign Language requirement with approval from the Chemistry Adviser.

Minimum Required Grade: Pass

10 Total Credits Required

### Ethics

**Rule:** Complete the following course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHMY 305E</td>
<td>Ethics, Literature and Writing in the Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 3

Minimum Required Grade: C-