# CHEMISTRY, B.S. - ENVIRONMENTAL OPTION

## Major in Chemistry, BS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Credits Required for Major</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum GPA 2.0 for Major</td>
<td>true</td>
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<tr>
<td></td>
<td>Minimum credits for 50% residency</td>
<td>true</td>
</tr>
</tbody>
</table>

**CHEM 188 WAIVED FOR TRANSFER STUDENTS**

**100 AND 200 LEVEL CHEMISTRY REQUIRED COURSES**

- A grade of C or better is required in the 100/200 level courses before proceeding to the courses for which they are pre-requisites.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 111</td>
<td>Introductory Chemistry 1 (C minimum)</td>
<td></td>
</tr>
<tr>
<td>CHEM 112</td>
<td>Introductory Chemistry 2 (C minimum)</td>
<td></td>
</tr>
<tr>
<td>CHEM 231</td>
<td>Organic Chemistry 1 (C minimum)</td>
<td></td>
</tr>
<tr>
<td>CHEM 232</td>
<td>Organic Chemistry 2 (C minimum)</td>
<td></td>
</tr>
<tr>
<td>CHEM 251</td>
<td>Inorganic Chemistry 1 (C minimum)</td>
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<tr>
<td>CHEM 265</td>
<td>Quantitative Analysis (C minimum)</td>
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</tbody>
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**300 AND 400 LEVEL CHEMISTRY REQUIRED COURSES**

- CHEM 341 Physical Chemistry 1
- CHEM 342 Physical Chemistry 2
- CHEM 487 Seminar in Chemistry 1
- CHEM 488 Seminar in Chemistry 2
- CHEM 498 Independent Study

## CHEMISTRY OPTIONS

- Option in Environmental Chemistry - See separate block
- American Chemical Society Certification - Optional - See separate block

**Total Hours**

5

## American Chemical Society Certification - Optional

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>THIS BLOCK IS NOT REQUIRED FOR DEGREE COMPLETION. The following block contains courses which are required/recommended to students opting for ACS Certification. While not required, an introductory Economics course, elementary German or Russian (GERM/RUSS 101 and 102) are recommended for inclusion in the core Liberal Arts core requirements for general education. Students must take a minimum of two hours of CHEM 489, 498, or 499 (Research) under Chemistry Electives. This means you will need a total of 3 credits in CHEM 489, 498 or 499.</td>
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**REQUIRED COURSES FOR ACS CERTIFICATION**

- CHEM 326 Biochemistry 1
- CHEM 392 Advanced Laboratory 2
- Required Independent Research - Choose 3 hours from:
  - CHEM 489 Honors Course
  - CHEM 498 Independent Study

**RECOMMENDED COURSES FOR ACS CERTIFICATION**

- Introductory Economics - Optional Recommended
- Elementary Language German or Russian - Optional Recommended

**Total Hours**

4

## Req Related for Chemistry, BS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>MATHEMATICS\nCalculus I or Honors Calculus - Choose 1 of the following:</td>
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<tr>
<td>MATH 161</td>
<td>Calculus 1</td>
<td>4-5</td>
</tr>
<tr>
<td>MATH 163H</td>
<td>Honors Calculus 1</td>
<td></td>
</tr>
<tr>
<td>MATH 211</td>
<td>Calculus 2</td>
<td>4</td>
</tr>
<tr>
<td>MATH 311</td>
<td>Calculus 3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>PHYSICS\nPhysics 1 with Calculus</td>
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<tr>
<td>PHYS 231</td>
<td>Physics 1 with Calculus</td>
<td>0</td>
</tr>
<tr>
<td>PHYS 232</td>
<td>Physics 2 with Calculus</td>
<td>0</td>
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<tr>
<td></td>
<td>BIOLOGY COMPETENCY\nGeneral Biology</td>
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<td>Competency may be demonstrated with credits earned for BIOL 100 through any of the following: 1) a successful score on either the national AP Biology exam or the Biology CLEP exam.  2) a passing grade for General Biology (BIOL 100) or equivalent.</td>
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<tr>
<td></td>
<td>Environmental Chemistry Related Directed Electives\nundefined - Choose 2 of the following:</td>
<td>0-8</td>
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<tr>
<td>Course</td>
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<tr>
<td>BIOL 211</td>
<td>Concepts of Zoology</td>
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<tr>
<td>BIOL 221</td>
<td>Concepts of Botany</td>
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<tr>
<td>BIOL 241</td>
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<tr>
<td>BIOL 340</td>
<td>Prsptcv in Environm Awareness</td>
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<tr>
<td>BIOL 343</td>
<td>Principles of Ecology &amp; Evolution</td>
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<tr>
<td>ESCI 245</td>
<td>Environmental Meteorology</td>
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<tr>
<td>ESCI 322</td>
<td>Environmental Hydrology</td>
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<tr>
<td>ESCI 349</td>
<td>Chemistry of the Atmosphere</td>
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<tr>
<td>ESCI 426</td>
<td>Groundwater Resources and Contamination</td>
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<tr>
<td>GEOG 202</td>
<td>Environmental Sustainability</td>
<td></td>
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<tr>
<td>GEOG 230</td>
<td>Physical Geography</td>
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<tr>
<td>GEOG 304</td>
<td>Water Resources Management</td>
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<tr>
<td>OSEH 321</td>
<td>Environmental &amp; Industrial Hygiene I - Chemical and Biological Hazards</td>
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<tr>
<td>OSEH 422</td>
<td>Environmental &amp; Industrial Health II - Physical Hazards</td>
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<tr>
<td>OSEH 435</td>
<td>Environmental Health</td>
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Other relevant environmental courses may also be selected by consulting with your academic advisor and submitting an exception to graduation requirements. A related minor may be earned by completing the minor requirements that include courses from the disciplines above.

**Total Hours** 12-21