### BSE CHEMICAL ENGINEERING / BS-CHEMISTRY MAJOR*
#### Dual Degree Program

<table>
<thead>
<tr>
<th>Subjects required by engineering programs (53 hrs.)</th>
<th>Semester</th>
<th>F1</th>
<th>W1</th>
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<th>F3</th>
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<th>F4</th>
<th>W4</th>
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<td>Mathematics 115+, 116+, 215+, 216+</td>
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<td>Engineering 100 or English 125+ (Engr 100 if Engr is home school)</td>
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<td>Engineering 101 +</td>
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<tr>
<td>Chemistry 130 +</td>
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<tr>
<td>Physics 140 with Lab 141+; 240 with Lab 241+</td>
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<td>Intellectual Breadth **</td>
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(to include a micro or macro economics course to meet ChE req's.
and courses to fulfill LSA's race and ethnicity req's)

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<th>LS&amp;A requirements (16 hrs.)</th>
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<tr>
<td>Language (German recommended, some 200 level and higher courses might satisfy engineering HU or IB requirements)</td>
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### Advanced Chemistry (CHE)

| Chemistry 210, 211, Structure and Reactivity and Lab I+ |          | 5  | 5  |    |    |    |    |    |    |    |    |
| Chemistry 215, 216, Structure and Reactivity and Lab II+ |          | 5  | 5  |    |    |    |    |    |    |    |    |
| Chemistry 261, Introduction to Quantum Chemistry**** |          | 1  | 1  |    |    |    |    |    |    |    |    |

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<th>Additional chemistry courses (28 hrs.)</th>
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<td>Chemistry 125,126, General Chemistry Lab</td>
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<td>Chemistry 241, 242 Intro. Chemical Analysis and Lab</td>
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<tr>
<td>Chemistry 303, Intro. Bioorganic Chem: Role of Metals in Life</td>
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<td>Chemistry 461, Physical Chemistry I</td>
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<tr>
<td>Chemistry 462, Computational Chemistry Laboratory</td>
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<td>Advanced Chemistry Lecture (351 F/W 4cr, 402 F 3cr, or 447 F 3cr)</td>
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<td>Chemistry 482, Synthesis (satisfies ULWR)</td>
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<th>Select Chemistry Elective Courses totaling 9 credits:</th>
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<th>Chemical Engin. Program Subjects (33 hrs.)</th>
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<td>ChE 230, Material &amp; Energy Balances +</td>
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<td>ChE 330, Chemical and Engin Thermodynamics +</td>
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<td>ChE 341, Fluid Mechanics +</td>
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<td>ChE 342, Heat and Mass Transfer +</td>
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<td>ChE 343, Separation Processes +</td>
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<td>ChE 360, ChE Laboratory I &lt;see Chem 462 and 482&gt;</td>
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<td>ChE 466, Process Control and Dynamics I</td>
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<td>ChE 485, Chemical Engineering Process Econ. +</td>
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<td>ChE 488, 489 Chemical Product Design I &amp; II</td>
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<th>Related Technical Subjects</th>
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<td>Biology 172 or 174</td>
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### B.S.E. (Che/Chem) Total

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(+* must earn a C- or better in this class  
** An Honors Chemistry degree can be earned by meeting the requirements of the Chemistry Honors Program  
(***) Make sure to satisfy the LS&A distribution requirements, and natural science requirement can not be satisfied by CHEM or COE Courses.  
(****) Submit writing sample and petition to Sweetland Writing Center to waive lower level writing requirement. ULWR cannot be waived.  
(****) Either Physics 390 or Materials Science 242 can be taken to fulfill the Chemistry 261 requirement

**NOTES:**
- If choosing Chem 351, Bio 172 is a pre-req.  
- Physics 240 is a pre-req for Chem 461.

**July 2024**
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<td>Chem 351</td>
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<td>Chem 352</td>
<td>Introductory Biochemistry Lab</td>
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<td>Chem 399</td>
<td>Undergrad Research</td>
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<td>Chem 402</td>
<td>Intermediate Inorganic Chemistry</td>
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<td>Chem 419</td>
<td>Int. Phys Org. Chem</td>
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<td>Chem 436</td>
<td>Polymer Synthesis and Characterization</td>
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