### Subjects required by engineering programs (53 hrs.)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Term Offered</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 115+, 116+, 215+, 216+</td>
<td>F1 W1 F2 W2 F3 W4 F5 W6</td>
<td>16 4 4 4 4</td>
</tr>
<tr>
<td>Engineering 100 or English 125+</td>
<td></td>
<td>4 4</td>
</tr>
<tr>
<td>Engineering 101+</td>
<td></td>
<td>4 4</td>
</tr>
<tr>
<td>Chemistry 130+</td>
<td></td>
<td>3 3</td>
</tr>
<tr>
<td>Physics 140 with Lab 141+; 240 with Lab 241+</td>
<td>F2 W2 F3 W4 F5 W6</td>
<td>10 5 5 5 4 4</td>
</tr>
<tr>
<td>Intellectual Breadth **</td>
<td></td>
<td>16 4 4 4 4 4</td>
</tr>
<tr>
<td>(to include a micro or macro economics course to meet ChE req’s.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and courses to fulfill LSA’s race and ethnicity and ULWR*** req’s)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### LS&A requirements (16 hrs.)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Term Offered</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language (German recommended, some 200 level and higher courses might satisfy engineering HU or IB requirements)</td>
<td></td>
<td>16 4 4 4 4</td>
</tr>
</tbody>
</table>

### Upper Level Writing Requirement

**<see IB and HU/SS above>**

### Advanced Chemistry (Chem E)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Term Offered</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 210, 211, Structure and Reactivity and Lab I+</td>
<td></td>
<td>5 5</td>
</tr>
<tr>
<td>Chemistry 215, 216, Structure and Reactivity and Lab II+</td>
<td></td>
<td>5 5</td>
</tr>
<tr>
<td>Chemistry 261, Introduction to Quantum Chemistry****</td>
<td></td>
<td>1 1</td>
</tr>
</tbody>
</table>

### Additional chemistry courses (24 hrs.)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Term Offered</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 125,126, General Chemistry Lab</td>
<td>F,W</td>
<td>2 2</td>
</tr>
<tr>
<td>Elect 1 of the following 2 courses:</td>
<td></td>
<td>3 3</td>
</tr>
<tr>
<td>Chemistry 303, Intro. Bioinorganic Chem: Role of Metals in Life</td>
<td>F, W</td>
<td></td>
</tr>
<tr>
<td>Chemistry 402, Intermediate Inorganic Chemistry &lt;see CHE 460&gt;</td>
<td>F, W</td>
<td>3 3</td>
</tr>
<tr>
<td>Chemistry 447, Physical Methods of Analysis</td>
<td>F, W</td>
<td>3 3</td>
</tr>
<tr>
<td>Chemistry 461, Physical Chemistry I</td>
<td>F, W</td>
<td>3 3</td>
</tr>
<tr>
<td>Chemistry 462, Computational Chemistry Laboratory</td>
<td>F, W</td>
<td>3 3</td>
</tr>
<tr>
<td>Chemistry 463, Physical Chemistry I</td>
<td>F, W</td>
<td>3 3</td>
</tr>
<tr>
<td>Chemistry 483, Physical and Instrumental Chemistry</td>
<td>F, W</td>
<td>3 3</td>
</tr>
</tbody>
</table>

### Chemical Eng. Program Subjects (33 hrs.)

<table>
<thead>
<tr>
<th>Subject</th>
<th>Term Offered</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>ChemE 230, Material &amp; Energy Balances +</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 330, Chemical and Engin Thermodynamics +</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 341, Fluid Mechanics +</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 342, Heat and Mass Transfer +</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 343, Separation Processes +</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 344, Reaction Eng and Design +</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 346, ChemE Laboratory I &lt;see Chem 312 and 462&gt;</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 460, CHE Laboratory II</td>
<td>F,W</td>
<td>4 4</td>
</tr>
<tr>
<td>ChemE 466, Process Control and Dynamics I</td>
<td>F, W</td>
<td>3 3</td>
</tr>
<tr>
<td>ChemE 485, Chemical Engineering Process Econ. +</td>
<td>F, W</td>
<td>1 1</td>
</tr>
<tr>
<td>Elect 1 of the following:</td>
<td></td>
<td>5 5</td>
</tr>
<tr>
<td>ChemE 488, 489 Chemical Product Design I &amp; II</td>
<td>F &amp; W</td>
<td>2 3</td>
</tr>
</tbody>
</table>

### Related Technical Subjects

<table>
<thead>
<tr>
<th>Subject</th>
<th>Term Offered</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio/life science elective *****</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>Materials Elective (MSE 250 or MSE 220)+</td>
<td>F, W</td>
<td>4 4</td>
</tr>
<tr>
<td>Engineering Elective</td>
<td>F, W</td>
<td>3 3</td>
</tr>
</tbody>
</table>

### B.S.E. (ChemE/Chem) Total

<table>
<thead>
<tr>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>154</td>
</tr>
</tbody>
</table>

(+ 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. More than 16 credits may be required to fulfill the distribution requirement.

(****) Either Physics 390 or Materials Science 242 can be taken to fulfill the Chemistry 261 requirement

(*****) See ChE department for list of courses that satisfy the Biology/Life Science elective requirement.

February 2016