BACHELOR OF SCIENCE IN CHEMISTRY AND MASTER OF SCIENCE IN MATERIALS SCIENCE - FIVE-YEAR DUAL DEGREE

Summary of Graduation Requirements

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core</td>
<td>34</td>
</tr>
<tr>
<td>Major Requirements</td>
<td>78</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td>Other Requirements</td>
<td>29</td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>150</td>
</tr>
</tbody>
</table>

Chemistry Curriculum

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEM 101</td>
<td>Spartan Seminar 101</td>
<td>2</td>
</tr>
<tr>
<td>&amp; SEM 102</td>
<td>and Spartan Seminar 102</td>
<td></td>
</tr>
<tr>
<td>CHM 223A</td>
<td>General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHM 221L</td>
<td>and General Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHM 224A</td>
<td>General Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; CHM 222L</td>
<td>and General Chemistry II Laboratory</td>
<td></td>
</tr>
<tr>
<td>CSC 170</td>
<td>Computer Programming I</td>
<td>3</td>
</tr>
<tr>
<td>CSC 170L</td>
<td>Computer Programming I Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ENG 101</td>
<td>College English I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>College English II</td>
<td>3</td>
</tr>
<tr>
<td>HED 100</td>
<td>Personal and Community Health</td>
<td>2</td>
</tr>
<tr>
<td>MTH 153</td>
<td>College Algebra &amp; Trigonometry</td>
<td>3</td>
</tr>
<tr>
<td>MTH 184</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PED 100</td>
<td>Fundamentals of Fitness for Life</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>Second Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEM 201</td>
<td>Spartan Seminar 201</td>
<td>1</td>
</tr>
<tr>
<td>ENG 285</td>
<td>Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>CHM 321</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 321L</td>
<td>and Organic Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHM 322</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 322L</td>
<td>and Organic Chemistry II Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHM 331</td>
<td>Analytical Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 331L</td>
<td>and Analytical Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>MTH 251</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MTH 252</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>PHY 160</td>
<td>University Physics I</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 160L</td>
<td>and University Physics Laboratory I</td>
<td></td>
</tr>
<tr>
<td>PHY 161</td>
<td>University Physics II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 161L</td>
<td>and University Physics Laboratory II</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>37</td>
</tr>
<tr>
<td>Third Year</td>
<td>Select one of the following History from the Core:</td>
<td>3</td>
</tr>
<tr>
<td>HIS 100</td>
<td>History of World Societies I</td>
<td></td>
</tr>
<tr>
<td>HIS 101</td>
<td>History of World Societies II</td>
<td></td>
</tr>
<tr>
<td>HIS 102</td>
<td>United States History to 1865</td>
<td></td>
</tr>
<tr>
<td>HIS 103</td>
<td>United States History Since 1865</td>
<td></td>
</tr>
<tr>
<td>Select one of the following Humanities from the Core:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HUM 210</td>
<td>Humanities</td>
<td></td>
</tr>
<tr>
<td>HUM 211</td>
<td>Humanities</td>
<td></td>
</tr>
<tr>
<td>ENG 383</td>
<td>African American Literature</td>
<td></td>
</tr>
<tr>
<td>MUS 234</td>
<td>African American Music</td>
<td></td>
</tr>
<tr>
<td>CHM 332</td>
<td>Analytical Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>&amp; 332L</td>
<td>and Analytical Chemistry II Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHM 361</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM 362</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM 363L</td>
<td>Physical Chemistry Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHM 345</td>
<td>Math Methods/Logic for Physical Science</td>
<td>3</td>
</tr>
<tr>
<td>MTH 372</td>
<td>Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>SOC 101</td>
<td>Introduction to the Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Fourth Year</td>
<td>Select one of the following Cultural Elective from the Core:</td>
<td>3</td>
</tr>
<tr>
<td>HIS 335</td>
<td>African American History</td>
<td></td>
</tr>
<tr>
<td>HIS 336</td>
<td>African American History Since 1865</td>
<td></td>
</tr>
<tr>
<td>HIS 370</td>
<td>Early African History/Cultures to 1600</td>
<td></td>
</tr>
<tr>
<td>HIS 371</td>
<td>African History/Cultures 1600-PRESENT</td>
<td></td>
</tr>
<tr>
<td>HIS 377</td>
<td>Black Leaders, Then and Now</td>
<td></td>
</tr>
<tr>
<td>ENG 383</td>
<td>African American Literature</td>
<td></td>
</tr>
<tr>
<td>PSY 340</td>
<td>Psychology of the African American</td>
<td></td>
</tr>
<tr>
<td>SOC 237</td>
<td>Racial &amp; Ethnic Minorities</td>
<td></td>
</tr>
<tr>
<td>POS 315</td>
<td>African American Politics</td>
<td></td>
</tr>
<tr>
<td>MUS 234</td>
<td>African American Music</td>
<td></td>
</tr>
<tr>
<td>Select one of the following Humanities from the Core:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HUM 210</td>
<td>Humanities</td>
<td></td>
</tr>
<tr>
<td>HUM 211</td>
<td>Humanities</td>
<td></td>
</tr>
<tr>
<td>ENG 383</td>
<td>African American Literature</td>
<td></td>
</tr>
<tr>
<td>MUS 234</td>
<td>African American Music</td>
<td></td>
</tr>
<tr>
<td>Select one of the following Electives:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHM 431</td>
<td>Biochemistry I</td>
<td></td>
</tr>
<tr>
<td>CHM 432</td>
<td>Biochemistry II</td>
<td></td>
</tr>
<tr>
<td>CHM 431L</td>
<td>Biochemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHM 432L</td>
<td>Biochemistry II Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHM 481</td>
<td>Special Topics in Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHM 397</td>
<td>Introduction to Research</td>
<td></td>
</tr>
<tr>
<td>CHM 398</td>
<td>Introduction to Research</td>
<td></td>
</tr>
<tr>
<td>CHM 497</td>
<td>Introduction to Research</td>
<td></td>
</tr>
<tr>
<td>CHM 498</td>
<td>Introduction to Research</td>
<td></td>
</tr>
<tr>
<td>CHM 451</td>
<td>Chemistry Seminar I</td>
<td>1</td>
</tr>
<tr>
<td>CHM 473</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 545</td>
<td>Mathematical Method</td>
<td>3</td>
</tr>
<tr>
<td>MSE 530</td>
<td>Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td>Credits</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>BIO 110</td>
<td>General Biology and General Biology Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PHY 356</td>
<td>Heat and Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>PHY 580</td>
<td>Quantum Mechanics for Material Science</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>29</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>126</strong></td>
</tr>
</tbody>
</table>

1 May be taken during the freshman year upon the approval of the advisor.

**Materials Science Curriculum**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 697</td>
<td>Research I</td>
<td>1-9</td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>1-9</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Fifth Year</strong></td>
<td></td>
</tr>
<tr>
<td>MSE 533</td>
<td>Polymers/Composites</td>
<td>3</td>
</tr>
<tr>
<td>MSE 535</td>
<td>Electronic and Optic Material</td>
<td>3</td>
</tr>
<tr>
<td>MSE 575</td>
<td>Basic Instrumentation for Material Sci</td>
<td>3</td>
</tr>
<tr>
<td>MATS 799</td>
<td>Thesis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Select three of the following Technical Electives:</strong></td>
<td>9</td>
</tr>
<tr>
<td>CHM 573</td>
<td>Advanced Inorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHM 633</td>
<td>Molecular Dynamics</td>
<td></td>
</tr>
<tr>
<td>CHM 663</td>
<td>Atomic/ Molecular Spectroscopy</td>
<td></td>
</tr>
<tr>
<td>PHY 653</td>
<td>Solid State Physics</td>
<td></td>
</tr>
<tr>
<td>PHY 675</td>
<td>Electricity and Magnetism</td>
<td></td>
</tr>
<tr>
<td>MATS 610</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Credits</strong></td>
<td><strong>21</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>22-30</strong></td>
</tr>
</tbody>
</table>