**Bachelor of Science in Chemistry (Chemical Biology)**

PLEASE NOTE: This is a SAMPLE course plan only. Please meet with your advisor to ensure completion of all requirements

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Freshman** | | |  | **Sophomore** | | |
| *Fall* | *Spring* | *Units* | *Fall* | *Spring* | *Units* |
| **CHEM 107L or CHEM 115aL**  **(GE-E)**  **4 units** | **CHEM 108L or CHEM 115bL**  **4 units** | **4** | **CHEM 325aL**  **4 units** | **CHEM 325bL**  **4 units** | **4** |
| **MATH 125**  **(GE-F)**  **4 units** | **MATH 126**  **4 units** | **4** | **MATH 225 or MATH 226**  **(GE-F)**  **4 units** | **CHEM 300L**  **4 units** | **4** |
| **WRIT-150**  **4 units** | **GSEM 110, 120, 130**  **4 units** | **4** | **BISC 220 L (GE D)**  **4 units** | **GE-A, B, C, G, or H**  **4 units** | **4** |
| **Foreign Language I**  **4 units** | **Foreign Language II**  **4 units** | **4** | **Foreign Language III**  **4 units** | **GE-A, B, C, G, or H**  **4 units** | **4** |
| CHEM 294 (Optional) | CHEM 294 (Optional) | 1-2 | Elective  (Optional) | Elective  (Optional) | 2 |
|  | | |  | | |
| **Junior** | | | **Senior** | | |
| *Fall* | *Spring* | *Units* | *Fall* | *Spring* | *Units* |
| **PHYS 151L**  **4 units** | **PHYS 152L**  **4 units** | **4** | **CHEM 430\* (fa)**  **4 units** | **CHEM 431 (sp)**  **4 units** | **4** |
| **BISC 320L (fa)**  **4 units** | **Advanced Chemistry Elective\*\***  **4 units** | **4** | **Advanced Chemistry Elective\*\***  **4 units** | **Advanced Lab Elective\*\*\***  **4 units** | **4** |
| **CHEM 467L (fa)**  **2 units** | **CHEM 463L (sp)**  **2 units** | **2** | **CHEM 490**  **4 units** | **GE-A, B, C, G, or H**  **4 units** | **4** |
| **GE-A, B, C, G, or H**  **4 units** | **WRIT 340**  **4 units** | **4** | **GE-A, B, C, G, or H**  **4 units** | Elective (Optional) | **4** |
| **GE-A, B, C, G, or H**  **4 units** | **GE-A, B, C, G, or H**  **4 units** | **4** | Elective (Optional) | Elective (Optional) | 1-2 |

\*CHEM 432 (4 units, sp) is an alternative to CHEM 430

\*\*Advanced Chemistry Elective: Select 2 courses from CHEM 426 (4 units, fa), CHEM 453 (4 units, sp) and CHEM 520ab (2-2 units, fasp)

\*\*\*Advanced Laboratory Elective options; CHEM 332L (4 units, sp) or CHEM 423L (4 units, sp)

-A regular full-load is 16 units; 2 unit electives in addition to these 16 units are optional.  
-The GESM and GE requirements can be fulfilled in 5 courses if courses that double count are selected.

**B.S. degree in Chemistry (Chemical Biology): Key Courses**

|  |  |  |
| --- | --- | --- |
| Required Core courses, Lower division | | Units |
| BISC 220L | General Biology: Cell Biology and Physiology or | 4 |
| BISC 221L | Advanced General Biology: Cell Biology and Physiology | 4 |
| CHEM 107L /108L | General Chemistry for Chemistry Majors or | 4-4 |
| CHEM 115abL | Advanced General Chemistry | 4-4 |
| MATH 125 | Calculus I | 4 |
| MATH 126 | Calculus II | 4 |
| MATH 225 | Linear Algebra and Linear Differential Equations or | 4 |
| MATH 226 | Calculus III | 4 |
| PHYS 151L | Fundamentals of Physics I: Mechanics and Thermodynamics | 4 |
| PHYS 152L | Fundamentals of Physics II: Electricity and Magnetism | 4 |
|  |  |  |
| Required Core courses, Upper division | | Units |
| BISC 320L | Molecular Biology | 4 |
| CHEM 300L | Analytical Chemistry | 4 |
| CHEM 325abL | Organic Chemistry | 4-4 |
| CHEM 430 | Physical Chemistry: Thermodynamics and Kinetics or | 4 |
| CHEM 432 | Physical Chemistry for the Life Science | 4 |
| CHEM 431 | Physical Chemistry: Quantum Mechanics | 4 |
| CHEM 463L | Chemical Nanotechnology Laboratory | 2 |
| CHEM 467L | Advanced Chemical Biology Laboratory | 2 |
| CHEM 490x | Directed Research | 4 |
|  |  |  |
| Advanced Laboratory Elective, Four Units From Among: | | Units |
| CHEM 332L | Physical Chemistry Measurements | 4 |
| CHEM 423L | Advanced Laboratory Techniques in Organic and Inorganic Chemistry | 4 |
|  |  |  |
| Advanced Chemistry Elective, Four Units From Among: | | Units |
| CHEM 426 | Advanced Organic Chemistry | 4 |
| CHEM 453 | Advanced Inorganic Chemistry | 4 |
| CHEM 520ab | Biochemistry and Molecular Biology: An Introduction for Chemists | 2-2 |