|  |  |  |
| --- | --- | --- |
| **2021-2022****Courses in BOLD are required by this major****Courses in regular type are to fulfill general education requirements and DO NOT have to be taken the specific semester stated.*****Courses in ITALIC are strongly recommended*****ALSO REQUIRED FOR GRADUATION*** **120 credit hours**
* **39 Upper division credits**
* **2.00 GPA**
* **Completion of all major & essential education requirements**

**EE= Essential Education**  | **Bachelor of Science (B.S.) Degree - Chemistry***The chemistry major gives students the opportunity to study the major areas of chemistry: inorganic, organic, analytical, physical, and biochemistry. The major is designed as preparation for fields related to chemistry, such as medicine, dentistry, teaching, and law. The major will also prepare students for graduate study or careers in chemistry such as research and development, chemical engineering, organic chemistry, and toxicology..***Name:** **ID:**  |  |
| **First Year Fall*****(consider a May Term Class)*** | **EE****Learning Outcome** | **Sem. Hours** | **Date Met** | **First Year Spring** | **EE****Learning Outcome** | **Sem. Hours** | **Date Met** |
| **CHEM1410 Gen Chem. I Workshop** |  | **4** |  | **CHEM1420 Gen Chem. II Workshop** |  | **4** |  |
| ENGL1100 Discourse I ORENGL1010 English Honors | **LO 1 (a)** | **3** |  | **MATH1520 Calc. II** |  | **4** |  |
|  |  |  |  |
| **MATH1510 Calculus I** |  | **4** |  | Knowledge of Human Cultures: Social Science  | **LO 5 (c)** | **3** |  |
| Knowledge of the Physical and Natural World: Math  | LO 6 (b) | **3** |  |
| *BIOL1500 Fundamentals of Evolution-Ecology (a Biology majors class)* |  | **3** |  | Ethical Thinking and Action Course | LO 3 | 3 |  |
| INTD1100 Critical Thinking in Arts & Sciences\* | **LO 2** | **3** |  |  |  |  |  |
| **Total Hours** |  | **17** |  | **Total Hours** |  | **17** |  |
| **Second Year Fall*****(consider a May Term Class)*** | **EE****Learning Outcome** | **Sem.****Hours** | **Date Met** | **Second Year Spring** | **EE****Learning Outcome** | **Sem. Hours** | **Date Met** |
| **CHEM3410/3411 Org. Chem. I /lab** |  | **4** |  | **CHEM3420/3421 Org. Chem. II w/lab** |  | **4** |  |
| **PHYS1410 Elements of Phys. I w/lab** |  | **4** |  | **PHYS1420 Elements of Phys. II w/lab** |  | **4** |  |
| ENGL2100 Discourse II or HONR2010 Honors 201 | LO 1 (b) | **3** |  | *BIOL2100 Fund. Of Cell Bio & Genetics* |  | 3 |  |
| Knowledge of the Physical and Natural World: Science  | LO 6 (a) | **3** |  | Global Learning Course | LO 4 | 3 |  |
|  |  |  |  |  |  |  |  |
| **Total Hours** |  | **14** |  | **Total Hours** |  | **14** |  |
| **Notes: Be sure to connect with your faculty advisor early on during the third year to discuss internship opportunities! Internships need to be approved in order to receive academic credit.**  |
| **Third Year Fall*****(Check your degree audit!)*** | **EE****Learning Outcome** | **Sem.****Hours** | **Date Met** | **Third Year Spring** | **EE****Learning Outcome** | **Sem. Hours** | **Date Met** |
| **\* See Catalog for specific information****+ Denotes courses offered only every other year** | **+CHEM3610 Phys. Chem. I *(odd fall)*** *.or***+CHEM4330 Instr. Analysis** *(even fall)* |  | **4** |  | **+CHEM3620 Phys. Chem. II** *(even spring) or***+CHEM3300 Analytical Chem.***(odd spring)* |  | **4** |  |
| **BIOL/CHEM4310 Biochemistry** |  | **4** |  | **CHEM3110 Chem. Seminar I** |  | 1 |  |
| ENGL3100 Discourse III | LO 1 (c) | 3 |  |  |  |  |  |
| Knowledge of Human Cultures: Histories  | **LO 5 (d)** | 3 |  | *CSIT1100 Principles of Computing* |  | 3 |  |
| Elective       |  | **3** |  | Knowledge of Human Cultures: Humanities  | **LO 5 (b)** | 3 |  |
|  | Knowledge of Human Cultures: Arts  | **LO 5 (a)** | 3 |  |
|  |  |  |  |  |
|  | **Total Hours** |  | **17** |  | **Total Hours** |  | **14** |  |
|  |  |
|  | **Fourth Year Fall*****(Apply for graduation!)*** | **EE****Learning Outcome** | **Sem.****Hours** | **Date Met** | **Fourth Year Spring** | **EE****Learning Outcome** | **Sem. Hours** | **Date Met** |
|  | **+CHEM3610 Phys. Chem. I *(odd fall)*** *or***+CHEM4330 Instr. Analysis** *(even fall)* |  | **4** |  | **+CHEM3620 Phys. Chem. II** *(even spring) or***+CHEM3300 Analytical Chem.** *(odd spring)* |  | **4** |  |
|  | **BIOL/CHEM4120 Research I** |  | **1** |  | **BIOL/CHEM4130 Research II** |  | **1** |  |
|  | Upper Division Elective       |  | 3 |  | **CHEM4110 Chem. Seminar II** |  | **1** |  |
|  | Elective       |  | 3 |  | Upper Division Elective       |  | 3 |  |
|  | Elective       |  | 3 |  | Elective       |  | 3 |  |
|  |  | Elective       |  | 3 |  |
|  | **Total Hours** |  | **14** |  | **Total Hours** |  | **15** |  |
|  | **\* Graduation requirement for all first time freshmen****\*\****These courses are strongly recommended for Chemistry B.S. majors. A math minor is also strongly recommended.***DISCLAIMER: These plans are to be used as guides only and are subject to changes in curriculum requirements. Refer to your Graceland Catalog for complete and accurate information. Some courses listed on the plans may have prerequisites that have not been stated. The student has the ultimate responsibility for scheduling and meeting the graduation requirements.** |
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