|  |  |
| --- | --- |
| **Year: 2019-2020****Courses in BOLD are required by this major**Courses in regular type are to fulfill essential education requirements and DO NOT have to be taken the specific semester stated. Four of these must be theme-based courses from your chosen Essential Education Curriculum theme.***Courses in ITALIC are strongly recommended*****ALSO REQUIRED FOR GRADUATION*** **120 credit hours**
* **39 Upper division credits**
* **2.00 GPA**
* **Completion of all major & gen ed requirements**

**+ Denotes courses offered only every other year** | **Bachelor of Science (B.S.) Degree – Biology and Chemistry Double Major Name:       ID:** |
|  | **First Year Fall** | **Learning Outcome** | **Sem Hours** | **Date Met** | **First Year Spring** | **Learning Outcome** | **Sem Hours** | **Date Met** |
|  | **BIOL1500 Fund of Ecol & Evol** |  | **3** |  | **BIOL1520 Fund of Org. Biology** |  | **4** |  |
|  | **CHEM1430/1431 Prin of Chem I w/lab** |  | **4** |  | **CHEM1440/1441 Prin Chem. II w/lab** |  | **4** |  |
|  | **MATH1510 Calculus I** | **6b** | **3** |  | **MATH1520 Calculus II** |  | **3** |  |
|  | ENGL1100 Discourse I ORHONR1010 Honors 101 | 1a | 3 |  | Essential Education Class       |       | 3 |  |
|  | INTD1100 Critical Thinking in Arts & Sciences | 2 | 3 |  | Essential Education Class       |       | 3 |  |
|  | **Total Hours** |  |  |  | **Total Hours** |  |  |  |
|  | **Notes: Think about student leadership positions, volunteering or joining a club or organization on campus (Science club, etc.)** |
|  | **Second Year Fall*****(meet w/ advisor in your major(s)!)*** | **Learning Outcome** | **Sem****Hours** | **Date Met** | **Second Year Spring** | **Learning Outcome** | **Sem Hours** | **Date Met** |
|  | **CHEM3410/3411 Organic Chem I w/lab** |  | **4** |  | **CHEM3420/3421 Organic Chem II w/lab** |  | **4** |  |
|  | **PHYS1410 Elements of Physics I w/lab** |  | **4** |  | **PHYS1420 Elements of Phys II w/lab** |  | **4** |  |
|  | ENGL2100 Discourse II ORHONR2010 Honors 201 | 1b | **3** |  | **BIOL2100 Fund of Cell Bio & Gen** |  | **4** |  |
|  | BIOL2440 Plant Biology or BIOL2430 Animal Biology or Essential Education Class     Essential Education Class |  | **3-4****3** |  | Essential Education Class       |       | 3 |  |
|  | **Total Hours** |  |  |  | **Total Hours** |  |  |  |
|  | **Connect with your faculty advisor early the Junior year to discuss internships, graduate school admission, and mentoring programs. Notes:**  |
|  | **Third Year Fall*****(check your degree audit!)*** | **Learning Outcomes** | **Sem****Hours** | **Date Met** | **Third Year Spring*****(check your degree audit!)*** | **Learning Outcome** | **Sem Hours** | **Date Met** |
|  | **CHEM3610+ Phys Chem I w/Lab** (*odd fall*) |  | **4** |  | **CHEM3620+ Phys. Chem II w/Lab** *(even spring)* |  | **4** |  |
|  | ENGL3100 Discourse III | 1c | 3 |  | *CSIT1100**Principles of Computing*\*\*\* |  | 3  |  |
|  | **CHEM4310 Biochem** |  | **4** |  | **Biology Elective\*** |  | **3 or 4** |  |
|  | **Biology Elective\*** |  | **3 or 4** |  | **CHEM3110 Chem Seminar I** |  | **1** |  |
|  | **MATH1380 Intro to Statistics** |  | **3** |  | **Biology Elective\*\***       |       | **3 or 4** |  |
|  | **Total Hours** |  |  |  | **Total Hours** |  |  |  |
|  | **Notes:** |
|  | **Fourth Year Fall*****(apply for graduation!)*** | **Learning Outcome** | **Sem****Hours** | **Date Met** | **Fourth Year Spring** | **Learning Outcome** | **Sem Hours** | **Date Met** |
|  | **CHEM4330+ Instrumental Analysis W/Lab** *(even fall)* |  | **4** |  | **CHEM3300+ Analytical Chemistry W/Lab** *(odd spring)*  |  | **4** |  |
|  | **BIOL/CHEM4120 Sr Research I** |  | **1** |  | **BIOL/CHEM4130 Sr Research II** |  | **1** |  |
|  | **BIOL4110 Bio Seminar** |  | **1** |  | **CHEM4110 Chem Seminar II** |  | **1** |  |
|  | Essential Education Class       |       | **3** |  | **Biology Elective \*\***       |  | **3** |  |
|  | Essential Education Class  |       | **3**  |  | **Biology Elective\*\***        |  | **3-4** |       |
|  | **Biology Elective\***  |  | **3 or 4** |  | Essential Education Class       |       | 3 |       |
|  | **Total Hours** |  |  |  | **Total Hours** |  |  |  |
|  | **Notes:**  |
| **Updated:****4/13/19** |  |
|  | \* Choose five of the following courses with at least one in each of the three areas (17-20 s.h.) **AREA 1**: BIOL2360, 2430, 2440, 3400/3401 **AREA 2**: BIOL3310, 3500, 4310, 4450, 4460 **AREA 3**: BIOL3420, 3440, 4400 \*\* For students planning to attend professional or graduate school, there are several strongly recommended bio courses: **Professional School Recommendations:** ATHT2500, BIOL2360, 3120, 3310, 3420, 3440, 3500, 4310, 4450 **Graduate School Recommendations:** BIO3120, 3 BIOL electives (depending on field of interest) **Please meet with your faculty advisor to discuss these recommended courses.\*\*\****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.** |

