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| **2022-2023** | **Bachelor of Science (B.S.) Degree – Chemistry Major  Name:** **ID:** | | | | | | | |
| Courses in **BOLD** are required by this major  *Courses in ITALIC are strongly recommended*  +denotes courses offered only every other year  § Indicates general education requirement.  \*Indicates course satisfies general education requirement.  Students must choose one 3-hour course in each of the following areas: Art,  History, Humanities,  Natural Science  and  Social Sciences  ALSO REQUIRED FOR GRADUATION:   * 120 credit hours * 39 Upper division credits * 2.00 GPA * Completion of all requirements   Key:  GE##=General Education  LL=Life & Leadership  SS=Strategic Skills  **Update**  **10-3-22** |
| **First Year Fall** | **Learning Outcome** | **Sem Hours** | **Date Met** | **First Year Spring** | **Learning Outcome** | **Sem Hours** | **Date Met** |
| **CHEM1410 General Chemistry I Workshop\*** | GE3D | **4** |  | **CHEM1420 General Chemistry II Workshop** |  | **4** |  |
| **MATH1510 Calculus I\*** | GE2B | **4** |  | **MATH1520 Calculus 2** |  | **4** |  |
| UNIV1100 Digital fluency and citizenship | SS | 3 |  | *CHEM1450 Introduction to Organic and Biochemistry (suggested)* |  | 1 |  |
| LEAD1100 Self leadership I | LL | 2 |  | LEAD1200 Self Leadership II | LL | 2 |  |
| ENGL1100 – Composition I\* | GE1A | 3 |  | UNIV1200 Health and wholeness | SS | 3 |  |
|  |  |  |  | COMM1100 – Foundations of Public Speaking\* | GE1B | 3 |  |
| **Total Hours** |  | **16** |  | **Total Hours** |  | **17** |  |
| **Notes:** Join clubs and organizations on campus (Science club, etc.).  Start your networking circle by signing up for GU4U - <https://my.graceland.edu/ICS/Alumni_and_Friends/GU4U/>.  Find winter break or summer job shadowing and volunteer opportunities.    \*If you have transferred in a composition course, please take a liberal learning course in its place. | | | | | | | |
| **Second Year Fall** | **Learning Outcome** | **Sem**  **Hours** | **Date Met** | **Second Year Spring** | **Learning Outcome** | **Sem Hours** | **Date Met** |
| **CHEM3410/3411 Org Chem I w/lab** |  | **4** |  | **CHEM3420/3421 Org Chem II w/lab** |  | **4** |  |
| **BIOL2100 Cell Biology and Genetics w/ lab – (prereq. CHEM1450)** |  | **4** |  | **PHYS1420 Elements of Physics II w/lab** |  | **4** |  |
| **PHYS1410 Elements of Physics I w/lab** |  | **4** |  | UNIV2100 Social responsibility | SS | 3 |  |
| ENGL2110 – Composition II | GE1C | 3 |  | Elective |  | 3 |  |
| LEAD2100 Group Leadership I | LL | 2 |  | LEAD2200 Group Leadership II | LL | 2 |  |
| **Total Hours** |  | **17** |  | **Total Hours** |  | **16** |  |
| **Notes:** Find student leadership positions or join a club or organization on campus (Science club, etc.).  Check in with faculty regarding any standardized tests/requirements for grad school.  Find winter break or summer job shadowing and volunteer opportunities. | | | | | | | |
| **Third Year Fall**  ***(check your degree audit!)*** | **Learning Outcome** | **Sem**  **Hours** | **Date Met** | **Third Year Spring** | **Learning Outcome** | **Sem Hours** | **Date Met** |
| **+CHEM4330 Instrumental Analysis w/ lab** |  | **4** |  | **+CHEM3300 Analytical Chemistry w/ lab** |  | **4** |  |
| Elective |  | 3 |  | **BIOL/CHEM4111 Capstone Research I** |  | **1** |  |
| **MATH1370 Statistics for Sciences** | GE2A | **3** |  | Elective (two) |  | 6 |  |
| Liberal learning course§: Arts | GE3A | 3 |  | Liberal learning course§: History | GE3B | 3 |  |
| LEAD3100 Organizational Leadership I | LL | 2 |  | LEAD3200 Organizational Leadership II | LL | 2 |  |
| **Total Hours** |  | **15** |  | **Total Hours** |  | **16** |  |
| **Notes:** Research and apply for an internship fall of the junior year to be completed summer after junior year.  Connect with your faculty advisor for assistance with navigating this process.  Connect with your faculty advisor in the fall of the junior year to learn more about graduate school applications and standardized test requirements for professional school.  If you want to attend graduate school right after senior year, many applications open during the summer.  Check in with your advisor during your junior year about career opportunities outside graduate programs. | | | | | | | |
| **Fourth Year Fall**  ***(apply for graduation!)*** | **Learning Outcome** | **Sem**  **Hours** | **Date Met** | **Fourth Year Spring** | **Learning Outcome** | **Sem Hours** | **Date Met** |
| **+CHEM3610 Physical Chemistry I w/ lab** |  | **4** |  | **+CHEM3620 Physical Chemistry II w/ lab** |  | **4** |  |
| **+BIOL/CHEM4310 Biochemistry w/ lab** |  | **4** |  | **BIOL/CHEM4130 Capstone Research III** |  | **1-2\*\*** |  |
| **BIOL/CHEM4120 Capstone Research II** |  | **1-2\*\*** |  | Elective (two) |  | 6 |  |
| Liberal learning course§: Humanities | GE3C | 3 |  | Liberal learning course§: Social Science | GE3E | 3 |  |
| LEAD4100 Life and Leadership Practicum I | LL | 2 |  | LEAD4200 Life and Leadership Practicum II | LL | 2 |  |
| **Total Hours** |  | **14-15** |  | **Total Hours** |  | **16 - 17** |  |
| **Notes:** Check in with your advisor during your senior year about career opportunities outside graduate programs, including opportunities for a gap year that help make you a more competitive graduate school applicant.  \*\*Capstone Research II and III can be taken for 1-2 credits depending on how robust of a project you and your mentor design. | | | | | | | |

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.**

**Notes:**

-For students who plan to attend professional or graduate school, check with your graduate program for additional requirements (including anatomy, physiology, nutrition, sociology and/or psychology course).  Please meet with your faculty advisor to discuss.

-For students who plan to attend medical school, PA school or dental school, it is recommended to also take BIOL3420 Human Anatomy w/ lab and BIOL3440 Human Physiology w/ lab.

-For students who plan to attend veterinary school, it is recommended to also take BIOL3420, BIOL3440 and +BIOL2430 Animal Biology.

-For students whose graduate school contains a cadaver lab, a pottery course is recommended to fulfill their arts liberal learning course.