

Bachelor of Science, Major in Chemistry  
Program Grid

**Note:** This program grid is provided for guidance only. Degree completion is based on courses completed successfully and is subject to all applicable requirements and procedures in effect. Students should consult the B.Sc. Degree Advisor to confirm program requirements for their chosen degree.

| Course Number               | Course Name                               | Credits | Upper-Level Credits | Notes |
|-----------------------------|---|---------|---------------------|-------|
| English 1                   | 100-level English I                       | 3       |                     | 1     |
| English 2                   | 100-level English II                      | 3       |                     | 1     |
| MATH 100 or 121             | Calculus I                                | 4       |                     |       |
| MATH 101 or 122             | Calculus II                               | 4       |                     |       |
| Non-Science 100-499         | Non-Science Elective I                    | 3       |                     | 2     |
| Non-Science 100-499         | Non-Science Elective II                   | 3       |                     | 2     |
| CHEM 140A and 140L          | Chemistry Fundamentals I                  | 4       |                     |       |
| CHEM 141A or 142A, and 142L | Chemistry Fundamentals II                 | 4       |                     |       |
| PHYS 111 or 121             | Physics I                                 | 4       |                     |       |
| PHYS 112 or 122             | Physics II                                | 4       |                     |       |
| BIOL 201                    | Principles of Biochemistry I              | 3       |                     |       |
| CHEM 212                    | Environmental Chemical Analysis           | 4       |                     |       |
| CHEM 213                    | Practical Spectroscopy                    | 3       |                     |       |
| CHEM 222                    | Inorganic Chemistry                       | 4       |                     |       |
| CHEM 231                    | Organic Chemistry I                       | 4       |                     |       |
| CHEM 232                    | Organic Chemistry II                      | 4       |                     |       |
| CHEM 241                    | Physical Chemistry                        | 4       |                     |       |
| MATH 200-299                | 200-Level Mathematics Elective            | 3       |                     | 3     |
| CHEM 300                    | Green Chemistry and Toxicology            | 3       | 3                   |       |
| CHEM 312                    | Principles Instrumental Analysis          | 3       | 3                   |       |
| CHEM 341                    | Reaction Kinetics and Mechanisms          | 3       | 3                   |       |
| CHEM 351                    | Integrated Organic / Inorganic Laboratory | 4       | 4                   |       |
| CHEM 352                    | Integrated Physical Laboratory            | 4       | 4                   |       |
| CHEM 400                    | Emerging Topics & Professional Practice   | 3       | 3                   |       |
| CHEM 412                    | Advanced Topics in Analytical Chemistry   | 3       | 3                   |       |
| CHEM 441                    | Bonding, Structure, and Properties        | 3       | 3                   |       |
| CHEM 300-499                | Upper-Level Chemistry Elective I          | 3       | 3                   | 4     |
| CHEM 300-499                | Upper-Level Chemistry Elective II         | 3       | 3                   | 4     |
| CHEM 300-499                | Upper-Level Chemistry Elective III        | 3       | 3                   | 4     |
| Elective 300-499            | Upper-Level Elective I                    | 3       | 3                   | 5     |
| Elective 300-499            | Upper-Level Elective II                   | 3       | 3                   | 5     |
| Elective 300-499            | Upper-Level Elective III                  | 3       | 3                   | 5     |
| Elective 100-499            | General Elective I                        | 3       |                     | 6     |
| Elective 100-499            | General Elective II                       | 3       |                     | 6     |
| Elective 100-499            | General Elective III                      | 3       |                     | 6     |
| Elective 100-499            | General Elective IV                       | 3       |                     | 6     |
| Elective 100-499            | General Elective V                        | 3       |                     | 6     |
| Elective 100-499            | General Elective VI                       | 2       |                     | 6     |
| TOTAL:                      |   | 126     | 44                  |       |

See notes on the next page /...

## NOTES:

1. The Degree English Requirement can be met as follows:
  - Two of ENGL 115 (or 117), 125 (or 127), 135, 204, or an INTR course that includes a ENGL course exemption; or,
  - LBST 111 and 112.
2. Non-Science Electives can be any courses outside of the Science discipline numbered 100-499. The following courses may not be counted to meet this requirement, although they may be counted as general electives:
  - Any course beginning with the following discipline identifiers: AQUA, ASTR, BIOL, CHEM, CSCI, ENGC, ENGE, ENGM, ENGR, FISH, FRST, GEOL, MATH, PHYS, RMOT, QUME, and SCIE.
  - Anthropology: ANTH 111, 213, 214, 341B, 342, 343, 344, 350, 351, 352, 353 361, 401, 430, 449, 460.
  - Geography: GEOG 211, 212, 221, 226, 228, 326, 328, 372, 373, 374, 376, 426, 428.
  - Psychology: PSYC 204, 205, 300A, 300B, 301, 302, 305, 315, 316, 318, 319, 323, 324, 345, 365, 400, 415, 419, 445, 490, 491, 498A.
  - Kinesiology: KIN 201, 220, 301, 302, 400, 401.
3. The 200-Level Mathematics Elective can be chosen from MATH 141, 200, 203, 211, 241, or 254.
4. Upper-Level Chemistry Electives can be any CHEM course numbered 300-499. Additional Experiential Learning Opportunities (credits taken as electives):
  - CHEM 380 - (Independent Work Experience in Chemistry) (3 credits)
  - CHEM 390 - (Field Studies in Chemistry) (3 credits)
  - CHEM 491 - (Undergraduate Research Project) (6 credits)
5. Upper-Level Electives can be courses in any discipline numbered 300-499.
6. General Electives can be courses in any discipline numbered 100-499.