# CHEMISTRY (BS)

## Chemistry

***Concentration Not Yet Declared - BS in Chemistry***

*Suggested Four-Year Flowcharts are planning guides and do not represent a required course sequence. Courses may be completed in a different order, provided requisite requirements are satisfied.*

| | | |
|---|---|---|
| **First Year** | | |
| **Term 1** | | **Units** |
| CHEM 1120 | Fundamentals of Chemical Structure and Properties (5A & 5C) [1] | 4 |
| BIO 1151 | Life: Molecules and Cells (5B) [1] | 4 |
| MATH 1261 | Calculus I (2) [1] | 4 |
| General Education Requirement (1A) | | 3 |
| Free Elective [6,7] | | 1 |
| | **Units** | **16** |
| **Term 2** | | |
| CHEM 1103 | Research Methods I | 1 |
| CHEM 1122 | Fundamentals of Chemical Reactivity | 4 |
| MATH 1262 | Calculus II | 4 |
| PHYS 1141 | General Physics I | 4 |
| General Education Requirement (1C) | | 3 |
| | **Units** | **16** |
| **Second Year** | | |
| **Term 1** | | |
| CHEM 2220 | Inorganic Chemistry I: D-Block Chemistry | 3 |
| CHEM 2221 | Inorganic Chemistry I Laboratory | 1 |
| CHEM 2242 | Organic Chemistry I | 5 |
| MATH 2263 | Calculus III | 3 |
| General Education Requirement (1B) | | 3 |
| | **Units** | **15** |
| **Term 2** | | |
| CHEM 2201<br>or CHEM 2203 | Undergraduate Research<br>or Research Methods II | 1 |
| CHEM 3330 | Foundations of Chemical Analysis | 4 |
| PHYS 1143 | General Physics II | 4 |
| General Education Requirement | | 3 |
| General Education Requirement | | 3 |
| | **Units** | **15** |
| **Third Year** | | |
| **Term 1** | | |
| CHEM 3302 | Undergraduate Seminar II | 1 |
| CHEM 3352 | Biochemistry (Upper-Division 2/5) [1] | 4 |
| CHEM 3392 | Physical Chemistry I | 3 |
| CHEM 3393 | Physical Chemistry Laboratory I | 1 |
| Advanced Lecture/Laboratory Subdiscipline Extension Elective | | 4-5 |
| General Education Requirement | | 3 |
| | **Units** | **17** |
| **Term 2** | | |
| CHEM 3380 | Foundations of Macromolecular Chemistry | 4 |
| Advanced Lecture/Laboratory Subdiscipline Extension Elective | | 4-5 |
| General Education Requirement | | 3 |
| General Education Requirement | | 3 |
| | **Units** | **15** |
| **Fourth Year** | | |
| **Term 1** | | |
| CHEM 4461 | Senior Project I | 1 |
| Concentration or Advanced Elective Course [2,3,4,5] | | 4 |
| Concentration or Advanced Elective Course [2,3,4,5] | | 4 |
| General Education Requirement | | 3 |
| Free Elective [6,7] | | 2 |
| | **Units** | **14** |

| | | |
|---|---|---|
| **Term 2** | | |
| CHEM 4462 | Senior Project II | 1 |
| Concentration or Advanced Elective Course [2,3,4,5] | | 4 |
| Concentration or Advanced Elective Course [2,3,4,5] | | 1-4 |
| General Education Requirement | | 3 |
| Free Elective [6,7] | | 0-5 |
| | **Units** | **12** |
| | **Total Units** | **120** |

1 Required in Major or Support; also satisfies General Education (GE) requirement.

2 Courses taken to meet a Major requirement cannot be double-counted in the concentration or in the Advanced Electives.

3 Consultation with advisor is recommended prior to selecting advanced electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

4 Maximum of 4 units may be applied toward Advanced Electives from CHEM 4401.

5 Maximum of 2 units may be applied toward Advanced Electives from the following: CHEM 4404, CHEM 4485, CHEM 4495, or SCM/ENGR 3302.

6 If a General Education (GE) course is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.

7 Free Electives may need to be at the 3000-4000 level to ensure completion of the required minimum of 40 units of upper-division courses.

# Polymers and Coatings

***Polymers and Coatings Concentration - BS in Chemistry***

*Suggested Four-Year Flowcharts are planning guides and do not represent a required course sequence.*
*Courses may be completed in a different order, provided requisite requirements are satisfied.*

| | | |
|---|---|---|
| **First Year** | | |
| **Term 1** | | **Units** |
| CHEM 1120 | Fundamentals of Chemical Structure and Properties (5A & 5C) [1] | 4 |
| BIO 1151 | Life: Molecules and Cells (5B) [1] | 4 |
| MATH 1261 | Calculus I (2) [1] | 4 |
| General Education Requirement (1A) | | 3 |
| Free Elective [6,7] | | 1 |
| | **Units** | **16** |
| **Term 2** | | |
| CHEM 1103 | Research Methods I | 1 |
| CHEM 1122 | Fundamentals of Chemical Reactivity | 4 |
| MATH 1262 | Calculus II | 4 |
| PHYS 1141 | General Physics I | 4 |
| General Education Requirement (1C) | | 3 |
| | **Units** | **16** |
| **Second Year** | | |
| **Term 1** | | |
| CHEM 2220 | Inorganic Chemistry I: D-Block Chemistry | 3 |
| CHEM 2221 | Inorganic Chemistry I Laboratory | 1 |
| CHEM 2242 | Organic Chemistry I | 5 |
| MATH 2263 | Calculus III | 3 |
| General Education Requirement (1B) | | 3 |
| | **Units** | **15** |
| **Term 2** | | |
| CHEM 2201<br>or CHEM 2203 | Undergraduate Research<br>or Research Methods II | 1 |
| CHEM 3330 | Foundations of Chemical Analysis | 4 |
| CHEM 3380 | Foundations of Macromolecular Chemistry | 4 |
| PHYS 1143 | General Physics II | 4 |
| General Education Requirement | | 3 |
| | **Units** | **16** |
| **Third Year** | | |
| **Term 1** | | |
| CHEM 3302 | Undergraduate Seminar II | 1 |
| CHEM 3352 | Biochemistry (Upper-Division 2/5) [1] | 4 |
| CHEM 3392 | Physical Chemistry I | 3 |
| CHEM 3393 | Physical Chemistry Laboratory I | 1 |
| Advanced Lecture/Laboratory Subdiscipline Extension Elective | | 4-5 |
| General Education Requirement | | 3 |
| | **Units** | **17** |
| **Term 2** | | |
| CHEM 4486 | Surface Chemistry of Materials | 3 |
| Advanced Lecture/Laboratory Subdiscipline Extension Elective | | 4-5 |
| General Education Requirement | | 3 |
| General Education Requirement | | 3 |
| | **Units** | **14** |
| **Fourth Year** | | |
| **Term 1** | | |
| CHEM 4461 | Senior Project I | 1 |
| CHEM 4480 | Polymer Synthesis and Characterization | 3 |
| CHEM 4481 | Polymer Synthesis and Characterization Laboratory | 2 |
| General Education Requirement | | 3 |
| General Education Requirement | | 3 |
| Free Elective [6,7] | | 2 |
| | **Units** | **14** |

| | | |
|---|---|---|
| **Term 2** | | |
| CHEM 4462 | Senior Project II | 1 |
| CHEM 4482 | Coatings and Formulations | 3 |
| CHEM 4483 | Coatings and Formulations Laboratory | 2 |
| General Education Requirement | | 3 |
| Free Elective [6,7] | | 3 |
| | **Units** | **12** |
| | **Total Units** | **120** |

1 Required in Major or Support; also satisfies General Education (GE) requirement.

2 Courses taken to meet a Major requirement cannot be double-counted in the concentration or in the Advanced Electives.

3 Consultation with advisor is recommended prior to selecting advanced electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

4 Maximum of 4 units may be applied toward Advanced Electives from CHEM 4401.

5 Maximum of 2 units may be applied toward Advanced Electives from the following: CHEM 4404, CHEM 4485, CHEM 4495, or SCM/ENGR 3302.

6 If a General Education (GE) course is used to satisfy a Major or Support requirement, additional units of Free Electives may be needed to complete the total units required for the degree.

7 Free Electives may need to be at the 3000-4000 level to ensure completion of the required minimum of 40 units of upper-division courses.