

# Chemistry Major

## Area of Emphasis

Students must complete requirements in one of the following areas of emphasis:

- Chemistry
- American Chemical Society Certified Chemistry
- American Chemical Society Certified Environmental Chemistry

## Chemistry

| Code                                 | Title   | Credits   |
|--------------------------------------|---|-----------|
| <b>Supporting Courses</b>            |   | <b>29</b> |
| CHEM 207                             | Laboratory Safety   |           |
| CHEM 211<br>& CHEM 213               | Principles of Chemistry I<br>and Principles of Chemistry I Laboratory     |           |
| CHEM 212<br>& CHEM 214               | Principles of Chemistry II<br>and Principles of Chemistry II Laboratory   |           |
| MATH 202                             | Calculus and Analytic Geometry I  |           |
| MATH 203                             | Calculus and Analytic Geometry II   |           |
| PHYSICS 201                          | Principles of Physics I   |           |
| PHYSICS 202                          | Principles of Physics II  |           |
| <b>Upper-Level Courses</b>           |   | <b>28</b> |
| <b>Core Courses</b>                  |   |           |
| CHEM 302<br>& CHEM 304               | Organic Chemistry I<br>and Organic Chemistry Laboratory I                 |           |
| CHEM 303<br>& CHEM 305               | Organic Chemistry II<br>and Organic Chemistry Laboratory II               |           |
| CHEM 311                             | Analytical Chemistry  |           |
| CHEM 320<br>& CHEM 322               | Thermodynamics and Kinetics<br>and Thermodynamics and Kinetics Laboratory |           |
| CHEM 321<br>& CHEM 323               | Structure of Matter<br>and Structure of Matter Laboratory                 |           |
| CHEM 413                             | Instrumental Analysis   |           |
| <b>Electives (choose 4 credits):</b> |   |           |
| BIOLOGY 407                          | Molecular Biology   |           |
| BIOLOGY 408                          | Molecular Biology Laboratory  |           |
| CHEM 330                             | Biochemistry  |           |
| CHEM 331                             | Biochemistry Laboratory   |           |
| CHEM 402                             | Advanced Organic Chemistry  |           |
| CHEM 403                             | Advanced Organic Chemistry Laboratory                                     |           |
| CHEM 410                             | Inorganic Chemistry   |           |
| CHEM 411                             | Inorganic Chemistry Laboratory  |           |
| CHEM 417                             | Nuclear Physics and Radiochemistry  |           |
| CHEM 420                             | Polymer Chemistry   |           |
| CHEM 423                             | Polymer Chemistry Laboratory  |           |
| <b>Total Credits</b>                 |   | <b>57</b> |

## American Chemical Society Certified

| Code                      | Title             | Credits   |
|---------------------------|-------------------|-----------|
| <b>Supporting Courses</b> |                   | <b>37</b> |
| CHEM 207                  | Laboratory Safety |           |

|                              |  |           |
|------------------------------|--|-----------|
| BIOLOGY 201<br>& BIOLOGY 202 | Principles of Biology: Cellular and Molecular Processes<br>and Principles of Biology Lab: Cellular and Molecular Processes |           |
| CHEM 211<br>& CHEM 213       | Principles of Chemistry I<br>and Principles of Chemistry I Laboratory  |           |
| CHEM 212<br>& CHEM 214       | Principles of Chemistry II<br>and Principles of Chemistry II Laboratory  |           |
| MATH 202                     | Calculus and Analytic Geometry I   |           |
| MATH 203                     | Calculus and Analytic Geometry II  |           |
| MATH 209                     | Multivariate Calculus  |           |
| PHYSICS 201                  | Principles of Physics I  |           |
| PHYSICS 202                  | Principles of Physics II   |           |
| <b>Upper-Level Courses</b>   |  | <b>35</b> |
| <b>Core Courses</b>          |  |           |
| CHEM 302<br>& CHEM 304       | Organic Chemistry I<br>and Organic Chemistry Laboratory I  |           |
| CHEM 303<br>& CHEM 305       | Organic Chemistry II<br>and Organic Chemistry Laboratory II  |           |
| CHEM 311                     | Analytical Chemistry   |           |
| CHEM 320<br>& CHEM 322       | Thermodynamics and Kinetics<br>and Thermodynamics and Kinetics Laboratory  |           |
| CHEM 321<br>& CHEM 323       | Structure of Matter<br>and Structure of Matter Laboratory  |           |
| CHEM 330<br>& CHEM 331       | Biochemistry<br>and Biochemistry Laboratory  |           |
| CHEM 410<br>& CHEM 411       | Inorganic Chemistry<br>and Inorganic Chemistry Laboratory  |           |
| CHEM 413                     | Instrumental Analysis  |           |
| CHEM 496                     | Project/Research Assistantship (3 credits of Research is required)   |           |
| <b>Total Credits</b>         |  | <b>72</b> |

## American Chemical Society Certified in Environmental Chemistry

| Code                         | Title  | Credits   |
|------------------------------|--|-----------|
| <b>Supporting Courses</b>    |  | <b>48</b> |
| BIOLOGY 201<br>& BIOLOGY 202 | Principles of Biology: Cellular and Molecular Processes<br>and Principles of Biology Lab: Cellular and Molecular Processes |           |
| BIOLOGY 323<br>& BIOLOGY 324 | Principles of Microbiology<br>and Principles of Microbiology Laboratory  |           |
| CHEM 207                     | Laboratory Safety  |           |
| CHEM 211<br>& CHEM 213       | Principles of Chemistry I<br>and Principles of Chemistry I Laboratory  |           |
| CHEM 212<br>& CHEM 214       | Principles of Chemistry II<br>and Principles of Chemistry II Laboratory  |           |
| ENV SCI 102                  | Introduction to Environmental Sciences   |           |
| GEOSCI 202                   | Physical Geology   |           |
| MATH 202                     | Calculus and Analytic Geometry I   |           |
| MATH 203                     | Calculus and Analytic Geometry II  |           |
| MATH 260                     | Introductory Statistics  |           |
| PHYSICS 201                  | Principles of Physics I  |           |
| PHYSICS 202                  | Principles of Physics II   |           |
| <b>Upper-Level Courses</b>   |  | <b>39</b> |
| <b>Core Courses</b>          |  |           |
| CHEM 302<br>& CHEM 304       | Organic Chemistry I<br>and Organic Chemistry Laboratory I  |           |

|                        |   |
|------------------------|---|
| CHEM 303<br>& CHEM 305 | Organic Chemistry II<br>and Organic Chemistry Laboratory II               |
| CHEM 311               | Analytical Chemistry  |
| CHEM 320<br>& CHEM 322 | Thermodynamics and Kinetics<br>and Thermodynamics and Kinetics Laboratory |
| CHEM 321<br>& CHEM 323 | Structure of Matter<br>and Structure of Matter Laboratory                 |
| CHEM 330<br>& CHEM 331 | Biochemistry<br>and Biochemistry Laboratory                               |
| CHEM 410<br>& CHEM 411 | Inorganic Chemistry<br>and Inorganic Chemistry Laboratory                 |
| CHEM 413               | Instrumental Analysis   |
| CHEM 496               | Project/Research Assistantship (3 credits of Research is required)        |
| ENV SCI 305            | Environmental Systems   |
| <hr/>                  |   |
| <b>Total Credits</b>   | <b>87</b>   |