CHEMISTRY, MAJOR - TEACHING

Teaching (Code 100-204)

University Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GRADUATION REQUIREMENTS FOR BACCALAUREATE DEGREE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Credit Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum total for graduation ¹</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>Upper division credits (courses numbered 300 and higher)</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Liberal Education Core</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Academic Concentrations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade Point Requirements ²</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>Resident</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>Major</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>Minor</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>Certificate</td>
<td>2.00 average</td>
</tr>
<tr>
<td></td>
<td>University Residency Requirements ³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum total</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Senior year</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Major, Standard, upper division in residence</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Major, Comprehensive, upper division in residence</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Certificate</td>
<td>25 percent of credits</td>
</tr>
</tbody>
</table>

Procedures Required for Graduation

Obtain admission to the degree program and/or the College offering it.

Apply for graduation on CampS.

¹ Certain programs exceed this minimum.

² See special requirements in each College.

³ See special requirements for the College of Education and Human Sciences.

Liberal Education Core

The University of Wisconsin-Eau Claire measures learning outcomes to ensure that its graduates have achieved a liberal education and prepared themselves to contribute to a complex society. Upon graduation, each undergraduate will have met the four learning goals of our liberal education core and the 11 learning outcomes they comprise.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIBERAL EDUCATION CORE REQUIREMENTS</td>
<td>a minimum of 36 credits</td>
</tr>
</tbody>
</table>

Knowledge Goal

Knowledge Outcome 1 (K1): Natural Sciences | Two (2) learning experiences

One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 2 (K2): Social Sciences | Two (2) learning experiences

One experience in laboratory science must be selected from either K1 or K2.

Knowledge Outcome 3 (K3): Humanities | Two (2) learning experiences

Knowledge Outcome 4 (K4): Fine Arts | One (1) learning experience

Skills Goal

Skills Outcome 1 (S1): Written and Oral Communication | Two (2) learning experiences

One S1 must meet the University Writing Requirement

Skills Outcome 2 (S2): Mathematics | One (1) learning experience

One S2 to meet the University Mathematics Requirement

Skills Outcome 3 (S3): Creativity | One (1) learning experience

Responsibility Goal

Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity | Two (2) learning experiences

One R1 must satisfy Design for Diversity

Responsibility Outcome 2 (R2): Global Perspectives | One (1) learning experience

Responsibility Outcome 3 (R3): Civic and Environmental Issues | One (1) learning experience

Integration Goal

Integration Outcome 1 (I1): Integration | Two (2) learning experiences

Service-Learning Goal

Service-Learning | 30 hours

College Degree Requirements

University Requirements in Teacher Education in the College of Education and Human Sciences

College Requirements for Teacher Education

All candidates for teacher education baccalaureate degrees must also meet the following:

1. Liberal Education requirements in the College of Education and Human Sciences.
2. Grade point requirements: undefined
3. Residency requirements: undefined
4. Criteria and requirements for Professional Programs and for Admission to the Professional Semester.
5. Specific requirements of programs offered in the College of Education and Human Sciences. (See the departmental sections of this catalog.)

Early Adolescence Through Adolescence and Early Childhood through Adolescence

(formerly Secondary Education and Special Subjects)

Liberal Education Requirements are listed in the table below

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>K1 (Natural Sciences)</td>
<td></td>
</tr>
</tbody>
</table>

At least one Biology course
AND at least one of Chemistry, Physics, Geography, or Geology course (one science lab required)

K2 (Social Sciences)
PSYC 260  Educational Psychology  3
AND another learning experience

K3 (Humanities)
One literature course AND another learning experience

K4 (Fine Arts)
One fine arts course

S1 (Written and Oral Communication)
At least one writing course from the following:

- WRIT 114  Intensive Blugold Seminar in Critical Reading and Writing
- WRIT 116  Blugold Seminar in Critical Reading and Writing
- WRIT 118  Accelerated Blugold Seminar in Critical Reading and Writing
- WRIT 120  Blugold Seminar in Critical Reading and Writing for Transfer Students

AND at least one oral communication course from the following:

- CJ 201  Introduction to Interpersonal Communication
- CJ 202  Fundamentals of Speech
- CJ 203  Fundamentals of Human Communication

S2 (Mathematics)
LE approved math course

S3 (Creativity)
ES 497  Field Experience Seminar (included in major)

R1 (Equity, Diversity, Inclusivity)
ES 385  Social Foundations: Human Relations (included in major)

AND another learning experience

R2 (Global Perspectives)
One LE approved course

R3 (Civic and Environmental Issues)
One LE approved course

IL (Integration)
ES 497  Field Experience Seminar (included in major)

AND another learning experience

NOTE: Course in Western History or Western Culture and course in Non-Western History or Non-Western Contemporary Culture is required.

Teaching Licensure Requirements - EA-A Licensure

Program Options B and C
These program options are organized around content majors and education courses and are designed to prepare teachers for early adolescence through adolescence (EA-A) teaching or for early childhood through adolescence (EC-A) teaching in selected areas. Each program requires the student to complete:

1. a comprehensive major (at least 60 credits) or a standard major (at least 36 credits) plus one of the following: another standard major (at least 36 credits), or a minor (at least 24 credits), or a certificate (12-18 credits). Students choosing another major or minor may choose from the approved majors and minors listed in the table below. The approved majors and minors lead to additional certification.

2. a professional sequence consisting of teaching methods and related courses. Advising is done through the content major department.

Upon admission to program, candidates are assigned an adviser in education as well.

Option B: EA-A

Early Adolescence through Adolescence Licensure

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Professional Sequence</td>
<td></td>
</tr>
<tr>
<td>ES 212</td>
<td>Initial Teaching Experience in Elementary, Middle, and</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>High School Settings</td>
<td></td>
</tr>
<tr>
<td>ES 312</td>
<td>General Methods of Teaching</td>
<td>2</td>
</tr>
<tr>
<td>ES 317</td>
<td>Middle Level Methods and Curriculum</td>
<td>2</td>
</tr>
<tr>
<td>ES 318</td>
<td>Teacher Assisting</td>
<td>1</td>
</tr>
<tr>
<td>ES 328</td>
<td>Content Area Reading and Study Strategies</td>
<td>2</td>
</tr>
<tr>
<td>ES 385</td>
<td>Social Foundations: Human Relations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Prescribed special methods course(s) (see approved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>majors and minors below)</td>
<td></td>
</tr>
<tr>
<td>ES 445</td>
<td>Student Teaching in Middle Level</td>
<td>14</td>
</tr>
<tr>
<td>&amp; ES 470</td>
<td>Education and Student Teaching in Secondary Education</td>
<td></td>
</tr>
<tr>
<td>or ES 446</td>
<td>Internship Teaching in Middle Level Education</td>
<td></td>
</tr>
<tr>
<td>or ES 475</td>
<td>Internship Teaching in Secondary Education</td>
<td></td>
</tr>
<tr>
<td>ES 490</td>
<td>Historical, Legal, and Philosophical Foundations of</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>ES 497</td>
<td>Field Experience Seminar</td>
<td>2</td>
</tr>
<tr>
<td>SPED 300</td>
<td>Inclusive Practices for Secondary Educators</td>
<td>2</td>
</tr>
</tbody>
</table>

NOTE: Although majors must be from the approved list below, the second plan may be from the approved list. Students pursuing EA-A licensure are not required to elect a second plan that leads to a teaching license.

Approved Majors and Minors for Option B

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broadfield Science add-on certification is available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with these majors and requires ES 359 (fall only) and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ES 367 (spring only). Students should contact their</td>
<td></td>
</tr>
<tr>
<td></td>
<td>advisor to discuss their intention to add the Broadfield</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Science certification.</td>
<td></td>
</tr>
</tbody>
</table>

Admission Requirements

Admission to Professional Education Programs

Major Requirements

The teaching chemistry major is tailored to the needs of chemistry students interested in secondary education.

A minimum of 54 semester credits, including:
Core Requirements for A.C.S., Liberal Arts and Teaching Chemistry Majors

Chemistry Core
Select one of the following:¹

- CHEM 115 Chemical Principles
- OR
- CHEM 103 General Chemistry I & CHEM 104 and General Chemistry II
- CHEM 213 Quantitative Analysis
- CHEM 218 Introduction to Inorganic Chemistry
- CHEM 325 Organic Chemistry I with Laboratory
- CHEM 326 Organic Chemistry II with Laboratory

Additional Required Courses
- PHYS 231 University Physics I
- PHYS 232 University Physics II
- MATH 114 Calculus I
- MATH 215 Calculus II

Total Credits 39

¹ Only six credits of the CHEM 103/CHEM 104 sequence are credited to the major.

Capstone Experience for Chemistry Majors
The capstone experience is met by completing by CHEM 411 for chemistry with business emphasis majors, and by CHEM 420, CHEM 438, CHEM 453 or CHEM 497 for other chemistry majors.

Chemistry, Major - Teaching
Requirements
In addition to the chemistry core and required mathematics/physics courses, students must complete the following course work:

- CHEM 433 Physical Chemistry I
  & CHEM 434 and Physical Chemistry II
  One of the following:
    - CHEM 420 Advanced Synthesis Laboratory
    - CHEM 438 Physical Analysis Laboratory
    - CHEM 453 Biochemistry Laboratory

Electives
Select 5 credits of the following:

- CHEM 304 Environmental Chemistry
- CHEM 318 Bioinorganic Chemistry
- CHEM 352 Fundamentals of Biochemistry
- CHEM 361 Molecules and Medicine
- CHEM 397 Chemical Literature and Communication
- CHEM 399 Independent Study - Juniors
- CHEM 401 Inorganic Chemistry
- CHEM 411 Survey of Industrial Chemistry
- CHEM 420 Advanced Synthesis Laboratory
- CHEM 426 Modern Organic Chemistry
- CHEM 438 Physical Analysis Laboratory
- CHEM 442 Instrumental Analysis
- CHEM 444 Modern Applied Separations and Spectrometry
- CHEM 453 Biochemistry Laboratory
- CHEM 460 Polymer Chemistry
- CHEM 491 Special Topics
- CHEM 495 Directed Studies
- CHEM 497 Independent Study (ACS)
- CHEM 499 Independent Study - Seniors

Total Credits 15

This major is restricted to students in the College of Education and Human Sciences: Education Studies: Option B and leads to licensure to teach Chemistry in Early Adolescence through Adolescence classrooms. A minor in biology, mathematics, or physics is recommended.

Broadfield Science licensure
NOTE: Completion of the following requirements and ES 367 may be used in lieu of a minor and adds Broadfield Science licensure to the Teaching major:

Option 1
- At least 14 credits from one of the following areas: 14
  - BIOL 214 Human Anatomy and Physiology I
  - BIOL 221 Foundations of Biology I
  - BIOL 222 Foundations of Biology II
  - BIOL 223 Foundations of Biological Inquiry
  - BIOL 314 Human Anatomy and Physiology II

Option 2
- Select one of the following:
  - PHYS 211 General Physics
  - & PHYS 212 and General Physics
  - PHYS 231 University Physics I
  - & PHYS 232 University Physics II
  - additional credits above 212

Option 3
- One of:
  - GEOL 106 Earth Science
  - GEOL 110 Physical Geology
  - GEOL 115 Environmental Geology
  - GEOL 118 Societal Issues in Earth Science
  - Select one of the following:
    - GEOG 104 The Physical Environment
    - GEOG 340 Climatology
    - GEOG 361 Environmental Hazards
    - Required:
      - PHYS 226 Astronomy-Solar System
      - additional courses from the following:
        - GEOL 102 Oceanography
        - GEOL 301 Earth Resources
        - GEOL 303 Rocky Mountain Field Studies
        - GEOL 308 Water Resources
        - PHYS 229 Astronomy-Stars and Galaxies
        - GEOG 200 Foundations of Geography
        - GEOG 304 Introduction to Geomorphology
        - GEOG 340 Climatology
        - GEOG 361 Environmental Hazards
B) Eight credits in each of the two areas not selected in A above.

Option 1
- BIOL 105 General Biology
- BIOL 151 Biology of Humans

Option 2
Select one of the following:
- PHYS 211 General Physics
  & PHYS 212 and General Physics
- PHYS 231 University Physics I
  & PHYS 232 and University Physics II

Option 3
Select one of the following:
- GEOL 106 Earth Science
- GEOL 110 Physical Geology
- GEOL 115 Environmental Geology
- GEOL 118 Societal Issues in Earth Science
- GEOG 104 The Physical Environment

Required:
- PHYS 226 Astronomy-Solar System
  or PHYS 229 Astronomy-Stars and Galaxies