PHYSICS-MATHEMATICS, PHYSICS EMPHASIS, COMPREHENSIVE MAJOR - TEACHING

Teaching (Code 210-003)

University Requirements

GRADUATION REQUIREMENTS FOR BACCALAUREATE DEGREE

Credit Requirements

Minimum total for graduation 1 120
Upper division credits (courses numbered 300 and higher) 39
Liberal Education Core 36

Academic Concentrations

Grade Point Requirements 2

Total 2.00 average
Resident 2.00 average
Major 2.00 average
Minor 2.00 average
Certificate 2.00 average

University Residency Requirements

Minimum total 30
Senior year 23
Major, Standard, upper division in residence 12
Major, Comprehensive, upper division in residence 21
Certificate 25 percent of credits

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.

Applicability of Credits Toward Graduation

Junior College or Two-Year College Credits. A maximum of 72 semester credits earned in a junior college or two-year college will be accepted as degree credits at UW-Eau Claire.

Extension Credits. Credits earned in credit outreach courses offered by UW-Eau Claire are treated as resident credits. Credits earned in extension courses offered by other units of the University of Wisconsin System are treated as transfer credits. All other (non-UW) extension and correspondence credits are normally limited to one-fourth of the total required for graduation from any curriculum.

WTCS Credits. A maximum of 72 semester credits earned in college parallel programs at Madison Area Technical College, Milwaukee Area Technical College, Nicolet Area Technical College, or Chippewa Valley Technical College may be accepted as degree credits at UW-Eau Claire. A set number of general education courses will be accepted from other technical schools. Occupational and technical courses may also be considered for transfer if the quality and content of the course work from the technical college is judged to be comparable to course work at UW-Eau Claire. Refer to the Transfer Credit Wizard (https://my.uwec.edu/psp/PUBLIC/EMPLOYEE/HRMS/c/EAU_SS_CUSTOM.EAU_TRNCRDWZ.GBL) or contact the UW-Eau Claire Admissions Office for information about the current transfer policy.

USAFI Credit. UW-Eau Claire will accept up to 32 semester credits for work done through the United States Armed Forces Institute, under the provision for non-UW correspondence credit (see Extension Credits above).

Activity Credit (band, chorus, drama, KINS 100-184 courses) Students may count toward graduation no more than one credit of KINS 110-184 courses. Students may count toward graduation no more than four credits earned in any single activity course and no more than 12 credits resulting from any combination of activity courses (excluding KINS 110-184 courses).

Other Restricted Credits. For other University restrictions, see the following: Cooperative Education; Credit by Examination; Satisfactory/Unsatisfactory Registration; Transfer of Credits. College or departmental restrictions may also be placed on Independent Study (399-499 courses), Directed Study (395-495), and other types of credits.

APPLICABILITY OF CREDITS TOWARD GRADUATION

Credit Restrictions

Satisfactory/Unsatisfactory
Total degree credit maximum 12
Major, Standard maximum 1 course
Major, Comprehensive maximum 2 courses

Credit by Examination
Total degree credit maximum ¼ of total
Major or minor maximum ½ of total

Two-Year College Credits
Total degree credit maximum 72 credits

Activity credit (band, chorus, drama, KINS 100-184)

Total KINS 100-184 maximum 1 credit
Total Band, chorus, drama maximum 12 credits
Single course band, chorus, drama maximum 4 credits

Extension credits

UW-System no maximum
Other extension/ correspondence maximum ¼ of total

USAFI

USAFI maximum 32 credits

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.
LIBERAL EDUCATION CORE REQUIREMENTS

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:
   - Resident: 2.75 average
   - Total: 2.75 average
   - Major: 2.75 average
   - Minor (for certification only): 2.75 average
3. Residency requirements:
   - Minimum Total: 30 credits
   - Senior Year: 23 credits
   - Major, in upper division courses: 12 credits
   - Comprehensive Major, in upper division courses: 21 credits
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>Knowledge Goal</th>
<th>Skills Goal</th>
<th>Responsibility Goal</th>
<th>Integration Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Outcome 1 (K1): Natural Sciences</td>
<td>Skills Outcome 1 (S1): Written and Oral Communication</td>
<td>Responsibility Outcome 1 (R1): Equity, Diversity, and Inclusivity</td>
<td>Integration Outcome 1 (I1): Integration</td>
</tr>
<tr>
<td>Knowledge Outcome 3 (K3): Humanities</td>
<td>Skills Outcome 3 (S3): Creativity</td>
<td>Responsibility Outcome 3 (R3): Civic and Environmental Issues</td>
<td></td>
</tr>
<tr>
<td>Knowledge Outcome 4 (K4): Fine Arts</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 advisor in education as well.

**Option C: EC-A**

**Early Childhood through Adolescence Licensure**

**Professional Sequence**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 212</td>
<td>Initial Teaching Experience in Elementary, Middle, and High School Settings</td>
<td>2</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>ES 490</td>
<td>Historical, Legal, and Philosophical Foundations of Education</td>
<td>3</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>

Prescribed special methods course(s) (see approved majors and minors below)

**Student Teaching Courses from list below:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 441</td>
<td>Student Teaching in Elementary Education</td>
<td>6</td>
</tr>
<tr>
<td>ES 445</td>
<td>Student Teaching in Middle Level Education</td>
<td>6</td>
</tr>
<tr>
<td>or ES 470</td>
<td>Student Teaching in Secondary Education</td>
<td>6</td>
</tr>
<tr>
<td>or ES 440</td>
<td>Internship Teaching in Elementary Education</td>
<td>6-12</td>
</tr>
<tr>
<td>or ES 446</td>
<td>Internship Teaching in Middle Level Education</td>
<td>6-12</td>
</tr>
<tr>
<td>or ES 475</td>
<td>Internship Teaching in Secondary Education</td>
<td>6-12</td>
</tr>
</tbody>
</table>

**Approved Majors and Minors for Option C**

<table>
<thead>
<tr>
<th>Comprehensiv Code</th>
<th>Majors</th>
<th>Prescribed Methods Course</th>
<th>Additional Requirement</th>
<th>Praxis II or ACTFL Content Test Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music, Instrumental/General</td>
<td>060-057</td>
<td>MUED 211, MUED 300, MUED 310, MUED 318, MUED 411</td>
<td></td>
<td>ETS 5113</td>
</tr>
<tr>
<td>Music, Choral/General</td>
<td>060-058</td>
<td>MUED 211, MUED 300, MUED 310, MUED 318, MUED 410</td>
<td></td>
<td>ETS 5113</td>
</tr>
<tr>
<td>Kinesiology</td>
<td>991-065</td>
<td>KINS 290</td>
<td></td>
<td>ETS 5091</td>
</tr>
</tbody>
</table>

**Majors**

<table>
<thead>
<tr>
<th>Code</th>
<th>Prescribed Methods Course</th>
<th>Additional Requirement</th>
<th>Praxis II ACTFL Content Test Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>260-203</td>
<td>ES 366 (F) and ES 437 (Sp)</td>
<td>Study abroad in language</td>
</tr>
<tr>
<td>German</td>
<td>280-204</td>
<td>ES 366 (F) and ES 437 (Sp)</td>
<td>Study abroad in language</td>
</tr>
<tr>
<td>Spanish</td>
<td>320-203</td>
<td>ES 366 (F) and ES 437 (Sp)</td>
<td>Study abroad in language</td>
</tr>
</tbody>
</table>

**Minors**

<table>
<thead>
<tr>
<th>Code</th>
<th>Prescribed Methods Course</th>
<th>Additional Requirement</th>
<th>Praxis II ACTFL Content Test Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptive Physical Education</td>
<td>991-459</td>
<td>Only with KINS major</td>
<td>No addt'l exam</td>
</tr>
<tr>
<td>French</td>
<td>260-406</td>
<td>ES 366 (F) and ES 437 (Sp)</td>
<td>Only with F Lg major</td>
</tr>
<tr>
<td>German</td>
<td>280-406</td>
<td>ES 366 (F) and ES 437 (Sp)</td>
<td>Only with F Lg major</td>
</tr>
<tr>
<td>Spanish</td>
<td>320-407</td>
<td>ES 366 (F) and ES 437 (Sp)</td>
<td>Only with F Lg major</td>
</tr>
<tr>
<td>TESOL</td>
<td>550-410</td>
<td>ES 405 (F)</td>
<td>Only with F Lg major</td>
</tr>
</tbody>
</table>

**NOTE 1:** Students completing an EC-A comprehensive major or standard major may complete an additional major or minor with licensure at the EA-A level from the list under Option B above.

**Admission Requirements**

**Admission to Professional Education Programs**

**Major Requirements**

**Teaching (Code 210-003)**

Advisors: E. Hendrickson (Physics and Astronomy), L. Likkel (Physics and Astronomy), or A. Smith (Mathematics).

**Sixty semester credits including:**

<p>| PHYS 231 | University Physics I | 5 |</p>
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 232</td>
<td>University Physics II</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 332</td>
<td>University Physics III</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 340</td>
<td>Optics</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 350</td>
<td>Electric and Electronic Circuits</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH 215</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH 324</td>
<td>Linear Algebra</td>
<td>4</td>
</tr>
<tr>
<td>MATH 330</td>
<td>Modern Geometry</td>
<td>4</td>
</tr>
<tr>
<td>MATH 345</td>
<td>Introduction to Probability and Mathematical Statistics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 425</td>
<td>Abstract Algebra I</td>
<td>3</td>
</tr>
</tbody>
</table>

In addition to the above core of courses, each student must elect either a Physics Emphasis or a Mathematics Emphasis.

Teacher Education Candidates shall demonstrate content area proficiency through one of the following:

Students will earn a minimum 3.0/4.0 GPA in content courses OR through obtaining a passing score on the appropriate Praxis II/ACTFL exam.

For students who neither meet the minimum GPA requirement nor pass the appropriate Praxis II/ACTFL exam after at least two attempts, a content portfolio can be submitted which parallels the content evaluated on the Praxis II/ACTFL exam. The portfolio may only be submitted once.

A broad array of science courses in students' degree program is recommended.

Majors must complete BIOL 180 or GEOG 178 as part of their Liberal Education Program for certification reasons, but additional course work in other science disciplines would be helpful, such as CHEM 105 and CHEM 106, or CHEM 109.

### Physics Emphasis

1. At least thirteen credits from PHYS 226, PHYS 229, or any physics courses numbered above 325.
2. Additional courses from the Physics Emphasis or Mathematics Emphasis to give a minimum of 60 credits in mathematics and physics.

This major is restricted to students in the College of Education and Human Sciences: Education Studies: Option B and leads to licensure to teach Physics and Mathematics in Early Adolescence through Adolescence classrooms.

### Broadfield Science Licensure

NOTE: Completion of the following requirements and ES 360 adds Broadfield Science licensure to the Physics-Mathematics major:

#### A. Fourteen credits from one of the following areas:

**Area 1:**

- BIOL 151 Biology of Humans
- 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

**Area 2:**

- Ten credits in chemistry courses (CHEM 103, CHEM 104, or CHEM 105, CHEM 106, and CHEM 109) required for physics major
- CHEM 213 Quantitative Analysis

**Area 3:**

- GEOL 110 Physical Geology
- or GEOL 115 Environmental Geology
- GEOG 104 The Physical Environment
- PHYS 226 Astronomy-Solar System
- Plus one course from:
  - GEOL 102 Oceanography
  - GEOL 301 Earth Resources
  - GEOL 308 Water Resources
  - GEOL 418 Earth History
  - PHYS 229 Astronomy-Stars and Galaxies

#### B. Eight credits in each of the two areas not selected in A above:

**Area 1:**

- BIOL 151 Biology of Humans
- BIOL 214 Human Anatomy and Physiology I
- BIOL 221 Foundations of Biology I

**Area 2:**

- Ten credits in chemistry courses (CHEM 103, CHEM 104, or CHEM 105, CHEM 106, and CHEM 109) required for physics major

**Area 3:**

- GEOL 110 Physical Geology
- or GEOL 115 Environmental Geology
- GEOG 104 The Physical Environment
- PHYS 226 Astronomy-Solar System
- PHYS 229 Astronomy-Stars and Galaxies