Chemistry, BS - Chemical Education Concentration

This concentration meets the requirements of the American Chemical Society for certification and meets the requirements for an Alabama Class B High School Teacher’s Certificate.

• The Chemistry, BS - Chemical Education Concentration requires 139 credit hours.
• Unless otherwise noted a C- or better is required for all College of Science prerequisite courses.
• 39 of those 139 credit hours must be taken at 300 level or higher
• 12 credit hours of 300 level and above must be taken in the major or 6 credit hours in the major and 6 credit hours in the minor (if chosen).
• 12 of the last 18 credit hours must be taken at UAH, with an overall 25% of coursework taken at UAH.
• No more than 64 credit hours from a two-year college can be applied toward a UAH degree.

• For graduation application instructions, see here (http://catalog.uah.edu/undergrad/policies-procedures/application-graduation/).

Charger Foundations
*Please see Area V for CoS requirements that can also be used to fulfill Charger Foundations Requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>EH 101</td>
<td>COLLEGE WRITING I</td>
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<td>EH 102</td>
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Area I: Freshman Composition

Area II: Humanities and Fine Arts*

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<td>DRAWING: FOUNDATIONS</td>
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<tr>
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<td>TH 123</td>
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Literature

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Humanities and Fine Arts

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<td>or WLC 101J</td>
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<td>INTRO FOREIGN LANG I: RUSSIAN</td>
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<tr>
<td>or WLC 102S</td>
<td>INTRO FOREIGN LANG II: SPANISH</td>
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<tr>
<td>or WLC 102A</td>
<td>INTRO FOREIGN LANG II: ARABIC</td>
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<td>or WLC 102F</td>
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*Please see Area V for CoS requirements that can also be used to fulfill Charger Foundations Requirements.
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<td>or WLC 102R</td>
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<td>or WLC 202R</td>
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<td>PHL 101</td>
<td>INTRODUCTION TO PHILOSOPHY</td>
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<td>PHL 102</td>
<td>INTRO TO ETHICS</td>
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<td>INTRODUCTION TO LOGIC</td>
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<td>PHL 150</td>
<td>TECH, SCIENCE &amp; HUMAN VALUES</td>
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<td>WGS 200</td>
<td>INTRO WOMENS &amp; GENDER STUDIES</td>
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<td>ANCIENT &amp; MEDIEVAL WORLDS</td>
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<td>ARH SUR: WORLD ART</td>
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**Area III: Mathematics and Sciences**

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<tr>
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<tr>
<td>MA 107</td>
<td>ALGEBRA WITH APPLICATIONS</td>
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<tr>
<td>MA 110</td>
<td>FINITE MATHEMATICS</td>
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<tr>
<td>MA 112</td>
<td>PRECALCULUS ALGEBRA</td>
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<tr>
<td>MA 113</td>
<td>PRECALCULUS TRIGONOMETRY</td>
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<tr>
<td>MA 115</td>
<td>PRECALCULUS ALGEBRA &amp; TRIG</td>
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<tr>
<td>MA 120</td>
<td>MATH PROFESSIONAL APPLICATIONS</td>
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<td>MA 171</td>
<td>CALCULUS A</td>
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**Natural Sciences (Lab)**

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<tr>
<td>AST 100</td>
<td>SURVEY OF ASTRONOMY</td>
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<tr>
<td>AST 106</td>
<td>EXPLORING THE COSMOS I</td>
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<tr>
<td>AST 107</td>
<td>EXPLORING THE COSMOS II</td>
</tr>
<tr>
<td>BYS 109</td>
<td>FUNDAMENTALS OF BIOLOGY</td>
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<tr>
<td>BYS 119</td>
<td>PRINCIPLES OF BIOLOGY</td>
</tr>
<tr>
<td>BYS 120</td>
<td>ORGANISMAL BIOLOGY</td>
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<tr>
<td>BYS 215</td>
<td>HUMAN ANATOMY &amp; PHYSIOLOGY I</td>
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<tr>
<td>CH 101 &amp; CH 105</td>
<td>INTRO TO CHEMISTRY</td>
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<tr>
<td>CH 121 &amp; CH 125</td>
<td>GENERAL CHEMISTRY I</td>
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<td>CH 123 &amp; CH 126</td>
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*Total Units: 11-12*
### Area IV: History and Social and Behavioral Sciences*

| Code | Title                                      | Semester 
|------|--------------------------------------------|-----------
| HY 103 | WORLD HISTORY TO 1500                     | 3-6       
| HY 104 | WORLD HISTORY SINCE 1500                  |           
| HY 221 | UNITED STATES TO 1877                     |           
| HY 222 | UNITED STATES SINCE 1877                  |           

#### History

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<td>HY 104</td>
<td>WORLD HISTORY SINCE 1500</td>
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<tr>
<td>HY 221</td>
<td>UNITED STATES TO 1877</td>
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<td>HY 222</td>
<td>UNITED STATES SINCE 1877</td>
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#### Social and Behavioral Sciences

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<td>GS 200</td>
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<td>ESS 105</td>
<td>WORLD REGIONAL GEOGRAPHY</td>
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<td>ESS 110</td>
<td>PRINCIPLES OF HUMAN GEOGRAPHY</td>
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<td>PSC 101</td>
<td>INTRO TO AMERICAN GOVERNMENT</td>
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<td>PSC 260</td>
<td>INTRODUCTION TO INTERNATIONAL RELATIONS</td>
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<td>PY 101</td>
<td>GENERAL PSYCHOLOGY I</td>
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<td>PY 201</td>
<td>LIFE-SPAN DEVELOPMENT</td>
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<td>SOC 100</td>
<td>INTRO TO SOCIOLOGY</td>
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<td>SOC 102</td>
<td>ANALYSIS OF SOCIAL PROBLEMS</td>
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### Area V: College of Science Requirements

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<td>CALCULUS A</td>
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<td>MA 172</td>
<td>CALCULUS B</td>
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<tr>
<td>PH 111</td>
<td>GEN PHYSICS W/CALCULUS I</td>
<td>8</td>
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<tr>
<td>PH 114</td>
<td>GENERAL PHYSICS LAB I</td>
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Courses in this area may also be used to fulfill Charger Foundations requirements.
**Chemistry, BS - Chemical Education Concentration**

<table>
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<td>and GENERAL PHYSICS LAB II</td>
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<td><strong>Psychology (required to enter the Education Program)</strong></td>
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<td>GENERAL PSYCHOLOGY I</td>
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<td>PY 201</td>
<td>LIFE-SPAN DEVELOPMENT</td>
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<td><strong>Computer Science: Choose one</strong></td>
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<td>CS 100</td>
<td>INTRO COMPUTERS &amp; PROGRAM</td>
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<td>or CS 102</td>
<td>INTRO TO C PROGRAMMING</td>
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<td>or CS 103</td>
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**Major Requirements**

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<td>and GENERAL CHEMISTRY LAB II</td>
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<td>and QUANTITATIVE ANALYSIS LAB</td>
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<td>and ORGANIC CHEMISTRY LAB I</td>
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<td>CH 361</td>
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<td>CH 401</td>
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<td><strong>Chemical Education Courses</strong></td>
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<td>CHEMISTRY TEACHING METHODS</td>
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<td>PHYSICAL CHEMISTRY I</td>
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<td>or CH 347</td>
<td>BIOPHYSICAL CHEMISTRY I</td>
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<td>CH 345</td>
<td>EXPERIMENTAL PHYSICAL CHEM I</td>
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<td>CH 348</td>
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<td>Choose at least 3 credits from:</td>
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**Education Certification Requirements**

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<td>ED 308</td>
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The Chemistry, BS - Chemical Education Concentration degree requires 139 credits. At least 39 of the 139 credits must be at the 300+ level. These may be taken in any area including electives.

Total Semester Hours: 139

1. Students must take one literature and one history course. Students must also take either a second literature or history course to complete a sequence. Acceptable Literature sequences must include one early literature (EH 207 or EH 242 or EH 209) and one later literature (EH 208 or EH 210). Acceptable history sequences are (HY 103 + HY 104), or (HY 221 + HY 222).

2. Based on Math placement (http://www.uah.edu/science/departments/math/undergraduate-students/placement/), prerequisite (MA 112 and/or MA 113) Mathematics courses may be required.

3. No more than 6 hours can be taken in a single discipline.

4. For choices see the World Languages and Cultures (http://catalog.uah.edu/undergrad/colleges-departments/arts-humanities-social-sciences/foreign-languages-litertatures/#coursestext) department.

5. Courses in organic chemistry completed at the 2-year college level may be used to satisfy semester hour and prerequisite requirements for upper level chemistry courses at UAH but do not count toward the 300-level requirements of the minor.

Note: This is only an example and variations are possible, but please work with your advisor as some courses are only offered 1 semester out of the academic year.

Year 1

Fall
FYE 101S  CHARGER SUCCESS - SCIENCE  1
EH 101  COLLEGE WRITING I  3
MA 171  CALCULUS A  4
CH 121  GENERAL CHEMISTRY I  4
& CH 125  and GENERAL CHEMISTRY LAB I  4
BYS 119  PRINCIPLES OF BIOLOGY  4
& 119L  and LABORATORY  4
& 119R  and RECITATION  4

Term Semester Hours: 16

Spring
EH 102  COLLEGE WRITING II  3
MA 172  CALCULUS B  4
CH 123  GENERAL CHEMISTRY II  4
& CH 126  and GENERAL CHEMISTRY LAB II  4
BYS 120  ORGANISMAL BIOLOGY  4
& 120L  and ORGANISMAL BIOLOGY LAB  4
& 120R  and RECITATION  4

Term Semester Hours: 15

Year 2

Fall
CH 331  ORGANIC CHEMISTRY I  4
& CH 335  and ORGANIC CHEMISTRY LAB I  4
PH 111  GEN PHYSICS W/CALCULUS I  4
& PH 114  and GENERAL PHYSICS LAB I  4
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<td>CM 113</td>
<td>Intro to Rhetorical Communication</td>
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<td>Fine art</td>
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See Requirements tab for approved list.

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<thead>
<tr>
<th>Term</th>
<th>Semester Hours</th>
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<tbody>
<tr>
<td>Spring</td>
<td>17</td>
</tr>
<tr>
<td>CH 332 &amp; CH 336</td>
<td>ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY LAB II</td>
</tr>
<tr>
<td>CH 223 &amp; CH 224</td>
<td>QUANTITATIVE ANALYSIS and QUANTITATIVE ANALYSIS LAB</td>
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<tr>
<td>PH 112 &amp; PH 115</td>
<td>GEN PHYSICS W/CALC II and GENERAL PHYSICS LAB II</td>
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<tr>
<td>PY 201</td>
<td>LIFE-SPAN DEVELOPMENT</td>
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Year 3

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<tbody>
<tr>
<td>Fall</td>
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<tr>
<td>CH 347 &amp; CH 345</td>
<td>BIOPHYSICAL CHEMISTRY I and EXPERIMENTAL PHYSICAL CHEM I</td>
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<tr>
<td>CH 401</td>
<td>INORGANIC CHEMISTRY</td>
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<tr>
<td>History</td>
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Year 4

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<tr>
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<tr>
<td>CH 348 &amp; CH 346</td>
<td>BIOPHYSICAL CHEMISTRY II and EXPERIMENTAL PHYSICAL CHEM II</td>
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<tr>
<td>CH 361 &amp; CH 362</td>
<td>GENERAL BIOCHEMISTRY and GENERAL BIOCHEMISTRY LAB</td>
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<tr>
<td>2nd History or 3rd Social and Behavioral science</td>
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<tr>
<td>Humanities, 2nd Fine art or 2nd Literature</td>
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<tbody>
<tr>
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<tr>
<td>ED 301</td>
<td>INTRO TO EDUCATION PRACTICUM</td>
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<tr>
<td>ED 307</td>
<td>MULTICULTURAL FND EDUCATION</td>
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<td>ED 308</td>
<td>EDUCATIONAL PSYCHOLOGY</td>
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<td>EDC 301</td>
<td>TCHG THE EXCEPTIONAL CHILD</td>
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<tr>
<td>EDC 311</td>
<td>INSTR STRATEGIES INCLUSIVE CLR</td>
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<tbody>
<tr>
<td>Spring</td>
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<tr>
<td>ED 410</td>
<td>FOUNDATIONS EDUC EVALUAT</td>
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<tr>
<td>ED 423</td>
<td>TCHNG SCIENCE MID SEC SCH I</td>
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<tr>
<td>ED 350</td>
<td>TECHNOLOGY IN CLASSROOM</td>
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<td>Course Title</td>
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<tr>
<td>CS 100</td>
<td>INTRO COMPUTERS PROGRAM</td>
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<tr>
<td>or CS 102</td>
<td>or INTRO TO C PROGRAMING</td>
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<tr>
<td>or CS 103</td>
<td>or INTRO PROGRAMMING USING JAVA</td>
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<tr>
<td>or CS 104</td>
<td>or INTRO TO CS USING PYTHON</td>
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**Term Semester Hours:** 12

**Fifth Year**

**Fall**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>ED 408</td>
<td>TCHG READING/CONTENT AREA</td>
<td>3</td>
</tr>
<tr>
<td>ED 350</td>
<td>TECHNOLOGY IN CLASSROOM</td>
<td>3</td>
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<tr>
<td>or ED 309</td>
<td>or CLASSROOM &amp; BEHAVIOR MGMT</td>
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<tr>
<td>CH 315</td>
<td>CHEMISTRY TEACHING METHODS</td>
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<td>EH 301</td>
<td>TECHNICAL WRITING</td>
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**Term Semester Hours:** 12

**Spring**

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<td>ED 497</td>
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**Term Semester Hours:** 12

**Total Semester Hours:** 139