Chemistry Major Concentration IV: American Chemical Society Certified – Chemical Education Program*
*A similar route to teacher licensure is Concentration VII, which leads to a B.S. in Chemistry Education with a second major in Secondary Education

Core Requirements for All Concentrations**:1:

1, **CHEM 131 General Chemistry I (F, Sp, Su) 3
2, **CHEM 132 General Chemistry II (Sp, Su, F) 3
3, **CHEM 135L Special General Chemistry Lab I (F) 1
4, **CHEM 136L Special General Chemistry Lab II (Sp) 2
5, **CHEM 241 Organic Chemistry I (F) 3
6, **CHEM 242 Organic Chemistry II (Sp) 3
7, **CHEM 270 Inorganic Chemistry I (Sp) 3
8, **CHEM 287L Integrated Inorganic/Organic Lab I (F) 2
9, **CHEM 288L Integrated Inorganic/Organic Lab II (Sp) 2
10, **CHEM 331 Physical Chemistry I (Sp) 3
11, **CHEM 351 Analytical Chemistry (F) 4
12, **CHEM 361 Biochemistry I (F, Sp) 3
13, **CHEM 481 Literature and Seminar I (F) 1
14, **CHEM 482 Literature and Seminar II (Sp) 1
15, **MATH 235 Calculus I (F, Sp, Su) 4
16, **MATH 236 Calculus II (F, Sp, Su) 4
17, **PHYS 240 University Physics I (F, Sp) 3
18, **PHYS 250 University Physics II (Sp, F) 3
19, **PHYS 240L University Physics Lab I (F) 1
20, **PHYS 250L University Physics Lab II (Sp) 1
21, **CHEM 325 Chemical Hazards and Lab Safety (Fall odd) 1
22, **CHEM 352 Instrumental Analysis (Sp) 3
23, **CHEM 352L Instrumental Analysis Laboratory (Sp) 2
24, **CHEM 432 Physical Chemistry II (F) 3
25, **CHEM 438L Physical Chemistry Laboratory (F) 2

400 lab hours required for all ACS concentrations.

Additional ACS Chemical Education Program Requirements**:1:

Additional courses may NOT be taken credit / no credit

1. At least 55 additional lab hours from list of Electives (V) 1-5
2. CHEM 325 Chemical Hazards and Lab Safety (Fall odd) 1
3. BIO Minimum 3 credits (not BIO 103) 3-4
4. GEOL Minimum 3 credits (not GEOL 102, 115) 3-4
5. CHEM 352 Instrumental Analysis (Sp) 3
6. CHEM 352L Instrumental Analysis Laboratory (Sp) 2
7. CHEM 432 Physical Chemistry II (F) 3
8. CHEM 438L Physical Chemistry Laboratory (F) 2

It is necessary to be admitted to the teacher education program prior to enrolling in professional education courses. This is typically done during the sophomore year. Students should consult regularly with the Chemistry Education Advisor (Dr. Barbara Reisner) and the Secondary Education Science Advisor (Dr. Angela Webb).

Pre-Professional Studies in Education**: See COE requirements:

Freshman / Sophomore Year

1. PSYC 160 Life Span Human Development (F, Sp) 3
2. EDUC 300 Foundations of American Education (F, Sp) 3

Practicum I (7 credits, recommended that these be taken as a block)

1. EDUC 310 Teaching in a Diverse Society (F, Sp) 3
2. MSSE 370 Gen Instructional Methods for Grades 6-12 (F, Sp) 3
3. MSSE 371 Clinical Experience in Adolescent Ed (F, Sp) 1

Practicum II (9 credits, must be taken as a block)

1. MSSE 470 Teaching Methods Course (F, Sp) 3
2. MSSE 471 Content Area Field Experience in Middle Schools (F, Sp) 3
3. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
4. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
5. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
6. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
7. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
8. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
9. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
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20. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
21. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3
22. LED 440 Literacy-Based Learning in Secondary Education (F, S) 3

Students should apply for admission to the graduate program early in their senior year.

Master of Arts in Teaching Professional Studies in Education (Graduate)

Consult College of Education MAT Requirements. Courses will begin the summer after the B.S. in Chemistry is awarded. All undergraduate coursework must be completed prior to enrollment in the graduate program.

*It is the student’s responsibility to meet any required co- or pre- requisites.
**for ACS Chem Ed Program, Core Requirements must be completed with a C- or better, PSYC 160 with a C or better, other COE courses with B- or better

Updated April 2021
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**Electives – At least 55 Additional Lab Hours are Required**

The well-prepared student is encouraged to take as many of the additional departmental offerings as possible as electives with particular attention being given to junior and/or senior research projects.

<table>
<thead>
<tr>
<th>Credits</th>
<th>(Lab Hrs)</th>
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<tbody>
<tr>
<td>CHEM 280</td>
<td>Alt Lower-Div Chem Experience (V) 1-4</td>
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<tr>
<td>CHEM 325</td>
<td>Chemical Hazards and Lab Safety (F odd) 1</td>
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<tr>
<td>CHEM 353</td>
<td>Environmental Chemistry (Sp,odd) 3</td>
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<tr>
<td>CHEM 354</td>
<td>Environmental Chemistry Field Camp (Su) 3 (50)</td>
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<tr>
<td>CHEM 355</td>
<td>Geochemistry of Natural Waters (F) 3 (22)</td>
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<tr>
<td>CHEM 362</td>
<td>Biochemistry II (Sp) 3</td>
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<tr>
<td>CHEM 366L</td>
<td>Biochemistry Laboratory (Sp) 2 (90)</td>
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<tr>
<td>CHEM 375</td>
<td>Intro to Material Science (F) 3</td>
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<tr>
<td>CHEM 390</td>
<td>Problems in Chemistry (F,Sp) 1-3 (45-135)</td>
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<tr>
<td>CHEM 395</td>
<td>Perspectives in Chem (Industry/Gov't) (F) 1</td>
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<tr>
<td>CHEM 440</td>
<td>Intermediate Organic Chemistry (F even) 3</td>
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<td>CHEM 445</td>
<td>Polymer Chemistry (F odd) 3</td>
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<tr>
<td>CHEM 445L</td>
<td>Polymer Chemistry Lab (F odd) 1 (45)</td>
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<tr>
<td>CHEM 450</td>
<td>Nuclear and Radiation Chemistry (Sp even) 3</td>
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<tr>
<td>CHEM 450L</td>
<td>Nuclear &amp; Radiation Chemistry Lab (Sp even) 1 (45)</td>
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<tr>
<td>CHEM 455</td>
<td>Lasers &amp; Applications to Phys Sci (F even) 3 (22)</td>
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<tr>
<td>CHEM 480</td>
<td>Selected Topics in Chemistry (V) 1-4</td>
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<tr>
<td>CHEM 497</td>
<td>Undergrad Chemical Research (F,Sp) 2-4 (90-180)</td>
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<tr>
<td>CHEM 499</td>
<td>Honors (F,Sp) 6 (270)</td>
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</tbody>
</table>

(F = Fall, Sp = Spring, Su = Summer, V = varied, all are subject to change)

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