

# MAJOR IN NATURAL SCIENCES, CHEMISTRY EDUCATION CONCENTRATION

All Chemistry Education majors must maintain a 2.75 GPA and receive a C or better in all content and education courses for licensure. All Chemistry Education majors are expected to be prepared to take CHEM 120/CHEM 121 their first semester which requires MATH 118. All course work must be completed prior to Student Teaching (AUCC 4A/B/C requirement). Admission into the teacher licensure program is required for phase II education courses and above.

## Major Completion Map

### Distinctive Requirements for Degree Program:

#### Freshman

| Semester 1                                                                                   |                                                     | Critical | Recommended | AUCC | Credits |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------|----------|-------------|------|---------|
| CHEM 120                                                                                     | Foundations of Modern Chemistry (GT-SC2)            | X        |             | 3A   | 4       |
| CHEM 121                                                                                     | Foundations of Modern Chemistry Laboratory (GT-SC1) | X        |             | 3A   | 1       |
| CO 150                                                                                       | College Composition (GT-CO2)                        | X        |             | 1A   | 3       |
| LIFE 102                                                                                     | Attributes of Living Systems (GT-SC1)               | X        |             | 3A   | 4       |
| Select one course from the following:                                                        |                                                     | X        |             |      | 4       |
| MATH 155                                                                                     | Calculus for Biological Scientists I (GT-MA1)       |          |             | 1B   |         |
| MATH 160                                                                                     | Calculus for Physical Scientists I (GT-MA1)         |          |             | 1B   |         |
| MATH 117, MATH 118 may be necessary for some students to fulfill pre-requisite requirements. |                                                     | X        |             |      |         |

#### Total Credits

16

| Semester 2                                                                                                                                                                                                                                  |                                             | Critical | Recommended | AUCC | Credits |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------|-------------|------|---------|
| CHEM 241                                                                                                                                                                                                                                    | Foundations of Organic Chemistry            | X        |             |      | 4       |
| CHEM 242                                                                                                                                                                                                                                    | Foundations of Organic Chemistry Laboratory | X        |             |      | 1       |
| EDUC 275                                                                                                                                                                                                                                    | Schools, Society, and Self (GT-SS3)         | X        |             | 3C   | 3       |
| 1C ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc</a> )                                        |                                             |          | X           | 1C   | 3       |
| Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> ) |                                             |          | X           | 3B   | 3       |
| MATH 124, MATH 125, MATH 126 may be necessary for some students to fulfill pre-calculus requirements.                                                                                                                                       |                                             | X        |             |      |         |

#### Total Credits

14

#### Sophomore

| Semester 3                                                                            |                                              | Critical | Recommended | AUCC | Credits |
|---------------------------------------------------------------------------------------|----------------------------------------------|----------|-------------|------|---------|
| CHEM 231                                                                              | Foundations of Analytical Chemistry          | X        |             |      | 3       |
| CHEM 232                                                                              | Foundations of Analytical Chemistry Lab      | X        |             |      | 2       |
| EDUC 340                                                                              | Literacy and the Learner                     | X        |             |      | 3       |
| Select one course from the following:                                                 |                                              | X        |             |      | 4       |
| MATH 161                                                                              | Calculus for Physical Scientists II (GT-MA1) |          |             | 1B   |         |
| MATH 271                                                                              | Applied Mathematics for Chemists I           |          |             |      |         |
| Science/Math Elective <sup>1</sup>                                                    |                                              | X        |             |      | 3       |
| CHEM 120, CHEM 121 & MATH 155 or MATH 160 must be completed by the end of Semester 3. |                                              | X        |             |      |         |

#### Total Credits

15

| Semester 4                            |                                                 | Critical | Recommended | AUCC | Credits |
|---------------------------------------|-------------------------------------------------|----------|-------------|------|---------|
| CHEM 263                              | Foundations of Inorganic Chemistry              | X        |             |      | 4       |
| CHEM 264                              | Foundations of Inorganic Chemistry Laboratory   | X        |             |      | 1       |
| EDUC 350                              | Instruction I-Individualization/Management      | X        |             |      | 3       |
| EDUC 386                              | Practicum-Instruction I                         | X        |             |      | 1       |
| Select one course from the following: |                                                 | X        |             |      | 5       |
| PH 121                                | General Physics I (GT-SC1)                      |          |             | 3A   |         |
| PH 141                                | Physics for Scientists and Engineers I (GT-SC1) |          |             | 3A   |         |

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| Arts and Humanities ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities</a> ) | X | 3 |
| CO 150 & MATH 161 or MATH 271 and Physics I must be completed by the end of Semester 4.                                                                                                                                                     | X |   |

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| <b>Total Credits</b> | <b>17</b> |
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**Junior**

| <b>Semester 5</b>                                                                                                                                                                                                                          |                                                  | <b>Critical</b> | <b>Recommended</b> | <b>AUCC</b> | <b>Credits</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------|--------------------|-------------|----------------|
| CHEM 371                                                                                                                                                                                                                                   | Fundamentals of Physical Chemistry               | X               |                    |             | 4              |
| CHEM 372                                                                                                                                                                                                                                   | Fundamentals of Physical Chemistry Lab           | X               |                    |             | 1              |
| EDUC 461A                                                                                                                                                                                                                                  | Secondary Science and Technology Education I     | X               |                    |             | 3              |
| Select one of the following courses:                                                                                                                                                                                                       |                                                  | X               |                    |             | 5              |
| PH 122                                                                                                                                                                                                                                     | General Physics II (GT-SC1)                      |                 |                    | 3A          |                |
| PH 142                                                                                                                                                                                                                                     | Physics for Scientists and Engineers II (GT-SC1) |                 |                    | 3A          |                |
| Advanced Writing ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#advanced-writing</a> ) |                                                  |                 | X                  | 2           | 3              |
| Physics II must be completed by the end of Semester 5.                                                                                                                                                                                     |                                                  | X               |                    |             |                |

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| <b>Total Credits</b> | <b>16</b> |
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| <b>Semester 6</b>                                                                                                                                                                                                                                               |                                                  | <b>Critical</b> | <b>Recommended</b> | <b>AUCC</b> | <b>Credits</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-----------------|--------------------|-------------|----------------|
| CHEM 321                                                                                                                                                                                                                                                        | Foundations of Chemical Biology                  | X               |                    |             | 4              |
| CHEM 322                                                                                                                                                                                                                                                        | Foundations of Chemical Biology Laboratory       | X               |                    |             | 1              |
| EDUC 461B                                                                                                                                                                                                                                                       | Secondary Science and Technology Education II    | X               |                    |             | 3              |
| LIFE 103                                                                                                                                                                                                                                                        | Biology of Organisms-Animals and Plants (GT-SC1) | X               |                    | 3A          | 4              |
| Historical Perspectives ( <a href="https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives">https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives</a> ) |                                                  |                 | X                  | 3D          | 3              |
| LIFE 102 must be completed by the end of Semester 6.                                                                                                                                                                                                            |                                                  | X               |                    |             |                |

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| <b>Total Credits</b> | <b>15</b> |
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**Senior**

| <b>Semester 7</b>                    |                                             | <b>Critical</b> | <b>Recommended</b> | <b>AUCC</b> | <b>Credits</b> |
|--------------------------------------|---------------------------------------------|-----------------|--------------------|-------------|----------------|
| EDUC 450                             | Instruction II-Standards and Assessment     | X               |                    |             | 4              |
| EDUC 486E                            | Practicum: Instruction II                   | X               |                    |             | 1              |
| STAT 301                             | Introduction to Applied Statistical Methods | X               |                    |             | 3              |
| Select one group from the following: |                                             | X               |                    |             |                |
| Group A:                             |                                             |                 |                    |             | 4              |
| AA 100                               | Introduction to Astronomy (GT-SC2)          |                 |                    | 3A          |                |
| AA 101                               | Astronomy Laboratory (GT-SC1)               |                 |                    | 3A          |                |
| Group B:                             |                                             |                 |                    |             |                |
| GEOL 120                             | Geology and Society (GT-SC2)                |                 |                    | 3A          |                |
| GEOL 121                             | Experiential Geoscience Laboratory (GT-SC1) |                 |                    | 3A          |                |
| Science/Math Electives <sup>1</sup>  |                                             | X               |                    |             | 3              |

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| <b>Total Credits</b> | <b>15</b> |
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| <b>Semester 8</b>                                                                                    |                                 | <b>Critical</b> | <b>Recommended</b> | <b>AUCC</b> | <b>Credits</b> |
|------------------------------------------------------------------------------------------------------|---------------------------------|-----------------|--------------------|-------------|----------------|
| EDUC 485B                                                                                            | Student Teaching: Secondary     | X               |                    | 4A,4B,4C    | 11             |
| EDUC 493A                                                                                            | Seminar: Professional Relations | X               |                    | 4C          | 1              |
| The benchmark courses for the 8th semester are the remaining courses in the entire program of study. |                                 | X               |                    |             |                |

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| <b>Total Credits</b> | <b>12</b> |
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| <b>Program Total Credits:</b> | <b>120</b> |
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