

## Associate to Bachelors (A2B) Articulation Agreement

### Prescribed Curriculum: Gillette College

#### Associate of Science – General Science

| General Education Courses |              |                              | 27 CREDIT HOURS   |
|---------------------------|--------------|------------------------------|---|
|                           | Credit Hours | Community College Course No. | Course Title or Category  |
| Science                   | 4            | CHEM 1020                    | General Chemistry I   |
| Mathematics               | 4            | MATH 2200                    | Calculus I  |
| Cultural Studies          | 3            | Select 1 course from         | Cultural Studies “Global Diversity” or “Foreign Language” categories  |
|                           | 3            | Select 1 course from         | Cultural Studies “Social and Behavioral Sciences” category  |
| US & WY Constitutions     | 3            | Select 1 course from         | HIST 1211 US to 1865, HIST 1221 US from 1865, HIST 1251 Wyoming History, or POLS 1000 American and Wyoming Government |
| Communication             | 3            | ENGL 1010                    | English Composition I   |
|                           | 3            | COMM 2010                    | Public Speaking   |
| Gen Ed Course of Choice   | 4            | CHEM 1030                    | General Chemistry II  |

| Elective Courses  |                |                            | 33 CREDIT HOURS                               |
|-------------------|----------------|----------------------------|---|
|                   | Credit Hours   | Course No.                 | Course Title                                  |
| General Electives | 4              | CHEM 2420                  | Organic Chemistry I                           |
| Program Electives | 4              | CHEM 2440                  | Organic Chemistry II                          |
|                   | 4 <sup>1</sup> | MATH 1400, or<br>PHYS 1320 | College Algebra, or<br>College Physics II     |
|                   | 3 <sup>2</sup> | MATH 1405, or<br>MATH 2250 | Trigonometry, or<br>Elementary Linear Algebra |
|                   | 4              | MATH 2205                  | Calculus II                                   |
|                   | 3              | MATH 2310                  | Applied Differential Equations                |
|                   | 4              | PHYS 1310                  | College Physics I                             |
|                   | 7              | Select from                | Approved courses on Program Electives list    |

<sup>1</sup>College Algebra-ready Students take MATH 1400; Calculus-ready Students take PHYS 1320

<sup>2</sup>College Algebra-ready Students take MATH 1405; Calculus-ready Students take MATH 2250

**Associate of Science – General Science Total: 60<sup>3</sup> CREDIT HOURS**

<sup>3</sup>56 credits count toward the BS degree requirements for College Algebra-ready Students (MATH 1400 does not apply)

## Post-Associate Degree Prescribed Curriculum: South Dakota Mines

### Bachelor of Science – Chemistry

| General Education Courses    |              |                              | 6 CREDIT HOURS                                 |
|------------------------------|--------------|------------------------------|--|
|                              | Credit Hours | Community College Course No. | Course Title or Category                       |
| <b>Written Communication</b> | 3            | ENGL 289                     | Explorations in STEM Communications            |
| <b>Arts &amp; Humanities</b> | 3            | Select 1 course from         | General Education Arts and Humanities (Goal 4) |

| Major Required Courses |               |                              | 34 CREDIT HOURS                |
|------------------------|---------------|------------------------------|--------------------------------|
|                        | Credit Hours  | Course No.                   | Course Title                   |
| <b>Chemistry</b>       | 2             | CHEM 328L                    | Organic Chemistry II Lab       |
|                        | 4             | CHEM 332/332L                | Analytical Chemistry w/ Lab    |
|                        | 3             | CHEM 342                     | Physical Chemistry I           |
|                        | 3             | CHEM 352                     | Systematic Inorganic Chemistry |
|                        | 3             | CHEM 482                     | Environmental Chemistry        |
|                        | 5             | CHEM 344/344L                | Physical Chemistry II w/ Lab   |
|                        | 4             | CHEM 452/452L                | Inorganic Chemistry w/ Lab     |
|                        | 3             | CHEM 464                     | Biochemistry I                 |
|                        | 1             | CHEM 490                     | Seminar                        |
|                        | 1             | CHEM 370                     | Chemical Literature            |
| 5                      | CHEM 434/434L | Instrumental Analysis w/ Lab |                                |

| Other Required Courses |                |               | 0-4 CREDIT HOURS           |
|------------------------|----------------|---------------|----------------------------|
|                        | Credit Hours   | Course No.    | Course Title               |
| <b>Physics</b>         | 4 <sup>1</sup> | PHYS 209/209L | Fundamentals of Physics II |

<sup>1</sup>*Gillette College Calculus-ready students will complete 0 total credits of Other Required; College Algebra-ready students will complete 4 credits of PHYS 209/209L (4 total credits of Major Required)*

| Elective Courses         |              |                      | 20 CREDIT HOURS                 |
|--------------------------|--------------|----------------------|---------------------------------|
|                          | Credit Hours | Course No.           | Course Title                    |
| <b>Free Electives</b>    | 17           | Select with Advisor  | Free Electives                  |
| <b>Program Electives</b> | 3            | Select 1 course from | CHEM 420, 421, 426, 462, or 465 |

**Post-Associate Degree Total: 60-64<sup>2</sup> CREDIT HOURS**

<sup>2</sup>*Gillette College Calculus-ready students will complete 60 total credits; College Algebra-ready students will complete 64 total credits (MATH 1400 does not apply)*

**Bachelor of Science – Chemistry Total: 120 CREDIT HOURS**

# A2B Articulation Agreement Guarantees & Limitations

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## GUARANTEES

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Students who:

1. complete the Associate of Science - General Science degree prescribed curriculum at Gillette College exactly as it is identified in this articulation agreement, **and**
2. have the degree conferred on their education record at Gillette College (post high school graduation), **and**
3. earn a minimum cumulative grade point average (GPA) of 2.75 at the Gillette College, **and**
4. pass all 60 credits for the associate degree, earning a grade C- or higher in each course

are **guaranteed** the following at the South Dakota School of Mines and Technology (South Dakota Mines):

1. junior standing at South Dakota Mines with no more than 60-64 remaining credits to meet the graduation requirements for the Bachelor of Science degree in Chemistry.
2. admission to South Dakota Mines
3. admission to the Bachelor of Science degree in Chemistry.

## LIMITATIONS

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1. This agreement is between the Associate of Science – General Science degree at Gillette College and the Bachelor of Science degree in Chemistry at South Dakota Mines only.
2. Students must meet all admission and application requirements at South Dakota Mines, including the submission of all required documentation by stated deadlines. Students are advised to contact the Office of Admissions at the South Dakota Mines early in their transfer planning.
3. Student must have a cumulative grade point average (GPA) at the Gillette College of 2.75 or higher **and** only courses with grades of C- or higher are guaranteed to be accepted in transfer by South Dakota Mines.
4. The credit and course transfer guarantees described in this agreement apply to the Associate of Science – General Science degree at Gillette College and the Bachelor of Science degree in Chemistry at South Dakota Mines. If the student changes majors at Gillette College or at South Dakota Mines, the student is no longer covered by this Articulation Agreement and none of the Guarantees of the Agreement apply.
5. Students utilizing any form of transfer credit, including but not limited to credit awarded from other higher education institutions, standardized exam (CLEP, AP, DSST, etc.), prior learning assessment (military, certifications, ACE recommended credit, portfolio, challenge exam, work experience equivalent credit, etc.) to satisfy any Associate degree requirements will have those credits evaluated by South Dakota Mines. Should South Dakota Mines not accept the transfer credits accepted by Gillette College, the student will be required to make up the credit deficiency at South Dakota Mines.
6. No course substitutions are allowed for the courses listed in the Prescribed Curriculum for the associate degree at Gillette College.

## A2B CONTACT INFORMATION

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South Dakota Mines  
Office of the Provost  
605.394.2256  
[Provost@sdsmt.edu](mailto:Provost@sdsmt.edu)

Gillette College  
Academic & Student Affairs  
307.681.6000  
[admissions@gillettecollege.org](mailto:admissions@gillettecollege.org)

## RENEWAL, REVISION, and TERMINATION

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1. This Associate to Bachelor Articulation Agreement (A2B) shall be in effect July 1 – June 30 each year and will automatically renew annually unless action is taken by South Dakota Mines or Gillette College to terminate or modify it.
2. The South Dakota Mines Office of the Provost and the Gillette College Academic and Student Affairs department will collaborate to coordinate a review of the content of the associate and bachelor degrees on a three-year cycle to ensure this A2B is still appropriate.
3. South Dakota Mines and the Gillette College each reserve the right to seek revision of this agreement at any time.
4. Revision of any content of the agreement (except Appendices content) will be approved by each institution and result in a new agreement being signed, with copies retained by each institution.
  - a. Revision to any Appendices will be communicated to each institution, but do not need to be approved by each institution and will not result in a new agreement being signed by each institution.
5. South Dakota Mines and the Gillette College each reserve the right to seek termination of this agreement at any time.
6. Should the agreement be terminated, each institution agrees to collaborate and engage in appropriate plans to notify and work with impacted students, providing a minimum one-year advance notice of termination.

## APPROVALS

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Signed by:  
  
5201507DB0A34F5  
Brian Tande, Ph.D.  
President  
South Dakota Mines  
[Brian.Tande@sdsmt.edu](mailto:Brian.Tande@sdsmt.edu)

4/9/2025  
Date

Signed by:  
  
FE69AB9DF58D4CF  
Janell Oberlander, Ed.D.  
President  
Gillette College  
[JOberlander@gillettecollege.org](mailto:JOberlander@gillettecollege.org)

4/9/2025  
Date

DocuSigned by:  
  
F8ACCB3DD00E4AE  
Lance Roberts, Ph.D.  
Provost and Vice President for Academic Affairs  
South Dakota Mines  
[Lance.Roberts@sdsmt.edu](mailto:Lance.Roberts@sdsmt.edu)

4/9/2025  
Date

Signed by:  
  
C3F5C78030BA451  
Barry Spriggs, Ph.D.  
Vice President for Academic and Student Affairs  
Gillette College  
[BSpriggs@gillettecollege.org](mailto:BSpriggs@gillettecollege.org)

4/8/2025  
Date

Signed by:  
  
17AA1971BERB4A5  
Zhengtao Zhu, Ph.D.  
Department Head  
South Dakota Mines  
[Zhengtao.Zhu@sdsmt.edu](mailto:Zhengtao.Zhu@sdsmt.edu)

4/9/2025  
Date

Signed by:  
  
1FB80B279ED84FE  
Martin Fashbaugh  
Dean of Arts and Sciences  
Gillette College  
[MFashbaugh@gillettecollege.org](mailto:MFashbaugh@gillettecollege.org)

4/3/2025  
Date

## **Appendix A: Course Sequence**

## General Science (A.S.) – College Algebra-Ready

| Semester                           | Course No.            | Course Title  | Credit Hours | Completed |
|------------------------------------|-----------------------|---|--------------|-----------|
| Freshman<br>Year<br>First Semester | MATH 1400             | College Algebra   | 4*           |           |
|                                    | CHEM 1020             | General Chemistry I   | 4            |           |
|                                    | ENGL 1010             | English Composition I   | 3            |           |
|                                    | Select 1 course from: | Cultural Studies: Global Diversity or Foreign Languages areas | 3            |           |
| <i>Total Credits</i>               |                       |   | <b>14</b>    |           |

| Semester                               | Course No.            | Course Title   | Credit Hours | Completed |
|--|-----------------------|--|--------------|-----------|
| Freshman<br>Year<br>Second<br>Semester | MATH 1405             | Trigonometry   | 3            |           |
|  | CHEM 1030             | General Chemistry II                                     | 4            |           |
|  | Select 1 course from: | US/WY Constitution: HIST 1211, 1221, 1251, or POLS 1000  | 3            |           |
|  | COMM 2010             | Public Speaking  | 3            |           |
|  | Select 1 course from: | GEOG 1100, BIOL 1010, or other approved Program Elective | 3            |           |
| <i>Total Credits</i>                   |                       |  | <b>16</b>    |           |

| Semester                            | Course No.            | Course Title   | Credit Hours | Completed |
|-------------------------------------|-----------------------|--|--------------|-----------|
| Sophomore<br>Year<br>First Semester | CHEM 2420             | Organic Chemistry I                                      | 4            |           |
|                                     | MATH 2200             | Calculus I   | 4            |           |
|                                     | Select 1 course from: | Cultural Studies: Social & Behavioral Science area       | 3            |           |
|                                     | Select 1 course from: | GEOG 1100, BIOL 1010, or other approved Program Elective | 4            |           |
|                                     |                       |  |              |           |
| <i>Total Credits</i>                |                       |  | <b>15</b>    |           |

| Semester                                | Course No. | Course Title                   | Credit Hours | Completed |
|---|------------|--------------------------------|--------------|-----------|
| Sophomore<br>Year<br>Second<br>Semester | CHEM 2440  | Organic Chemistry II           | 4            |           |
|   | MATH 2310  | Applied Differential Equations | 3            |           |
|   | MATH 2205  | Calculus II                    | 4            |           |
|   | PHYS 1310  | College Physics I              | 4            |           |
| <i>Total Credits</i>                    |            |                                | <b>15</b>    |           |

|   |  |   |
|---|--|---|
| General Education Coursework Total:       |  | 27 credit hours                               |
| Major and Elective Coursework Total:      |  | 33 credit hours                               |
| <b>Gillette College Coursework Total:</b> |  | <b>60* CREDIT HOURS</b><br>(56 Credits Apply) |

## Course Sequence: South Dakota Mines – Fall Semester Start

### Chemistry (B.S.) – College Algebra-Ready: EVEN YEAR START

| Semester              | Course No.    | Course Title  | Credit Hours | Completed |
|-----------------------|---------------|---|--------------|-----------|
| Junior Year           | CHEM 332/332L | Analytical Chemistry w/ Lab                           | 4            |           |
| First Semester - FALL | CHEM 352      | Systematic Inorganic Chemistry                        | 3            |           |
|                       | CHEM 482      | Environmental Chemistry                               | 3            |           |
|                       | ENGL 289      | STEM Communication for Technical and Public Audiences | 3*           |           |
|                       |               | General Education – Arts/Humanities (Goal 4)          | 3*           |           |
| <b>Total Credits</b>  |               |   | <b>16</b>    |           |

| Semester                 | Course No.    | Course Title                     | Credit Hours | Completed |
|--------------------------|---------------|----------------------------------|--------------|-----------|
| Junior Year              | CHEM 452/452L | Inorganic Chemistry w/ Lab       | 4            |           |
| Second Semester - SPRING | CHEM 328L     | Organic Chemistry II Lab         | 2            |           |
|                          | PHYS 209/209L | Fundamentals of Physics II w/Lab | 4            |           |
|                          |               | Free Electives                   | 6            |           |
| <b>Total Credits</b>     |               |                                  | <b>16</b>    |           |

| Semester              | Course No.           | Course Title                                       | Credit Hours | Completed |
|-----------------------|----------------------|--|--------------|-----------|
| Senior Year           | Select 1 course from | Program Electives: CHEM 420, 421, 426, 462, or 465 | 3            |           |
| First Semester - FALL | CHEM 464             | Biochemistry I                                     | 3            |           |
|                       | CHEM 342             | Physical Chemistry I                               | 3            |           |
|                       |                      | Free Electives                                     | 7            |           |
|                       | CHEM 490             | Seminar  | 1            |           |
| <b>Total Credits</b>  |                      |  | <b>17</b>    |           |

| Semester                 | Course No.    | Course Title                 | Credit Hours | Completed |
|--------------------------|---------------|------------------------------|--------------|-----------|
| Senior Year              | CHEM 370      | Chemical Literature          | 1            |           |
| Second Semester - SPRING | CHEM 434/434L | Instrumental Analysis w/ Lab | 5            |           |
|                          | CHEM 344/344L | Physical Chemistry II w/ Lab | 5            |           |
|                          |               | Free Electives               | 4            |           |
| <b>Total Credits</b>     |               |                              | <b>15</b>    |           |

\*General Education Coursework Total: 6 credit hours

Major and Elective Coursework Total: 58 credit hours

**South Dakota Mines Coursework Total: 64 CREDIT HOURS**

## Course Sequence: South Dakota Mines – Fall Semester Start

### Chemistry (B.S.) – College Algebra-Ready: ODD YEAR START

| Semester              | Course No.    | Course Title  | Credit Hours | Completed |
|-----------------------|---------------|---|--------------|-----------|
| Junior Year           | CHEM 332/332L | Analytical Chemistry w/ Lab                           | 4            |           |
| First Semester - FALL | Chem 464      | Biochemistry I  | 3            |           |
|                       | ENGL 289      | STEM Communication for Technical and Public Audiences | 3*           |           |
|                       |               | General Education – Arts/Humanities (Goal 4)          | 3*           |           |
|                       |               | Free Electives  | 3            |           |
| <i>Total Credits</i>  |               |   | <b>16</b>    |           |

| Semester                 | Course No.    | Course Title                     | Credit Hours | Completed |
|--------------------------|---------------|----------------------------------|--------------|-----------|
| Junior Year              | CHEM 434/434L | Instrumental Analysis w/ Lab     | 5            |           |
| Second Semester - SPRING | CHEM 328L     | Organic Chemistry II Lab         | 2            |           |
|                          | CHEM 370      | Chemical Literature              | 1            |           |
|                          | PHYS 209/209L | Fundamentals of Physics II w/Lab | 4            |           |
|                          |               | Free Electives                   | 4            |           |
|                          |               |                                  |              |           |
| <i>Total Credits</i>     |               |                                  | <b>16</b>    |           |

| Semester              | Course No.           | Course Title                                       | Credit Hours | Completed |
|-----------------------|----------------------|--|--------------|-----------|
| Senior Year           | Select 1 course from | Program Electives: CHEM 420, 421, 426, 462, or 465 | 3            |           |
| First Semester - FALL | CHEM 352             | Systematic Inorganic Chemistry                     | 3            |           |
|                       | CHEM 342             | Physical Chemistry I                               | 3            |           |
|                       | CHEM 482             | Environmental Chemistry                            | 3            |           |
|                       |                      | Free Electives                                     | 4            |           |
|                       | CHEM 490             | Seminar  | 1            |           |
| <i>Total Credits</i>  |                      |  | <b>17</b>    |           |

| Semester                 | Course No.    | Course Title                 | Credit Hours | Completed |
|--------------------------|---------------|------------------------------|--------------|-----------|
| Senior Year              | CHEM 452/L    | Inorganic Chemistry/Lab      | 4            |           |
| Second Semester - SPRING | CHEM 344/344L | Physical Chemistry II w/ Lab | 5            |           |
|                          |               | Free Electives               | 6            |           |
| <i>Total Credits</i>     |               |                              | <b>15</b>    |           |

|   |                        |
|---|------------------------|
| *General Education Coursework Total:        | 6 credit hours         |
| Major and Elective Coursework Total:        | 58 credit hours        |
| <b>South Dakota Mines Coursework Total:</b> | <b>64 CREDIT HOURS</b> |

## General Science (A.S.) – Calculus-Ready

| Semester                           | Course No.            | Course Title  | Credit Hours | Completed |
|------------------------------------|-----------------------|---|--------------|-----------|
| Freshman<br>Year<br>First Semester | MATH 2200             | Calculus I  | 4            |           |
|                                    | CHEM 1020             | General Chemistry I   | 4            |           |
|                                    | ENGL 1010             | English Composition I   | 3            |           |
|                                    | Select 1 course from: | Cultural Studies: Global Diversity or Foreign Languages areas | 3            |           |
|                                    | Select 1 course from: | GEOL 1100, BIOL 1010, or other approved Program Elective      | 3            |           |
| <i>Total Credits</i>               |                       |   | <b>17</b>    |           |

| Semester                               | Course No. | Course Title         | Credit Hours | Completed |
|--|------------|----------------------|--------------|-----------|
| Freshman<br>Year<br>Second<br>Semester | MATH 2205  | Calculus II          | 4            |           |
|  | CHEM 1030  | General Chemistry II | 4            |           |
|  | PHYS 1310  | College Physics I    | 4            |           |
|  | COMM 2010  | Public Speaking      | 3            |           |
|  |            |                      |              |           |
| <i>Total Credits</i>                   |            |                      | <b>15</b>    |           |

| Semester                            | Course No.            | Course Title  | Credit Hours | Completed |
|-------------------------------------|-----------------------|---|--------------|-----------|
| Sophomore<br>Year<br>First Semester | CHEM 2410             | Organic Chemistry I                                     | 4            |           |
|                                     | PHYS 1320             | College Physics II                                      | 4            |           |
|                                     | Select 1 course from: | US/WY Constitution: HIST 1211, 1221, 1251, or POLS 1000 | 3            |           |
|                                     | MATH 2250             | Elementary Linear Algebra                               | 3            |           |
|                                     |                       |   |              |           |
| <i>Total Credits</i>                |                       |   | <b>14</b>    |           |

| Semester                                | Course No.            | Course Title   | Credit Hours | Completed |
|---|-----------------------|--|--------------|-----------|
| Sophomore<br>Year<br>Second<br>Semester | CHEM 2440             | Organic Chemistry II                                     | 4            |           |
|   | MATH 2310             | Applied Differential Equations                           | 3            |           |
|   | Select 1 course from: | Cultural Studies: Social & Behavioral Science area       | 3            |           |
|   | Select 1 course from: | GEOL 1100, BIOL 1010, or other approved Program Elective | 4            |           |
|   |                       |  |              |           |
| <i>Total Credits</i>                    |                       |  | <b>14</b>    |           |

|   |                        |
|---|------------------------|
| General Education Coursework Total:       | 27 credit hours        |
| Major and Elective Coursework Total:      | 33 credit hours        |
| <b>Gillette College Coursework Total:</b> | <b>60 CREDIT HOURS</b> |

## Course Sequence: South Dakota Mines – Fall Semester Start

### Chemistry (B.S.) – Calculus-Ready: EVEN YEAR START

| Semester              | Course No.    | Course Title  | Credit Hours | Completed |
|-----------------------|---------------|---|--------------|-----------|
| Junior Year           | CHEM 332/332L | Analytical Chemistry w/ Lab                           | 4            |           |
| First Semester - FALL | CHEM 352      | Systematic Inorganic Chemistry                        | 3            |           |
|                       | CHEM 482      | Environmental Chemistry                               | 3            |           |
|                       | ENGL 289      | STEM Communication for Technical and Public Audiences | 3*           |           |
|                       |               | General Education – Arts/Humanities (Goal 4)          | 3*           |           |
| <b>Total Credits</b>  |               |   | <b>16</b>    |           |

| Semester                 | Course No.    | Course Title               | Credit Hours | Completed |
|--------------------------|---------------|----------------------------|--------------|-----------|
| Junior Year              | CHEM 452/452L | Inorganic Chemistry w/ Lab | 4            |           |
| Second Semester - SPRING | CHEM 328L     | Organic Chemistry II Lab   | 2            |           |
|                          |               | Free Electives             | 9            |           |
|                          |               |                            |              |           |
| <b>Total Credits</b>     |               |                            | <b>15</b>    |           |

| Semester              | Course No.           | Course Title                                       | Credit Hours | Completed |
|-----------------------|----------------------|--|--------------|-----------|
| Senior Year           | Select 1 course from | Program Electives: CHEM 420, 421, 426, 462, or 465 | 3            |           |
| First Semester - FALL | CHEM 464             | Biochemistry I                                     | 3            |           |
|                       | CHEM 342             | Physical Chemistry I                               | 3            |           |
|                       | CHEM 490             | Seminar  | 1            |           |
|                       |                      | Free Electives                                     | 4            |           |
| <b>Total Credits</b>  |                      |  | <b>14</b>    |           |

| Semester                 | Course No.    | Course Title                 | Credit Hours | Completed |
|--------------------------|---------------|------------------------------|--------------|-----------|
| Senior Year              | CHEM 370      | Chemical Literature          | 1            |           |
| Second Semester - SPRING | CHEM 434/434L | Instrumental Analysis w/ Lab | 5            |           |
|                          | CHEM 344/344L | Physical Chemistry II w/ Lab | 5            |           |
|                          |               | Free Electives               | 4            |           |
| <b>Total Credits</b>     |               |                              | <b>15</b>    |           |

|   |                        |
|---|------------------------|
| *General Education Coursework Total:        | 6 credit hours         |
| <u>Major and Elective Coursework Total:</u> | 54 credit hours        |
| <b>South Dakota Mines Coursework Total:</b> | <b>60 CREDIT HOURS</b> |

## Course Sequence: South Dakota Mines – Fall Semester Start

### Chemistry (B.S.) – Calculus-Ready: ODD YEAR START

| Semester                                | Course No.    | Course Title  | Credit Hours | Completed |
|---|---------------|---|--------------|-----------|
| Junior Year<br>First Semester<br>- FALL | CHEM 332/332L | Analytical Chemistry w/ Lab                           | 4            |           |
|   | CHEM 342      | Physical Chemistry I                                  | 3            |           |
|   | Chem 464      | Biochemistry I  | 3            |           |
|   | ENGL 289      | STEM Communication for Technical and Public Audiences | 3*           |           |
|   |               | General Education – Arts/Humanities (Goal 4)          | 3*           |           |
| <b>Total Credits</b>                    |               |   | <b>16</b>    |           |

| Semester                                      | Course No.    | Course Title                 | Credit Hours | Completed |
|---|---------------|------------------------------|--------------|-----------|
| Junior Year<br>Second<br>Semester -<br>SPRING | CHEM 328L     | Organic Chemistry II Lab     | 2            |           |
|   | CHEM 370      | Chemical Literature          | 1            |           |
|   | CHEM 344/344L | Physical Chemistry II w/ Lab | 5            |           |
|   | CHEM 434/434L | Instrumental Analysis w/ Lab | 5            |           |
|   |               | Free Electives               | 2            |           |
| <b>Total Credits</b>                          |               |                              | <b>15</b>    |           |

| Semester                                | Course No. | Course Title                   | Credit Hours | Completed |
|---|------------|--------------------------------|--------------|-----------|
| Senior Year<br>First Semester<br>- FALL | CHEM 352   | Systematic Inorganic Chemistry | 3            |           |
|   | CHEM 482   | Environmental Chemistry        | 3            |           |
|   | CHEM 490   | Seminar                        | 1            |           |
|   |            | Free Electives                 | 7            |           |
|   |            |                                |              |           |
| <b>Total Credits</b>                    |            |                                | <b>14</b>    |           |

| Semester                                      | Course No.           | Course Title                                       | Credit Hours | Completed |
|---|----------------------|--|--------------|-----------|
| Senior Year<br>Second<br>Semester -<br>SPRING | CHEM 452/L           | Inorganic Chemistry/Lab                            | 4            |           |
|   | Select 1 course from | Program Electives: CHEM 420, 421, 426, 462, or 465 | 3            |           |
|   |                      | Free Electives                                     | 8            |           |
|   |                      |  |              |           |
| <b>Total Credits</b>                          |                      |  | <b>15</b>    |           |

|   |                        |
|---|------------------------|
| *General Education Coursework Total:        | 6 credit hours         |
| Major and Elective Coursework Total:        | 54 credit hours        |
| <b>South Dakota Mines Coursework Total:</b> | <b>60 CREDIT HOURS</b> |