

# CHEMISTRY (B.S.)

Required course work includes the university requirements (see regulation J-3 (<https://catalog.uidaho.edu/general-requirements-academic-procedures/j-general-requirements-baccalaureate-degrees/>)) and completion of one of the following options.

## A. General Option

This degree provides the basic elements needed for a career in chemistry. It is especially suited for students who wish to enter other professions that require a background in science, including high school teaching, patent law, and technology management.

Code	Title	Hours
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 305	Physical Chemistry	3
CHEM 307	Physical Chemistry Lab	1
CHEM 306	Physical Chemistry II	3
CHEM 308	Physical Chemistry Lab	1
CHEM 372	Organic Chemistry II	3
CHEM 374	Organic Chemistry II: Lab	1
CHEM 409	Proseminar	1
MATH 170	Calculus I	4
MATH 175	Calculus II	4
MATH 275	Calculus III	3
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
Select one of the following:		3-4
PHYS 212 & 212L	Engineering Physics II and Laboratory Physics II	
PHYS 213	Engineering Physics III	
<b>Total Hours</b>		<b>49-50</b>

Courses to total 120 credits for this degree

## B. Professional Option

Note: Students who complete this option will be certifiable to the American Chemical Society.

This curriculum provides a suitable background for students wishing to enter the profession of chemistry or to pursue graduate study for an advanced degree in chemistry or a related field.

Code	Title	Hours
BIOL 380	Biochemistry I	4
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
CHEM 112	General Chemistry II	4

CHEM 112L	General Chemistry II Laboratory	1
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 305	Physical Chemistry	3
CHEM 307	Physical Chemistry Lab	1
CHEM 306	Physical Chemistry II	3
CHEM 308	Physical Chemistry Lab	1
CHEM 372	Organic Chemistry II	3
CHEM 374	Organic Chemistry II: Lab	1
CHEM 409	Proseminar	1
CHEM 454	Instrumental Analysis	3-4
CHEM 463	Inorganic Chemistry	3
CHEM 464	Inorganic Chemistry	3
CHEM 465	Inorganic Chemistry Laboratory	1
CHEM 491	Research (Max 12 credits)	2
MATH 170	Calculus I	4
MATH 175	Calculus II	4
MATH 275	Calculus III	3
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
Select one of the following:		3-4
PHYS 212 & 212L	Engineering Physics II and Laboratory Physics II	
PHYS 213	Engineering Physics III	
Select two advanced Chemistry courses approved by the Chemistry Department in accordance with American Chemical Society stipulations		6
<b>Total Hours</b>		<b>71-73</b>

Courses to total 120 credits for this degree

## C. Pre-Medical Option

This curriculum provides a suitable foundation in chemistry for students who intend to enter careers in medicine, dentistry, pharmacy, etc.

Code	Title	Hours
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 305	Physical Chemistry	3
CHEM 307	Physical Chemistry Lab	1
CHEM 306	Physical Chemistry II	3
CHEM 308	Physical Chemistry Lab	1

CHEM 372	Organic Chemistry II	3
CHEM 374	Organic Chemistry II: Lab	1
CHEM 409	Proseminar	1
CHEM 472	Medicinal Chemistry	3
MATH 170	Calculus I	4
MATH 175	Calculus II	4
MATH 275	Calculus III	3
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
PHYS 212	Engineering Physics II	3
PHYS 212L	Laboratory Physics II	1
Chemistry Elective		6-7
CHEM 454	Instrumental Analysis	
CHEM 473	Intermediate Organic Chemistry	
<b>Total Hours</b>		<b>69-70</b>

Courses to total 120 credits for this degree

## D. Forensics Option

Code	Title	Hours
Select any CS courses numbered 101 or higher 3		
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 305	Physical Chemistry	3
CHEM 307	Physical Chemistry Lab	1
CHEM 306	Physical Chemistry II	3
CHEM 308	Physical Chemistry Lab	1
CHEM 372	Organic Chemistry II	3
CHEM 374	Organic Chemistry II: Lab	1
CHEM 409	Proseminar	1
CHEM 454	Instrumental Analysis (Max 4 credits)	3-4
MATH 170	Calculus I	4
MATH 175	Calculus II	4
MATH 275	Calculus III	3
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
STAT 251	Statistical Methods	3
Select one of the following:		3-4
BIOL 310 & BIOL 315	Genetics and Genetics Lab	
GENE 314	General Genetics	

Select one of the following: 3-4

PHYS 212 & 212L	Engineering Physics II and Laboratory Physics II	
PHYS 213	Engineering Physics III	

**Total Hours 76-79**

Courses to total 120 credits for this degree

## General Option

Fall Term 1		Hours
ENGL 101	Writing and Rhetoric I	3
MATH 143	College Algebra	3
MATH 144	Analytic Trigonometry	1
Oral Communication Course		3
Social and Behavioral Ways of Knowing Course		3
Elective Course		2
<b>Hours</b>		<b>15</b>

Spring Term 1		Hours
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
ENGL 102	Writing and Rhetoric II	3
MATH 170	Calculus I	4
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>14</b>

Fall Term 2		Hours
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
MATH 175	Calculus II	4
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
Elective Course		3
<b>Hours</b>		<b>16</b>

Spring Term 2		Hours
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
MATH 275	Calculus III	3
Social and Behavioral Ways of Knowing Course		3
American Diversity Course		3
Elective Course		3
<b>Hours</b>		<b>16</b>

Fall Term 3		Hours
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 305	Physical Chemistry	3
CHEM 307	Physical Chemistry Lab	1
Humanistic and Artistic Ways of Knowing Course		3
(PHYS 212 AND PHYS 212L)		3
<b>Hours</b>		<b>15</b>

Spring Term 3		Hours
CHEM 308	Physical Chemistry Lab	1
CHEM 306	Physical Chemistry II	3
CHEM 372	Organic Chemistry II	3
CHEM 374	Organic Chemistry II: Lab	1
International Course		3
Elective Course		3
<b>Hours</b>		<b>14</b>

Fall Term 4		Hours
CHEM 409	Proseminar	1
Elective Course		3
Elective Course		3
Elective Course		3

Elective Course	3
Elective Course	2
<b>Hours</b>	<b>15</b>
<b>Spring Term 4</b>	
Elective Course	3
Elective Course	3
Elective Course	3
Elective Course	3
Elective Course	3
<b>Hours</b>	<b>15</b>
<b>Total Hours</b>	<b>120</b>

## Professional Option

<b>Fall Term 1</b>		<b>Hours</b>
ENGL 101	Writing and Rhetoric I	3
MATH 143	College Algebra	3
MATH 144	Analytic Trigonometry	1
Humanistic and Artistic Ways of Knowing Course		3
Oral Communication Course		3
Elective Course		2
<b>Hours</b>		<b>15</b>

<b>Spring Term 1</b>		<b>Hours</b>
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
ENGL 102	Writing and Rhetoric II	3
MATH 170	Calculus I	4
Social and Behavioral Ways of Knowing Course		3
<b>Hours</b>		<b>14</b>

<b>Fall Term 2</b>		<b>Hours</b>
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
MATH 175	Calculus II	4
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>16</b>

<b>Spring Term 2</b>		<b>Hours</b>
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
MATH 275	Calculus III	3
Elective Course		3
(PHYS 212 AND PHYS 212L)		4
<b>Hours</b>		<b>14</b>

<b>Fall Term 3</b>		<b>Hours</b>
BIOL 380	Biochemistry I	4
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 305	Physical Chemistry	3
CHEM 307	Physical Chemistry Lab	1
Elective Course		3
<b>Hours</b>		<b>16</b>

<b>Spring Term 3</b>		<b>Hours</b>
CHEM 306	Physical Chemistry II	3
CHEM 308	Physical Chemistry Lab	1
International Course		3
Social and Behavioral Ways of Knowing Course		3
Advanced Chemistry, Major Elective Course		3
Elective Course		3
<b>Hours</b>		<b>16</b>

<b>Fall Term 4</b>		<b>Hours</b>
CHEM 372	Organic Chemistry II	3

CHEM 374	Organic Chemistry II: Lab	1
CHEM 463	Inorganic Chemistry	3
Advanced Chemistry, Elective Course		3
Elective Course		3
Elective Course		2

<b>Hours</b>		<b>15</b>
<b>Spring Term 4</b>		
CHEM 409	Proseminar	1
CHEM 454	Instrumental Analysis	4
CHEM 464	Inorganic Chemistry	3
CHEM 465	Inorganic Chemistry Laboratory	1
CHEM 491	Research	2
American Diversity Course		3
<b>Hours</b>		<b>14</b>
<b>Total Hours</b>		<b>120</b>

## Pre-Medical Option

<b>Fall Term 1</b>		<b>Hours</b>
ENGL 101	Writing and Rhetoric I	3
MATH 143	College Algebra	3
MATH 144	Analytic Trigonometry	1
Humanistic and Artistic Ways of Knowing Course		3
Oral Communication Course		3
Elective Course		2
<b>Hours</b>		<b>15</b>

<b>Spring Term 1</b>		<b>Hours</b>
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
ENGL 102	Writing and Rhetoric II	3
MATH 170	Calculus I	4
Social and Behavioral Ways of Knowing Course		3
<b>Hours</b>		<b>14</b>

<b>Fall Term 2</b>		<b>Hours</b>
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
MATH 175	Calculus II	4
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>15</b>

<b>Spring Term 2</b>		<b>Hours</b>
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
MATH 275	Calculus III	3
PHYS 212	Engineering Physics II	3
PHYS 212L	Laboratory Physics II	1
Elective Course		3
<b>Hours</b>		<b>15</b>

<b>Fall Term 3</b>		<b>Hours</b>
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
CHEM 305	Physical Chemistry	3
CHEM 307	Physical Chemistry Lab	1
Elective Course		3
<b>Hours</b>		<b>16</b>

<b>Spring Term 3</b>		<b>Hours</b>
CHEM 306	Physical Chemistry II	3
CHEM 308	Physical Chemistry Lab	1
CHEM 372	Organic Chemistry II	3

CHEM 374	Organic Chemistry II: Lab	1
International Course		3
Social and Behavioral Ways of Knowing Course		3
Elective Course		3
<b>Hours</b>		<b>17</b>
<b>Fall Term 4</b>		
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
CHEM 409	Proseminar	1
CHEM 472	Medicinal Chemistry	3
CHEM 473	Intermediate Organic Chemistry	3
Elective Course		2
<b>Hours</b>		<b>15</b>
<b>Spring Term 4</b>		
CHEM 454	Instrumental Analysis	4
Elective Course		3
American Diversity Course		3
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>13</b>
<b>Total Hours</b>		<b>120</b>

## Forensics Option

<b>Fall Term 1</b>		<b>Hours</b>
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
ENGL 101	Writing and Rhetoric I	3
MATH 170	Calculus I	4
Oral Communication Course		3
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>17</b>
<b>Spring Term 1</b>		
BIOL 115L	Cells and the Evolution of Life Laboratory	1
BIOL 115	Cells and the Evolution of Life	3
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
ENGL 102	Writing and Rhetoric II	3
MATH 175	Calculus II	4
<b>Hours</b>		<b>16</b>
<b>Fall Term 2</b>		
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
MATH 275	Calculus III	3
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
<b>Hours</b>		<b>16</b>
<b>Spring Term 2</b>		
CHEM 372	Organic Chemistry II	3
CHEM 374	Organic Chemistry II: Lab	1
GEOL 101	Physical Geology	3
GEOL 101L	Physical Geology Lab	1
STAT 251	Statistical Methods	3
(PHYS 212 AND PHYS 212L)		3
<b>Hours</b>		<b>14</b>
<b>Fall Term 3</b>		
BIOL 310	Genetics	3
BIOL 315	Genetics Lab	1
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
CHEM 305	Physical Chemistry	3

CHEM 307	Physical Chemistry Lab	1
<b>Hours</b>		<b>14</b>
<b>Spring Term 3</b>		
CHEM 306	Physical Chemistry II	3
CHEM 308	Physical Chemistry Lab	1
International Course		3
Computer Science, Major Elective Course		3
Elective Course		3
<b>Hours</b>		<b>13</b>
<b>Fall Term 4</b>		
BIOL 250	General Microbiology	3
BIOL 255	General Microbiology Lab	2
CHEM 409	Proseminar	1
Humanistic and Artistic Ways of Knowing Course		3
Social and Behavioral Ways of Knowing Course		3
Elective Course		3
<b>Hours</b>		<b>15</b>
<b>Spring Term 4</b>		
CHEM 454	Instrumental Analysis	4
Social and Behavioral Ways of Knowing Course		3
American Diversity Course		3
Elective Course		3
Elective Course		2
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>120</b>

The degree map is a guide for the timely completion of your curricular requirements. Your academic advisor or department may be contacted for assistance in interpreting this map. This map is not reflective of your academic history or transcript and it is not official notification of completion of degree or certificate requirements. Please contact the Registrar's Office regarding your official degree/certificate completion status.

## General Option

1. The student will be able demonstrate the ability to make positive and creative contributions to chemical research.
2. The student will demonstrate investigative skills in applied or theoretical research.
3. The student will demonstrate competence in critical proficiencies necessary for a professional chemist, including problem solving skills, chemical literature and information management skills, laboratory safety skills, and team/networking skills.
4. The student will demonstrate practical laboratory skills.
5. The student will demonstrate broad knowledge of the subdisciplines of chemistry.
6. The student will be able to communicate acquired knowledge to an audience of peers, presenting information in a clear and organized manner.
7. The student will be able to write well-organized and concise reports in a scientifically appropriate style.

## Forensics Option

1. The student will partake in chemical research through positive and creative contributions.
2. The student will communicate acquired knowledge to audience of peers.
3. The student will gain broad knowledge in the four subdisciplines of chemistry.