

# 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 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
CHEM 1120	General Chemistry II	4
CHEM 1120L	General Chemistry II Laboratory	1
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
CHEM 3060	Physical Chemistry II	3
CHEM 3080	Physical Chemistry Lab	1
CHEM 3720	Organic Chemistry II	3
CHEM 3740	Organic Chemistry II: Lab	1
CHEM 4090	Proseminar	1
MATH 1170	Calculus I	4
MATH 1750	Calculus II	4
MATH 2750	Calculus III	3
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
Select one of the following:		3-4
PHYS 2120 & 2120L	Engineering Physics II and Laboratory Physics II	
PHYS 2130	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 3800	Biochemistry I	4
CHEM 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
CHEM 1120	General Chemistry II	4

CHEM 1120L	General Chemistry II Laboratory	1
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
CHEM 3060	Physical Chemistry II	3
CHEM 3080	Physical Chemistry Lab	1
CHEM 3720	Organic Chemistry II	3
CHEM 3740	Organic Chemistry II: Lab	1
CHEM 4090	Proseminar	1
CHEM 4540	Instrumental Analysis	3-4
CHEM 4630	Inorganic Chemistry	3
CHEM 4640	Inorganic Chemistry	3
CHEM 4650	Inorganic Chemistry Laboratory	1
CHEM 4910	Research (Max 12 credits)	2
MATH 1170	Calculus I	4
MATH 1750	Calculus II	4
MATH 2750	Calculus III	3
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
Select one of the following:		3-4
PHYS 2120 & 2120L	Engineering Physics II and Laboratory Physics II	
PHYS 2130	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 1150	Cells and the Evolution of Life	3
BIOL 1150L	Cells and the Evolution of Life Laboratory	1
BIOL 3800	Biochemistry I	4
BIOL 3820	Biochemistry I Laboratory	2
CHEM 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
CHEM 1120	General Chemistry II	4
CHEM 1120L	General Chemistry II Laboratory	1
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
CHEM 3060	Physical Chemistry II	3
CHEM 3080	Physical Chemistry Lab	1

CHEM 3720	Organic Chemistry II	3
CHEM 3740	Organic Chemistry II: Lab	1
CHEM 4090	Proseminar	1
CHEM 4720	Medicinal Chemistry	3
MATH 1170	Calculus I	4
MATH 1750	Calculus II	4
MATH 2750	Calculus III	3
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
PHYS 2120	Engineering Physics II	3
PHYS 2120L	Laboratory Physics II	1
Chemistry Elective		6-7
CHEM 4540	Instrumental Analysis	
CHEM 4730	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 1112 or higher		
BIOL 1150	Cells and the Evolution of Life	3
BIOL 1150L	Cells and the Evolution of Life Laboratory	1
BIOL 2500	General Microbiology	3
BIOL 2550	General Microbiology Lab	2
BIOL 3800	Biochemistry I	4
BIOL 3820	Biochemistry I Laboratory	2
CHEM 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
CHEM 1120	General Chemistry II	4
CHEM 1120L	General Chemistry II Laboratory	1
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
CHEM 3060	Physical Chemistry II	3
CHEM 3080	Physical Chemistry Lab	1
CHEM 3720	Organic Chemistry II	3
CHEM 3740	Organic Chemistry II: Lab	1
CHEM 4090	Proseminar	1
CHEM 4540	Instrumental Analysis (Max 4 credits)	3-4
MATH 1170	Calculus I	4
MATH 1750	Calculus II	4
MATH 2750	Calculus III	3
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
STAT 2510	Statistical Methods	3
Select one of the following:		3-4
BIOL 3100	Genetics	
& BIOL 3150	and Genetics Lab	
GENE 3140	General Genetics	

Select one of the following: 3-4

PHYS 2120	Engineering Physics II	
& 2120L	and Laboratory Physics II	
PHYS 2130	Engineering Physics III	

**Total Hours** 76-79

Courses to total 120 credits for this degree

## General Option

Fall Term 1		Hours
ENGL 1101	Writing and Rhetoric I	3
MATH 1143	Precalculus I: Algebra	3
MATH 1144	Precalculus II: 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 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
ENGL 1102	Writing and Rhetoric II	3
MATH 1170	Calculus I	4
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>14</b>

Fall Term 2		Hours
CHEM 1120	General Chemistry II	4
CHEM 1120L	General Chemistry II Laboratory	1
MATH 1750	Calculus II	4
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
Elective Course		3
<b>Hours</b>		<b>16</b>

Spring Term 2		Hours
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
MATH 2750	Calculus III	3
Social and Behavioral Ways of Knowing Course		3
American Experience Course		3
Elective Course		3
<b>Hours</b>		<b>16</b>

Fall Term 3		Hours
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
Humanistic and Artistic Ways of Knowing Course		3
(PHYS 2120 AND PHYS 2120L)		3
<b>Hours</b>		<b>15</b>

Spring Term 3		Hours
CHEM 3080	Physical Chemistry Lab	1
CHEM 3060	Physical Chemistry II	3
CHEM 3720	Organic Chemistry II	3
CHEM 3740	Organic Chemistry II: Lab	1
International Course		3
Elective Course		3
<b>Hours</b>		<b>14</b>

Fall Term 4		Hours
CHEM 4090	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 1101	Writing and Rhetoric I	3
MATH 1143	Precalculus I: Algebra	3
MATH 1144	Precalculus II: 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>		
CHEM 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
ENGL 1102	Writing and Rhetoric II	3
MATH 1170	Calculus I	4
Social and Behavioral Ways of Knowing Course		3
<b>Hours</b>		<b>14</b>
<b>Fall Term 2</b>		
CHEM 1120	General Chemistry II	4
CHEM 1120L	General Chemistry II Laboratory	1
MATH 1750	Calculus II	4
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>16</b>
<b>Spring Term 2</b>		
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
MATH 2750	Calculus III	3
Elective Course		3
(PHYS 2120 AND PHYS 2120L)		4
<b>Hours</b>		<b>14</b>
<b>Fall Term 3</b>		
BIOL 3800	Biochemistry I	4
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
Elective Course		3
<b>Hours</b>		<b>16</b>
<b>Spring Term 3</b>		
CHEM 3060	Physical Chemistry II	3
CHEM 3080	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>		
CHEM 3720	Organic Chemistry II	3
CHEM 3740	Organic Chemistry II: Lab	1
CHEM 4630	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 4090	Proseminar	1
CHEM 4540	Instrumental Analysis	4
CHEM 4640	Inorganic Chemistry	3
CHEM 4650	Inorganic Chemistry Laboratory	1
CHEM 4910	Research	2
American Experience 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 1101	Writing and Rhetoric I	3
MATH 1143	Precalculus I: Algebra	3
MATH 1144	Precalculus II: 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>		
CHEM 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
ENGL 1102	Writing and Rhetoric II	3
MATH 1170	Calculus I	4
Social and Behavioral Ways of Knowing Course		3
<b>Hours</b>		<b>14</b>
<b>Fall Term 2</b>		
BIOL 1150	Cells and the Evolution of Life	3
BIOL 1150L	Cells and the Evolution of Life Laboratory	1
MATH 1750	Calculus II	4
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
Humanistic and Artistic Ways of Knowing Course		3
<b>Hours</b>		<b>15</b>
<b>Spring Term 2</b>		
CHEM 1120	General Chemistry II	4
CHEM 1120L	General Chemistry II Laboratory	1
MATH 2750	Calculus III	3
PHYS 2120	Engineering Physics II	3
PHYS 2120L	Laboratory Physics II	1
Elective Course		3
<b>Hours</b>		<b>15</b>
<b>Fall Term 3</b>		
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
Elective Course		3
<b>Hours</b>		<b>16</b>
<b>Spring Term 3</b>		
CHEM 3060	Physical Chemistry II	3

CHEM 3080	Physical Chemistry Lab	1
CHEM 3720	Organic Chemistry II	3
CHEM 3740	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 3800	Biochemistry I	4
BIOL 3820	Biochemistry I Laboratory	2
CHEM 4090	Proseminar	1
CHEM 4720	Medicinal Chemistry	3
CHEM 4730	Intermediate Organic Chemistry	3
Elective Course		2
<b>Hours</b>		<b>15</b>
<b>Spring Term 4</b>		
CHEM 4540	Instrumental Analysis	4
Elective Course		3
American Experience 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 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
ENGL 1101	Writing and Rhetoric I	3
MATH 1170	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 1150	Cells and the Evolution of Life	3
BIOL 1150L	Cells and the Evolution of Life Laboratory	1
CHEM 1120	General Chemistry II	4
CHEM 1120L	General Chemistry II Laboratory	1
ENGL 1102	Writing and Rhetoric II	3
MATH 1750	Calculus II	4
<b>Hours</b>		<b>16</b>
<b>Fall Term 2</b>		
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
MATH 2750	Calculus III	3
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
<b>Hours</b>		<b>16</b>
<b>Spring Term 2</b>		
CHEM 3720	Organic Chemistry II	3
CHEM 3740	Organic Chemistry II: Lab	1
GEOL 1101	Physical Geology	3
GEOL 1101L	Physical Geology Lab	1
STAT 2510	Statistical Methods	3
(PHYS 2120 AND PHYS 2120L)		3
<b>Hours</b>		<b>14</b>
<b>Fall Term 3</b>		
BIOL 3100	Genetics	3
BIOL 3150	Genetics Lab	1
BIOL 3800	Biochemistry I	4

BIOL 3820	Biochemistry I Laboratory	2
CHEM 3050	Physical Chemistry	3
CHEM 3070	Physical Chemistry Lab	1
<b>Hours</b>		<b>14</b>
<b>Spring Term 3</b>		
CHEM 3060	Physical Chemistry II	3
CHEM 3080	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 2500	General Microbiology	3
BIOL 2550	General Microbiology Lab	2
CHEM 4090	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 4540	Instrumental Analysis	4
Social and Behavioral Ways of Knowing Course		3
American Experience 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.