BIOCHEMISTRY (B.S.BIOCHEM.)

To graduate in this program, students must earn a minimum grade of C in BIOL 1140 , BIOL 1150, and BIOL 1150L. 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:

Code	Title	Hours
BIOL 1010	Opportunities in Biological Sciences	1
BIOL 1140	Organisms and Environments	4
BIOL 1150 & 1150L	Cells and the Evolution of Life and Cells and the Evolution of Life Laboratory	4
BIOL 3100 & BIOL 3150	Genetics and Genetics Lab	4
BIOL 3120 & BIOL 3130	Molecular and Cellular Biology and Molecular and Cellular Laboratory	4
BIOL 3800 & BIOL 3820	Biochemistry I and Biochemistry I Laboratory	6
BIOL 4000	Seminar	1-16
BIOL 4540	Biochemistry II	3
CHEM 1111 & 1111L	General Chemistry I and General Chemistry I Laboratory	4
CHEM 1120 & 1120L	General Chemistry II and General Chemistry II Laboratory	5
CHEM 2530 & CHEM 2540	Quantitative Analysis and Quantitative Analysis: Lab	5
CHEM 2770 & CHEM 2780	Organic Chemistry I and Organic Chemistry I: Lab	4
CHEM 3720	Organic Chemistry II	3
MATH 1170	Calculus I	4
MATH 1750	Calculus II	4
PHYS 2110 & 2110L	Engineering Physics I and Laboratory Physics I	4
PHYS 2120 & 2120L	Engineering Physics II and Laboratory Physics II	4
STAT 2510	Statistical Methods	3
or STAT 3010	Probability and Statistics	
Select one of the following Senior Capstone courses:		2-3
BIOL 4010	Undergraduate Research	
BIOL 4070	Practicum in Biology Laboratory Teaching	
BIOL 4080	Human Anatomy and Physiology Laboratory Pedagogy	
BIOL 4110	Senior Capstone	
BIOL 4250	Experimental Field Ecology	
Select 6 credits of electives from the following: [1]		6
BE 4330	Bioremediation	
BIOL 4260	Systems Biology	
BIOL 4320	Immunology	
BIOL 4440	Genomics	
BIOL 4610	Neurobiology	
BIOL 4820	Protein Structure and Function	
BIOL 4850	Prokaryotic Molecular Biology	
BIOL 4870	Cellular and Molecular Basis of Disease	
CHEM 3740	Organic Chemistry II: Lab	
CHEM 4720	Medicinal Chemistry	
CHEM 4730	Advanced Organic Chemistry	
PLSC 4400	Advanced Laboratory Techniques	
PLSC 4860	Plant Biochemistry	
PLSC 4880	Genetic Engineering	
Select one of the following Written Communication courses:		3
ENGL 2020	Technical Writing I	
ENGL 2070	Persuasive Writing	
ENGL 2080	Personal and Exploratory Writing	
ENGL 3170	Technical Writing II	
ENGL 3180	Science Writing	
ENGL 3200	Grant Proposal Writing	
Select one of the following:		3
CHEM 3020	Principles of Physical Chemistry	
CHEM 3050	Physical Chemistry	
CHEM 3060	Physical Chemistry II	
PHYS 4380	Biological Physics	
Total Hours		**81-97**

Courses to total 120 credits for this degree

[1] Additional classes can be substituted with prior approval from advisor and chairperson

Fall Term 1		Hours
BIOL 1010	Opportunities in Biological Sciences	1
BIOL 1140	Organisms and Environments	4
CHEM 1111	General Chemistry I	3
CHEM 1111L	General Chemistry I Laboratory	1
MATH 1170	Calculus I	4
ENGL 1101	Writing and Rhetoric I	3
	Hours	**16**
Spring Term 1		
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
MATH 1750	Calculus II	4
ENGL 1102	Writing and Rhetoric II	3
	Hours	**16**
Fall Term 2		
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
Oral Communication Course		3
	Hours	**16**
Spring Term 2		
CHEM 3720	Organic Chemistry II	3
PHYS 2120	Engineering Physics II	3
PHYS 2120L	Laboratory Physics II	1
Humanistic and Artistic Ways of Knowing Course		3
Major Elective Course		3

STAT 2510 OR STAT 3010		3
	Hours	**16**
Fall Term 3		
BIOL 3100	Genetics	3
BIOL 3150	Genetics Lab	1
BIOL 3800	Biochemistry I	4
BIOL 3820	Biochemistry I Laboratory	2
Elective Course		1
ENGL 2020 OR ENGL 2070 OR ENGL 2080 OR ENGL 3170 OR ENGL 3180 OR ENGL 3200		3
	Hours	**14**
Spring Term 3		
BIOL 3120	Molecular and Cellular Biology	3
BIOL 3130	Molecular and Cellular Laboratory	1
BIOL 4540	Biochemistry II	3
Humanistic and Artistic Ways of Knowing Course		3
Social and Behavioral Ways of Knowing Course		3
Elective Course		2
	Hours	**15**
Fall Term 4		
Biochemistry, Major Elective Course		3
Social and Behavioral Ways of Knowing Course		3
International Course		3
Elective Course		3
CHEM 3020 OR CHEM 3050 OR CHEM 3060 OR PHYS 4380		3
	Hours	**15**
Spring Term 4		
BIOL 4000	Seminar	1
Biochemistry, Major Elective Course		3
American Experience Course		3
Elective Course		3
BIOL 4010 OR BIOL 4070 OR BIOL 4080 OR BIOL 4110		2
	Hours	**12**
	Total Hours	**120**

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MATH 1143 Starting Mathematics Course

Fall Term 1		**Hours**
BIOL 1010	Opportunities in Biological Sciences	1
BIOL 1140	Organisms and Environments	4
ENGL 1101	Writing and Rhetoric I	3
MATH 1143	Precalculus I: Algebra	3
MATH 1144	Precalculus II: Trigonometry	1
Oral Communication Course		3
	Hours	**15**
Spring Term 1		
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
	Hours	**14**
Fall Term 2		
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
MATH 1750	Calculus II	4
Social and Behavioral Ways of Knowing Course		3
	Hours	**16**
Spring Term 2		
CHEM 2770	Organic Chemistry I	3
CHEM 2780	Organic Chemistry I: Lab	1
PHYS 2110	Engineering Physics I	3
PHYS 2110L	Laboratory Physics I	1
STAT 2510 or STAT 3010	Statistical Methods or Probability and Statistics	3
Social and Behavioral Ways of Knowing Course		3
Elective Course (MATH 2750 recommended)		3
	Hours	**17**
Fall Term 3		
BIOL 3100	Genetics	3
BIOL 3150	Genetics Lab	1
BIOL 3800	Biochemistry I	4
BIOL 3820	Biochemistry I Laboratory	2
CHEM 2530	Quantitative Analysis	3
CHEM 2540	Quantitative Analysis: Lab	2
	Hours	**15**
Spring Term 3		
BIOL 3120	Molecular and Cellular Biology	3
BIOL 3130	Molecular and Cellular Laboratory	1
BIOL 4540	Biochemistry II	3
CHEM 3720	Organic Chemistry II	3
PHYS 2120	Engineering Physics II	3
PHYS 2120L	Laboratory Physics II	1
	Hours	**14**
Fall Term 4		
CHEM 3020 OR CHEM 3050 OR CHEM 3060 OR PHYS 4380		3
ENGL 2020 OR ENGL 2070 OR ENGL 2080 OR ENGL 3170 OR ENGL 3180 OR ENGL 3200		3
Biochemistry, Major Elective Course		3
International Course		3
Humanistic & Artistic Ways of Knowing Course		3
	Hours	**15**
Spring Term 4		
BIOL 4000	Seminar	1
BIOL 4010 OR BIOL 4070 OR BIOL 4080 OR BIOL 4110		2
Biochemistry, Major Elective Course		3
American Experience Course		3
Elective Course		3
Elective Course		2
	Hours	**14**
	Total Hours	**120**

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1. Learn and integrate: Through independent learning and collaborative study, students will attain, use, and develop knowledge in biology, chemistry, and related disciplines with specialization in biochemistry.

Students will be able to integrate biological and chemical information to understand the biochemistry of molecules and living systems.

2. Think and create: Students will be able to use multiple thinking strategies to examine issues in biochemistry, including the proposal of biochemical hypotheses and the design and analysis of biochemical experiments capable of testing hypotheses. Students will be able to apply biochemical knowledge to real world challenges, such as those that may be encountered in medicine and other applied areas.
3. Communicate: Students will be able to acquire and analyze biochemical information from the scientific literature. Students will be able to communicate biochemical information via verbal, written, and other non-verbal methods such as appropriate graphics.
4. Clarify purpose and perspective: The program will allow student to explore biochemistry in the context of their career and life's purpose as well as to apply perspectives to novel issues or problems within biochemistry or other disciplines.
5. Practice citizenship: Students will understand and accept their roles as educated biochemists and scientists in society. Students will be able to communicate with others, including non-scientists, from the special perspective of an educated biochemist.