

BIOCHEMISTRY (B.S.BIOCHEM.)

To graduate in this program, students must earn a minimum grade of C in BIOL 114, BIOL 115, and BIOL 115L. 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 101	Opportunities in Biological Sciences	1
BIOL 114	Organisms and Environments	4
BIOL 115 & 115L	Cells and the Evolution of Life and Cells and the Evolution of Life Laboratory	4
BIOL 310 & BIOL 315	Genetics and Genetics Lab	4
BIOL 312 & BIOL 313	Molecular and Cellular Biology and Molecular and Cellular Laboratory	4
BIOL 380 & BIOL 382	Biochemistry I and Biochemistry I Laboratory	6
BIOL 400	Seminar	1-16
BIOL 454	Biochemistry II	3
CHEM 111 & 111L	General Chemistry I and General Chemistry I Laboratory	4
CHEM 112 & 112L	General Chemistry II and General Chemistry II Laboratory	5
CHEM 253 & CHEM 254	Quantitative Analysis and Quantitative Analysis: Lab	5
CHEM 277 & CHEM 278	Organic Chemistry I and Organic Chemistry I: Lab	4
CHEM 372	Organic Chemistry II	3
MATH 170	Calculus I	4
MATH 175	Calculus II	4
PHYS 211 & 211L	Engineering Physics I and Laboratory Physics I	4
PHYS 212 & 212L	Engineering Physics II and Laboratory Physics II	4
STAT 251 or STAT 301	Statistical Methods Probability and Statistics	3
Select one of the following Senior Capstone courses:		2-3
BIOL 401	Undergraduate Research	
BIOL 407	Practicum in Biology Laboratory Teaching	
BIOL 408	Human Anatomy and Physiology Laboratory Pedagogy	
BIOL 411	Senior Capstone	
BIOL 425	Experimental Field Ecology	
Select 6 credits of electives from the following: ¹		6
BE 433	Bioremediation	
BIOL 426	Systems Biology	
BIOL 432	Immunology	
BIOL 444	Genomics	
BIOL 461	Neurobiology	
BIOL 482	Protein Structure and Function	
BIOL 485	Prokaryotic Molecular Biology	

BIOL 487	Cellular and Molecular Basis of Disease	
CHEM 374	Organic Chemistry II: Lab	
CHEM 472	Medicinal Chemistry	
CHEM 473	Intermediate Organic Chemistry	
PLSC 440	Advanced Laboratory Techniques	
PLSC 486	Plant Biochemistry	
PLSC 488	Genetic Engineering	
Select one of the following Written Communication courses:		3
ENGL 202	Technical Writing I	
ENGL 207	Persuasive Writing	
ENGL 208	Personal & Exploratory Writing	
ENGL 317	Technical Writing II	
ENGL 318	Science Writing	
ENGL 320	Grant and Proposal Writing	
Select one of the following:		3
CHEM 302	Principles of Physical Chemistry	
CHEM 305	Physical Chemistry	
CHEM 306	Physical Chemistry II	

Total Hours **81-97**

Courses to total 120 credits for this degree

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

Fall Term 1		Hours
BIOL 101	Opportunities in Biological Sciences	1
BIOL 114	Organisms and Environments	4
CHEM 111	General Chemistry I	3
CHEM 111L	General Chemistry I Laboratory	1
MATH 170	Calculus I	4
ENGL 101	Writing and Rhetoric I	3
Hours		16
Spring Term 1		Hours
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1
MATH 175	Calculus II	4
ENGL 102	Writing and Rhetoric II	3
Hours		16
Fall Term 2		Hours
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
Oral Communication Course		3
Hours		16
Spring Term 2		Hours
CHEM 372	Organic Chemistry II	3
PHYS 212	Engineering Physics II	3
PHYS 212L	Laboratory Physics II	1
Humanistic and Artistic Ways of Knowing Course		3
Major Elective Course		3
STAT 251 OR STAT 301		3
Hours		16

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Fall Term 3		
BIOL 310	Genetics	3
BIOL 315	Genetics Lab	1
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
Elective Course		1
ENGL 202 OR 207 OR ENGL 208 OR ENGL 317 OR ENGL 318 OR ENGL 320		3
Hours		14
Spring Term 3		
BIOL 312	Molecular and Cellular Biology	3
BIOL 313	Molecular and Cellular Laboratory	1
BIOL 454	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 302 OR CHEM 305 OR CHEM 306 OR PHYS 438		3
Hours		15
Spring Term 4		
BIOL 400	Seminar	1
Biochemistry, Major Elective Course		3
American Diversity Course		3
Elective Course		3
BIOL 401 OR BIOL 407 OR BIOL 408 OR BIOL 411		2
Hours		12
Total Hours		120

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.

MATH 143 Starting Mathematics Course

Fall Term 1		Hours
BIOL 101	Opportunities in Biological Sciences	1
BIOL 114	Organisms and Environments	4
ENGL 101	Writing and Rhetoric I	3
MATH 143	College Algebra	3
MATH 144	Precalculus II: Trigonometry	1
Oral Communication Course		3
Hours		15
Spring Term 1		
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
Hours		14
Fall Term 2		
BIOL 115	Cells and the Evolution of Life	3
BIOL 115L	Cells and the Evolution of Life Laboratory	1
CHEM 112	General Chemistry II	4
CHEM 112L	General Chemistry II Laboratory	1

MATH 175	Calculus II	4
Social and Behavioral Ways of Knowing Course		3
Hours		16
Spring Term 2		
CHEM 277	Organic Chemistry I	3
CHEM 278	Organic Chemistry I: Lab	1
PHYS 211	Engineering Physics I	3
PHYS 211L	Laboratory Physics I	1
STAT 251	Statistical Methods	3
or STAT 301	or Probability and Statistics	
Social and Behavioral Ways of Knowing Course		3
Elective Course (MATH 275 recommended)		3
Hours		17
Fall Term 3		
BIOL 310	Genetics	3
BIOL 315	Genetics Lab	1
BIOL 380	Biochemistry I	4
BIOL 382	Biochemistry I Laboratory	2
CHEM 253	Quantitative Analysis	3
CHEM 254	Quantitative Analysis: Lab	2
Hours		15
Spring Term 3		
BIOL 312	Molecular and Cellular Biology	3
BIOL 313	Molecular and Cellular Laboratory	1
BIOL 454	Biochemistry II	3
CHEM 372	Organic Chemistry II	3
PHYS 212	Engineering Physics II	3
PHYS 212L	Laboratory Physics II	1
Hours		14
Fall Term 4		
CHEM 302 OR CHEM 305 OR CHEM 306 OR PHYS 438		3
ENGL 202 OR ENGL 207 OR ENGL 208 OR ENGL 317 OR ENGL 318 OR ENGL 320		3
Biochemistry, Major Elective Course		3
International Course		3
American Diversity Course		3
Hours		15
Spring Term 4		
BIOL 400	Seminar	1
BIOL 401 OR BIOL 407 OR BIOL 408 OR BIOL 411		2
Biochemistry, Major Elective Course		3
American Diversity 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.