

Biochemistry Bachelor of Science 2023-2024

Nature of Work:

Biochemists use the basic concepts and techniques of biology, chemistry, and physics to gain an understanding of how living organisms' function at the molecular level. For instance, the research into the molecular mechanisms of replication led to the development of the molecular biology tools used in endeavors such as the human genome project. Biochemists also use the atomic structures of key enzymes in living organisms to design new therapeutic drugs to treat diseases such as AIDS and cancer.

A degree in biochemistry usually leads to a career in teaching or research, but can also provide the background for a professional degree in patent law or medicine. Industrial employment is usually found in pharmaceuticals, biotechnology, cosmetics, agricultural research, or the chemical industry.

Professional Training:

A bachelor's degree is sufficient for most laboratory or research technician positions. However, master's or doctorate degrees are usually required for higher-level positions. Post-secondary teaching positions require a doctorate. In government or industry, beginning biochemists with bachelor's degrees work in technical sales or services, quality control, or assist senior biochemists in research and development laboratories.

Job Outlook:

As new technology continues to be discovered, the Bureau of Labor Statistics reports that employment of biochemists "is projected to grow 15 percent from 2021 to 2031, slower than the average for all occupations." However, competition for research funding will affect the number of openings for basic research positions. (See www.bls.gov)

Earnings:

In their May 2021 salary survey, the Bureau of Labor Statistics reports the median annual wage for biochemists as \$102,270, with the lowest 10 percent earning less than \$61,090, and the highest 10 percent earning more than \$167,210. (See www.bls.gov)

Note:

A student majoring in biochemistry must complete a minimum of 85 quarter credit hours of biology and chemistry courses (including biochemistry major electives; see your advisor), the required cognates, the general studies program, and all baccalaureate degree requirements as in the bulletin.

BIOLOGY DEPARTMENT

Rigby Hall
(509) 527-2761

CHEMISTRY DEPARTMENT

Rigby Hall
(509) 527-2602

Websites

[Walla Walla University](#)
[University Bulletin](#)

[Biology Department](#)
[Chemistry Department](#)

Faculty

Advisors
[Kyle Craig](#) (Chemistry)
[David Lindsey](#) (Biology)

Professional Organizations

[American Society for Biochemistry and Biology](#)

Additional Sources

[U.S. Bureau of Labor Statistics](#)
[Biochemist and Biophysicist](#)

Suggested Degree Path

TOTAL CREDITS REQUIRED: 192 cr. GENERAL STUDIES REQUIREMENTS: 64-69cr. [See the Undergraduate Bulletin for Details](#)

The chart below details one suggested path a student may take to complete a bachelor's degree in Biochemistry.

Cognates are listed in *italics*.

Freshman Year

Fall Courses	Hours
General Chemistry & Lab (CHEM 141 & 144)	4
General Biology & Lab (BIOL 141 & 141L)	4
College Writing I (ENGL 121)	3
General Studies	5
Total	16

Winter Courses	Hours
General Chemistry & Lab (CHEM 142 & 145)	4
General Biology & Lab (BIOL 142 & 142L)	4
General Biology & Lab (BIOL 142 & 142L)	3
College Writing II (ENGL 122)	4
<i>Calculus I</i> (MATH 171)	1
General Studies	
Total	16

Spring Courses	Hours
General Chemistry & Lab (CHEM 143 & 146)	4
General Biology & Lab (BIOL 143 & 143L)	4
<i>Calculus II</i> (MATH 172)	4
General Studies	4
Total	16

Sophomore Year

Fall Courses	Hours
Organic Chemistry & Lab (CHEM 321 & 324)	5
<i>Physics Option</i> (PHYS 211 & 214 OR 251 & 254)	4
Research Writing (ENGL 223)	3
General Studies	4
Total	16

Winter Courses	Hours
Organic Chemistry & Lab (CHEM 322 & 325)	5
<i>Physics Option</i> (PHYS 212 & 215 OR 252 & 255)	4
General Studies	7
Total	16

Spring Courses	Hours
Chemistry Option (CHEM 383 & 386 OR + 429)	(4)
<i>Physics Option</i> (PHYS 213 & 216 OR 253 & 256)	4
General Studies	7-8
Total	16

Junior Year

Fall Courses	Hours
Foundations of Biochemistry (CHEM 431)	4
Cell Biology I (BIOL 381)	4
Chemical Laboratory Techniques (CHEM 305)	1
General Studies	7
Total	16

Winter Courses	Hours
Foundations of Biochemistry (CHEM 432)	3
Cell Biology II (BIOL 382)	4
<i>Statistics Option</i> (BIOL 250 OR MATH 106)	(4)
General Studies	5-9
*Integrated Chemistry Lab (CHEM 405)	1
Total	16

Spring Courses	Hours
Foundations of Biochemistry (CHEM 433)	3
Cell Biology III (BIOL 383)	4
*Integrated Chemistry Lab (CHEM 405)	1
Communicating Chemistry (CHEM 496)	1
General Studies	7
Total	16

Senior Year

Fall Courses	Hours
^ Physical Chemistry Option (CHEM 350)	(3)
Chemical Equilibrium & Analysis (CHEM 301)	3
*Integrated Chemistry Lab (CHEM 405)	1
Upper Division BIOL Option (BIOL 466)	(4)
General Studies	3-8
Total	16

Winter Courses	Hours
^ Physical Chemistry I (CHEM 352)	4
*Integrated Chemistry Lab (CHEM 405)	1
Upper Division BIOL Option (** BIOL 421 & 422)	(3+1)
(** BIOL 445 OR BIOL 471)	(4)
General Studies	8-12
Total	16

Spring Courses	Hours
^ Physical Chemistry Option (CHEM 353)	(3)
Research Option (BIOL 414 OR CHEM 479)	2
Upper Division BIOL Option (BIOL 464)	(4)
Communicating Chemistry (CHEM 497)	2
General Studies	4-11
Total	16

+ Offered even years only

- Offered odd years only

*4 qtrs. of [CHEM 405](#) are required during Junior and Senior years.

**Offered alternating years

^2 qtrs. of [CHEM 350](#), [352](#), [353](#) are required, one of which MUST be [CHEM 352](#).

Office of Academic Advisement

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