

**BIOCHEMISTRY**  
**Bachelor of Science**  
**(B.S.) 2016-2017**

**Requirements for Major:** At least 40 credit hours in the department, including:

CH 151 Fundamentals of Chemistry I; 5 credit hours	Offered:	Fall
CH 152 Fundamentals of Chemistry II; 5 credit hours		Spring
CH 320 Analytical Chemistry; 3 credit hours		Fall
CH 321 Analytical Chemistry Laboratory; 1 credit hour		Fall
CH 340 Organic Chemistry I; 3 credit hours		Fall
CH 341 Organic Chemistry II; 3 credit hours		Spring
CH 342 Organic Chemistry Laboratory I; 2 credit hours		Fall
CH 343 Organic Chemistry Laboratory II; 2 credit hours		Spring
CH 350 Biochemistry I; 3 credit hours		Fall
CH 351 Biochemistry Laboratory I; 2 credit hours		Fall
CH 352 Biochemistry II; 3 credit hours		Spring
CH 353 Biochemistry Laboratory II; 2 credit hours		Spring
CH 381 Physical Chemistry I; 3 credit hours		Fall
CH 390 Undergraduate Chemical Research; 2 credit hours	Fall/Spring/Summer	
CH 391 Chemistry Seminar; 1 credit hour		Spring

*Nine correlated courses:*

BI 102 General Cellular Biology; 5 credit hours	Offered:	Fall/Spring
BI 301 General Microbiology; 4 credit hours		Fall/Spring
BI 333 General Genetics; 4 credit hours		Fall/Spring
BI 353 Molecular Genetics; 3 credit hours		Fall
BI 354 Molecular Biology Laboratory; 3 credit hours		Spring
MA 151 Calculus & Analytical Geometry I; 5 credit hours		Fall/Spring
PS 281 General Physics I; 5 credit hours		Spring
PS 282 General Physics II; 5 credit hours		Fall
CM 111 Introduction to Structured Programming; 4 credit hours		Fall/Spring

Required minor – 30 credit hours:

The B.S. degree also requires a 30-hour minor to be chosen from the Natural Sciences (Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy, or Computer Information Science). This minor must be in departments other than the major and must have at least 20 hours in one department.
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Notes

Research (CH 390) must be initiated at least one semester prior to the semester of graduation
A written report of research or internship is required of all majors

**General Education Distribution Requirements (BS):**

Humanities (9) (GEHU/GECPA) (Max 6 hours/ discipline)	Course Number	Social Sciences (9) (GESS) (Max 6 hours/ discipline)	Course Number	Natural Sciences/ Mathematics (9) (GENS) (Max 8 Hours or 2 Courses/Discipline)
Fine Arts (3)		Soc. Science 1 (3)		BI 102 (5)
Humanities 2 (3)		Soc. Science 2 (3)		MA 151 (5)
Humanities 3 (3)		Soc. Science 3 (3)		

**Core University/BS-Specific Requirements:**

WU 101 (3)* C or Better		Natural Science Minor (30 – 20 in one Discipline)	
EN 101 (3) C or Better		Hours Outside Major (76)	
EN 300 (3) C or Better		Upper Division (300 and above) (45)	
MA 112 or MA 116 (3)** C or Better		Hours Within Arts and Sciences (99)	
>= 2.0 Overall Cumulative GPA		>= C Grade All Major and Correlated Courses	
		Total Hours (124)	

*\*Students transferring with 24 or more credit hours completed at an accredited post-secondary institution (after graduating from High School) with a GPA of 2.0 or higher are exempt from this requirement*

*\*\*May be waived if the student successfully places into a higher-level mathematics course with an ACT score of 25 or higher and then successfully completes that course with a grade of C or higher or if a student presents an ACT score in mathematics of at least 28 (SAT of at least 640).*

Please direct questions to:

Dr. Shaun Schmidt, Chair

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<http://www.washburn.edu/chemistry>

rev. 6-25-19



## Sample 4-Year Schedule for Biochemistry Major Bachelor of Science 120 Hours

Sample curriculum for students starting in 2016-2017 Academic Year. Students starting in different academic years (odd years) should contact their advisor.

<b>Freshman</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
CH 151 – Fundamentals of Chemistry I	5	CH 152 – Fundamentals of Chemistry II	5
BI 102 – General Cellular Biology	5	EN 101 – First Year Writing	3
WU 101 – Washburn Experience	3	PS 281 – General Physics I	5
MA 151 – Calculus I	5	Soc. Sci. General Education	3
<b>TOTAL</b>	<b>18</b>	<b>TOTAL</b>	<b>16</b>
<b>Sophomore</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
CH 340 – Organic Chemistry I	3	CH 341 – Organic Chemistry II	3
CH 342 – Organic Chemistry I Lab	2	CH 343 – Organic Chemistry II Lab	2
BI 301 – General Microbiology	4	BI 333 – General Genetics	4
PS 282 – General Physics II	5	CM 111 – Intro Structured Programming	4
Humanities General Education	3	Soc. Sci. General Education	3
<b>TOTAL</b>	<b>17</b>	<b>TOTAL</b>	<b>16</b>
<b>Junior</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
CH 350 – Biochemistry I	3	CH 352 – Biochemistry II	3
CH 351 – Biochemistry I Lab	2	CH 353 – Biochemistry II Lab	2
EN 300 – Advanced College Writing	3	BI 354 – Molecular Biology Lab	3
BI 353 – Molecular Genetics	3	Soc. Sci. General Education	3
Humanities General Education	3	Humanities General Education	3
		CH 390 – Chemistry Research	2
<b>TOTAL</b>	<b>14</b>	<b>TOTAL</b>	<b>16</b>
<b>Senior</b>			
<b>Fall Semester</b>		<b>Spring Semester</b>	
CH 381 – Physical Chemistry	3	CH 391 – Chemistry Seminar	1
CH 320 – Analytical Chemistry	3	Elective	3
CH 321 – Analytical Chemistry Lab	1	Elective	3
Elective	3	Elective	3
Biology Elective	3		
<b>TOTAL</b>	<b>13</b>		<b>10</b>

Oral presentation of CH 390 research results

Required research completed prior to the semester of graduation