

CHEMISTRY
Bachelor of Science
(B.S.)

Certified by the American Chemical Society

Requirements for Major: At least 45 credit hours in the department, including:

Introductory:		
CH 151 Fundamentals of Chemistry I; 5 credit hours	Offered:	Fall
CH 152 Fundamentals of Chemistry II; 5 credit hours		Spring
Foundation:		
CH 320 Analytical Chemistry; 3 credit hours		Fall
CH 340 Organic Chemistry I; 3 credit hours		Fall
CH 350 Biochemistry I; 3 credit hours		Fall
CH 381 Physical Chemistry I; 3 credit hours		Fall-Odd Year
CH 386 Inorganic Chemistry; 3 credit hours		Spring-Odd Year
In Depth:		
CH 341 Organic Chemistry II; 3 credit hours		Spring
CH 346 Instrumental Analysis; 2 credit hours		Spring-Odd Year
CH 362 Spectroscopy; 2 credit hours		Spring-Odd Year
CH 371 Advanced Topics in Chemistry; 1 credit hour		Spring
CH 382 Physical Chemistry II; 3 credit hours		Spring-Even Year
CH 391 Chemistry Seminar; 1 credit hour		Spring
Lab:		
CH 321 Analytical Chemistry Laboratory; 1 credit hour		Fall
CH 342 Organic Chemistry Laboratory I; 2 credit hours		Fall
CH 343 Organic Chemistry Laboratory II; 2 credit hours		Spring
CH 345 Inorganic Chemistry Laboratory; 2 credit hours		Fall-Even Year
CH 385 Physical Chemistry Laboratory; 1 credit hour		Spring-Even Year
CH 390 Undergraduate Chemical Research; 2 credit hours		Fall/Spring/Summer

Five correlated courses:

MA 151 Calculus & Analytical Geometry I; 5 credit hours	Offered:	Fall/Spring
MA 152 Calculus & Analytical Geometry II; 5 credit hours		Fall/Spring
PS 281 General Physics I; 5 credit hours		Spring
PS 282 General Physics II; 5 credit hours		Fall
At least three credit hours in a computer programming language		

Required concentration – 30 credit hours:

The B.S. degree also requires a 30-hour concentration to be chosen from the Natural Sciences (Biology, Chemistry, Mathematics & Statistics, Physics & Astronomy, or Computer Information Science). This concentration 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.
An oral presentation of CH 390 research results is required of all BS 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)		MA 151 (5)
Humanities 2 (3)		Soc. Science 2 (3)		PS 281 (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 (72)	
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 (84)	
>= 2.0 Overall Cumulative GPA		>= C Grade All Major and Correlated Courses	
		Total Hours (120)	

*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>

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**Sample 4-Year Schedule for Chemistry Major
(ACS Certified) Bachelor of Science**

120 Hours

Sample curriculum for students starting in an even numbered academic year. Individual four-year degree plans are developed for each student upon consultation with an academic advisor.

Freshman			
Fall Semester			Spring Semester
CH 151 – Fundamentals of Chemistry I	5	CH 152 – Fundamentals of Chemistry II	5
MA 151 – Calculus I	5	MA 152 – Calculus II	5
EN 101 – First Year Writing	3	Humanities General Education	3
WU 101 – Washburn Experience	3	Social Science General Education	3
TOTAL	16	TOTAL	16
Sophomore			
Fall Semester			Spring Semester
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
MA 153 – Calculus III	3	PS 281 – General Physics I	5
Gen Ed Natural Science	3	MA 241 – Differential Equations	3
Humanities General Education	3	Social Science General Education	3
TOTAL	14		16
Junior			
Fall Semester			Spring Semester
CH 320 – Analytical Chemistry	3	CH 346 – Instrumental Analysis	2
CH 321 – Analytical Chemistry Lab	1	CH 362 – Spectroscopy	2
PS 282 – General Physics II	5	CH386 – Inorganic Chemistry	3
CH 345 – Inorganic Chemistry Lab	2	CH 390 – Chemical Research	2
MA 301– Linear Algebra	3	CM 111 – Intro to Structured Programming	4
		MA Elective	3
TOTAL	14	TOTAL	16
Senior			
Fall Semester			Spring Semester
CH 350 – Biochemistry I	3	EN 300 – Advanced College Writing	3
CH 381 – Physical Chemistry I	3	CH 371 – Advanced Topics in Chemistry	1
Social Science General Education	3	CH 382 – Physical Chemistry II	3
Elective	4	CH 385 – Physical Chemistry Lab	1
Humanities General Education	3	CH391 – Chemistry Seminar	1
		Elective	3
TOTAL	16		12

Oral Presentation of CH 390 research results

Required research completed prior to the semester of graduation.

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