

CHEMISTRY

**Bachelor of Science (B.S.) Secondary
Education 2016-2017***Non-ACS Certified***Requirements for Major:** At least 43 credit hours in the department, including:

CH 151 Fundamentals of Chemistry I
CH 152 Fundamentals of Chemistry II
CH 320 Analytical Chemistry
CH 321 Analytical Chemistry Laboratory
CH 340 Organic Chemistry I
CH 341 Organic Chemistry II
CH 342 Organic Chemistry Laboratory I
CH 343 Organic Chemistry Laboratory II
CH 350 Biochemistry I
CH 351 Biochemistry Lab I
CH 380 or CH 381 Fundamentals of Physical Chemistry or Physical Chemistry I
CH 390 Undergraduate Chemical Research
CH 391 Chemistry Seminar
Two of the following
CH352 Biochemistry II
CH 360 Descriptive Inorganic Chemistry
CH 382 Physical Chemistry II
CH 386 Inorganic Chemistry
Two or more of the following (minimum of 3 hours)
CH 345 Inorganic Chemistry Laboratory
CH 346 Instrumental Analysis
CH 347 Physical Chemistry Concepts Laboratory
CH 390 Chemical Research
Required Correlated Courses
MA 116 College Algebra
MA 117 Trigonometry
PS 261 or PS 281 College Physics I or General Physics I
PS 262 or PS 282 College Physics II or General Physics II
ED 150 Educational Participation in the Community
ED 200 Educational Psychology
ED 225 Becoming an Educational Professional
ED 300 Integrating Technology in the Curriculum
ED 302 Teaching Exceptional Learners
ED 352 Methods of Teaching Science in Sec. School or ED 350 General Secondary Methods
ED 385 Foundation of Education
ED 400 Understanding the School
ED 402 Teaching Struggling Learners
ED 405 Classroom Management
ED 410 Secondary Student Teaching
RD 484 Teaching Reading in Content Areas

CM 101 Computer Competency and Internet
CN 150 Public Speaking

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.

Notes

CM 101, Computer Competency & Internet must be completed prior to enrollment in ED 300.
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
All majors shall present a portfolio of results obtained with departmental instrumentation prior to the semester of graduation
Courses that must be taken to meet the standards for licensure in Kansas are CH 151, 152, 320, 321, 340, 342, 343, 350, 351, 390, and 391. In addition, students must fulfill the professional education course requirements of the Education Department

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 (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).*

**Sample 4-Year Schedule for Chemistry Secondary Ed Specialization
Major
Required Minor in Biology
Bachelor of Science
142 Hours**

Curriculum for students starting 2016-2017 Academic Year
Students starting in different academic years should contact their advisor.

Freshman			
Fall Semester			Spring Semester
CH 151 – Fundamentals of Chemistry I	5	CH 152 – Fundamentals of Chemistry II	5
MA 116 – College Algebra	3	BI 102 – General Cellular Biology	5
EN 101 – English Composition	3	CM 101 – Computer Concepts and Internet	3
WU 101 – Washburn Experience	3	CN 150 – Public Speaking	3
Soc Sci General Education	3		
TOTAL	17	TOTAL	16
Summer Session			
Humanities General Education	3		
Soc Sci General Education	3		
TOTAL	6		
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
AR/MU/TH General Education	3	Soc Sci General Education	3
BI 301 – General Microbiology	4	ED 150 – EPIC	1
PS 261 – College Physics I	5	ED 200 – Educational Psychology	3
		PS 262 – College Physics II	5
TOTAL	17		17
Summer Session			
ED 225 – Becoming Education Professional	3		
TOTAL	3		
Junior			
Fall Semester			Spring Semester
CH 320 – Analytical Chemistry	3	CH 352 – Biochemistry II	3
CH 321 – Analytical Chemistry Lab	1	CH353 – Biochemistry II Lab	2
ED 302 – Teaching Exceptional Learners	3	ED 300 – Integrating Technology	3
CH 350 – Biochemistry I	3	ED 352 – Methods of Teaching Science	3
CH 351 – Biochemistry I Lab	2	CH 390 – Chemistry Research	2
BI 333 – General Genetics	4	CH 391 – Chemistry Seminar	1
		Biology Minor Elective	3
TOTAL	16	TOTAL	17
Summer Session			

RD 484 – Teaching Reading Content	3		
TOTAL	3		
Senior			
Fall Semester		Spring Semester	
CH 380 – Physical Chemistry I	3	ED 400 – Understanding Schools	2
Biology Minor Elective	4	ED 405 – Classroom Management	1
ED 385 – Foundations of Education	3	ED 410 – Secondary Teaching	12
ED 402 – Teaching Struggling Learners	2		
EN 300 – Advanced Composition (Education Emphasis)	3		
TOTAL	15		15

Required research completed and presentation of portfolio of instrumentation prior to the semester of graduation