B.S. in Chemistry, ACS-Certified Concentration
Suggested Course Sequence for 8-semester plan

See catalog for additional guidelines and requirements (catalog.wcu.edu)

Freshman Year

Fall		Spring	
Course	*Credits*	*Course*	*Credits*
†CHEM 139* - General Chemistry I	4	†CHEM 140* - General Chemistry II	4
MATH 153 - Calculus I	4	MATH 255 - Calculus II	4
1st yr. seminar or ENGL 101	3	1st yr. seminar or ENGL 101	3
LS** or elective	3	LS or elective	3
Total credit hours:	14	*Total credit hours:*	14
Hours per week spent in class and lab:	16	*Hours per week spent in class and lab:*	16

Sophomore Year

Fall		Spring	
Course	*Credits*	*Course*	*Credits*
†CHEM 232* - Quantitative Analysis *or PHYS 230* – Physics I*	4	†PHYS 230* - General Physics I *or CHEM 232* – Quant. Analysis*	4
†CHEM 241* - Organic Chemistry I	4	†CHEM 242* - Organic Chemistry II	4
MATH Choice	3 or 4	LS or elective or ENGL 202	3
LS or elective or ENGL 202	3	LS or elective	3
		LS or elective	3
Total credit hours:	14 or 15	*Total credit hours:*	17
Hours per week spent in class and lab:	18 or 19	*Hours per week spent in class and lab:*	21

Junior Year

Fall		Spring	
Course	*Credits*	*Course*	*Credits*
CHEM 352 - Physical Chem.: Thermo.	3	†CHEM 361 - Principles of Biochemistry	3
†CHEM 380* - Research in Chemistry	2	†CHEM 370* - Instrumental Analysis I	4
†PHYS 231* - General Physics II	4	†CHEM 380* - Research in Chemistry	2
†CHEM 372* – Chem. Therm. Lab *or LS or elective*	1 *or 3*	LS or elective *or †CHEM 372* – Chem. Therm. Lab*	3 *or 1*
CHEM 495 – Seminar	1	LS or elective	3
LS or elective	3	LS or elective	3
Total credit hours:	14 *or 16*	*Total credit hours:*	*18 or 16*
Hours per week spent in class and lab:	26 *or 23*	*Hours per week spent in class and lab:*	24 *or 27*

Senior Year

Fall		Spring	
Course	*Credits*	*Course*	*Credits*
†CHEM 321 – Inorganic Chemistry *or LS or elective*	3	LS or elective *or †CHEM 321 – Inorganic Chemistry*	3
CHEM 435* - Instrumental Analysis II	3	CHEM 453 - Physical Chem.: Quantum	3
CHEM 472* - Chemical Syntheses	1	CHEM 471* - Inorganic Syntheses	1
LS or elective	3	CHEM 475* – Biochemistry Laboratory	1
LS or elective	3	CHEM 473* – Quantum Chem. and Spec. Lab	1
LS or elective	3	LS or elective	3
Total credit hours:	16	*Total credit hours:*	12
Hours per week spent in class and lab:	20	*Hours per week spent in class and lab:*	18

† This course is offered every semester

** LS = liberal studies course

* This course has a laboratory component

Updated: 6/20/2023 (JRW)

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Program Requirements (Effective Fall 2021)

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Term	Grade	Course	Hours
Liberal Studies (C2 and C5 courses are met with major requirements)			**33**
		First Year Seminar, 19X	3
		C1: ENGL 101 - Writing and Rhetoric	3
		C1: ENGL 202 - Writing and Critical Inquiry	3
		C3: COMM 201 - Foundations Communication	3
		C4: Wellness	3
		*P1: Social Science, course 1	3
		*P1: Social Science, course 2 *(must be from a different discipline than course 1)*	3
		*P3: History	3
		*P4: Humanities	3
		*P5: Fine & Performing Arts	3
		*P6: World Cultures	3
		**Note: at least one of the LS perspectives must be at the junior-senior level*	

Chemistry Core (note that some courses have grade prerequisites)			**47**
		CHEM 139 - General Chemistry I	4
		CHEM 140 - General Chemistry II (C- or better in CHEM139 or B or better in CHEM132 required)	4
		CHEM 232 - Quantitative Analysis (passing grade in either MATH146 or MATH153 and a C- or better in CHEM140 required)	4
		CHEM 241 - Organic Chemistry I (C- or better in CHEM140 required)	4
		CHEM 242 - Organic Chemistry II (C- or better in CHEM241 lecture required)	4
		CHEM 321 - Inorganic Chemistry (C- or better in CHEM140 required)	3
		CHEM 352 - Physical Chemistry: Chemical Thermodynamics (C- or better in CHEM232 and C- or better MATH153 required)	3
		CHEM 361 - Principles of Biochemistry (C- or better in 242 lecture required)	3
		CHEM 370 - Instrumental Analysis I (C- or better in both CHEM232 and CHEM241 (lecture) required)	4
		CHEM 372 – Chemical Thermodynamics Laboratory (Simultaneous enrollment or passing grade in CHEM352 required)	1
		CHEM 495 - Seminar in Chemistry	1
		MATH 153 - Calculus I (MATH146 or placement required)	4
		PHYS 230 - General Physics I (MATH152 or MATH153 required)	4
		PHYS 231 - General Physics II (Passing grade in PHYS230 required)	4

ACS-Certified Concentration			**21 or 22**
		CHEM 380 - Research in Chemistry (take **at least** two 2-credit sections)	4
		CHEM 435 - Instrumental Analysis II (Passing grade in CHEM370 and simultaneous enrollment or passing grade in CHEM352 required)	3
		CHEM 453 - Physical Chemistry: Quantum Chemistry and Spectroscopy (Passing grade in both MATH255 and PHYS230; C- or better in CHEM232 required)	3
		CHEM 471 - Inorganic Syntheses (C- or better in both CHEM242 (lecture and lab) and CHEM321 required)	1
		CHEM 472 – Organic Syntheses (C- or better in CHEM242 (lecture and lab) required)	1
		CHEM 473 - Quantum Chemistry and Spectroscopy Laboratory (Simultaneous enrollment or passing grade in CHEM453 or CHEM 553 required)	1
		CHEM 475 – Biochemistry Laboratory (C- or better in BIOL361 or CHEM361 required)	1
		MATH 255 - Calculus II (Passing grade in MATH153 required)	4
		MATH Choice (MATH 256, MATH 270, MATH 320, MATH 340)	3 or 4

General Electives (Suggested Electives: ENGL 402 (3), CS 150 (4), CS 151 (4))			18 or 19

Graduation Check

- ☐ 30 hours of 300-400 level classes at WCU
- ☐ Upper-level perspective
- ☐ GPA in major ≥ 2.0
- ☐ 120 total hours