Bachelor of Science in Chemistry

(American Chemical Society Certified Track - Even Year Start)

First Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 261/266 General Chemistry I/Lab	5	Х	NS	CHM 262/267 General Chemistry II/Lab	5	Х	NS				
MTH 181 Calculus I	4	х	M/QL	MTH 182 Calculus II	4	х	M/QL				
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C				
ASC 101 Introduction to University Life	1		INTRO	Arts & Humanities Elective	3 to 4		A&H				
Social Science Elective	3 to 4		SS								
Semester Total	16 to 17			Semester Total	15 to 16						

Second Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 331/336 Organic Chemistry I/Lab	6	Х		CHM 332/337 Organic Chemistry II/Lab	6	Х					
MTH 281 Multivariable Calculus	4	Х		PHY 242 University Physics II (or PHY 244)	5	Х	NS				
PHY 241 University Physics I (or PHY 243)	5	Х	NS	Arts & Humanities Elective (outside the US/ALAAME)	3 to 4	Х	A&H				
				US Diversity Elective	3 to 4		DIV				
Semester Total	15			Semester Total	17 to 19						

Third Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 441 Adv. Inorganic Chemistry	4	Х		CHM 411 Adv. Instrumental Analysis	3	х					
CHM 446 Inorganic Chemistry Lab	2	х		CHM 416 Adv. Instrumental Analysis Lab	4	х	WAC				
CHM 311/316 Quantitative Analysis/Lab	6	Х		CHM 401 Chemical Information	2	Х	WAC				
African American Experience Elective	3 to 4		DIV	Social Science (outside the US/ALAAME)	3 to 4		SS				
				General Elective*	3 to 4						
Semester Total	15 to 16			Semester Total	15 to 17						

			Fot	urth Year			
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
CHM 321 Physical Chemistry I	4	Х		CHM 322 Physical Chemistry II	4	Х	
CHM 426 Physical Chemistry Lab I	3	Х	WAC	CHM 427 Physical Chemistry Lab II	3	Х	
CHM 402 Biochemistry I	3	х		CHM 489 Senior Research	3	Х	
CHM 471 Faculty Colloquium	1	Х		CHM 472 Student Colloquium	1	Х	CAP
General Elective*	3 to 4			CHM 431 Adv. Organic Chemistry	2	Х	
				General Elective*	3 to 4		
Apply for Spring graduation prior to Sep 9th	1						
Semester Total	14 to 15			Semester Total	16 to 17		
_		Dearee To	tal: 123-	132 (128 hours minimum)	·	·	

 $Assumptions: college-level\ readiness\ in\ MTH\ \&\ ENG;\ no\ Foreign\ Language\ Deficiency$

College/ Program Notes:

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have aminimum of 128 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other elective choices made (3 credit hour vs. 4 credit hour courses), students may not need as many general electives as indicated above, or may need additional electives.

University Notes:

Gen Ed Key:

SS = Social Sciences (two courses, one of which must be focused outside the US**)

INTRO = Introduction to University Life (one course)

A&H = Arts & Humanities (two courses, one must be focused outside the US**)

W/C = Writing/Composition (two courses; C or better required)

DIV = Social Diversity (two courses; one US Diversity and one African American Experience)

WA/CSPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required)

NS = Natural Sciences (two courses, one of which must have a lab)

** of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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Bachelor of Science in Chemistry

(American Chemical Society Certified Track - Odd Year Start)

First Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 261/266 General Chemistry I/Lab	5	Х	NS	CHM 262/267 General Chemistry II/Lab	5	Х	NS				
MTH 181 Calculus I	4	х	M/QL	MTH 182 Calculus II	4	х	M/QL				
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C				
ASC 101 Introduction to University Life	1		INTRO	Arts & Humanities Elective	3 to 4		A&H				
Social Science Elective	3 to 4		SS								
Semester Total	16 to 17			Semester Total	15 to 16						

Second Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 331/336 Organic Chemistry I/Lab	6	х		CHM 332/337 Organic Chemistry II/Lab	6	Х					
MTH 281 Multivariable Calculus	4	х		PHY 242 University Physics II (or PHY 244)	5	Х	NS				
PHY 241 University Physics I (or PHY 243)	5	Х	NS	CHM 401 Chemical Information	2	Х	WAC				
				US Diversity Elective	3 to 4		DIV				
Semester Total	15			Semester Total	16 to 17						

Third Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 321 Physical Chemistry I	4	Х		CHM 322 Physical Chemistry II	4	Х					
CHM 426 Physical Chemistry Lab I	3	Х	WAC	CHM 427 Physical Chemistry Lab II	3	Х					
CHM 311/316 Quantitative Analysis/Lab	6	Х		CHM 411 Adv. Instrumental Analysis	3	Х					
African American Experience Elective	3 to 4		DIV	CHM 416 Adv. Instrumental Analysis Lab	4	Х	WAC				
				CHM 431 Adv. Organic Chemistry	2	Х					
Semester Total	16 to 17			Semester Total	16						

			Fot	ırth Year			
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
CHM 441 Adv. Inorganic Chemistry	4	Х		CHM 489 Senior Research	3	Х	
CHM 446 Inorganic Chemistry Lab	2	Х		CHM 472 Student Colloquium	1	Х	CAP
CHM 402 Biochemistry I	3	Х		Social Science (outside the US/ALAAME)	3 to 4		SS
CHM 471 Faculty Colloquium	1	Х		General Elective*	3 to 4		
Arts & Humanities (outside the US/ALAAME)	3 to 4		A&H	General Elective*	3 to 4		
General Elective*	3 to 4						
Apply for Spring graduation prior to Sep 9th	1						
Semester Total	16 to 18			Semester Total	13 to 16		
		Degree To	tal: 123-	132 (128 hours minimum)			

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a minimum of 128 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other elective choices made (3 credit hour vs. 4 credit hour courses), students may not need as many general electives as indicated above, or may need additional electives.

University Notes:

Gen Ed Key: SS = Social Sciences (two courses, one of which must be focused outside the US**) INTRO = Introduction to University Life (one course) A&H = Arts & Humanities (two courses, one must be focused outside the US**) W/C = Writing/Composition (two courses; C or better required) DIV = Social Diversity (two courses; one US Diversity and one African American Experience) M/QL = Mathematics/Quantitative Literacy (two courses) WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required) NS = Natural Sciences (two courses, one of which must have a lab) CAP = Capstone ** of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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Cleveland State University College of Sciences and Health Professions Bachelor of Science in Chemistry

(Pre-Professional Track)

First Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 261/266 General Chemistry I/Lab	5	Х	NS	CHM 262/267 General Chemistry II/Lab	5	Х	NS				
BIO 200/201 Introductory Biology I/Lab	4	Х	NS	BIO 202/203 Introductory Biology II/Lab	4	Х	NS				
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C				
ASC 101 Introduction to University Life	1		INTRO	Arts & Humanities Elective	3 to 4		A&H				
Social Science Elective	3 to 4		SS								
Semester Total	16 to 17			Semester Total	15 to 16						

Second Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 331/336 Organic Chemistry I/Lab	6	х		CHM 332/337 Organic Chemistry II/Lab	6	Х					
MTH 181 Calculus I	4	х	M/QL	MTH 182 Calculus II	4	Х	M/QL				
PHY 221 College Physics I	5	Х	NS	PHY 222 College Physics II	5	Х	NS				
				US Diversity Elective	3 to 4		DIV				
Semester Total	15			Semester Total	18 to 19						

Third Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 320 Survey of Physical Chemistry	4	Х		BIO 302/302 Animal Biology/Lab	4	Х					
CHM 310 Survey of Analytical Chemistry	2	Х		BIO 310/311 Genetics & Recitation	4	Х					
CHM 315 Survey of Analytical Chemistry Lab	2	Х	WAC	African American Experience Elective	3 to 4		DIV				
CHM 402 Biochemistry	3	Х		Arts & Humanities Elective (outside the US/ALAAME)	3 to 4	Х	A&H				
BIO 308/309 Cell Biology/Lab	4	Х									
Semester Total	15			Semester Total	14 to 16						

	Fourth Year												
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed						
CHM 471 Faculty Colloquium	1	Х		CHM 472 Student Colloquium	1	Х	CAP						
BIO 416/417 Microbiology/Lab	5	Х		BIO Elective	3 to 4	Х							
CHM Elective	3 to 4	Х		CHM Elective	3 to 4	Х							
Social Science (outside the US/ALAAME)	3 to 4		SS	Writing Across the Curriculum Elective	3 to 4		WAC						
Writing Across the Curriculum Elective	3 to 4		WAC	General Elective*	3 to 4								
Apply for Spring graduation prior to Sep 9th	1												
Semester Total	15 to 18			Semester Total	13 to 17								
		Degree To	tal: 121-	133 (128 hours minimum)									

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

*Electives ensure that a student accumulates the minimum credit hour totals needed for graduation. Students must have a minimum of 128 total credit hours, of which a minimum of 42 credit hours must be upper division (300 or 400-level courses). Depending upon other elective choices made (3 credit hour vs. 4 credit hour courses), students may not need as many general electives as indicated above, or may need additional electives.

University Notes:

Gen Ed Key: SS = Social Sciences (two courses, one of which must be focused outside the US**) INTRO = Introduction to University Life (one course) A&H = Arts & Humanities (two courses, one must be focused outside the US**) W/C = Writing/Composition (two courses; C or better required) DIV = Social Diversity (two courses; one US Diversity and one African American Experience) M/QL = Mathematics/Quantitative Literacy (two courses) WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required) NS = Natural Sciences (two courses, one of which must have a lab) CAP = Capstone

** of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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Bachelor of Science in Chemistry

(Pre-Professional Track with Concentration in Pharmaceutical Science)

First Year											
Fall Semester	Semester Credits Major Gen Ed Spring Semester		Credits	Major	Gen Ed						
CHM 261/266 General Chemistry I/Lab	5	Х	NS	CHM 262/267 General Chemistry II/Lab	5	Х	NS				
BIO 200/201 Introductory Biology I/Lab	4	Х	NS	BIO 202/203 Introductory Biology II/Lab	4	Х	NS				
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C				
ASC 101 Introduction to University Life	1		INTRO	Arts & Humanities Elective	3 to 4		A&H				
Social Science Elective	3 to 4		SS								
Semester Total	16 to 17			Semester Total	15 to 16						

Second Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed				
CHM 331/336 Organic Chemistry I/Lab	6	Х		CHM 332/337 Organic Chemistry II/Lab	6	х					
MTH 181 Calculus I	4	Х	M/QL	MTH 182 Calculus II	4	Х	M/QL				
PHY 221 College Physics I	5	Х	NS	PHY 222 College Physics II	5	Х	NS				
US Diversity Elective	3 to 4		DIV	African American Experience Elective	3 to 4		DIV				
Semester Total	18 to 19			Semester Total	18 to 19						

	Third Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester		Major	Gen Ed					
CHM 341 Pharmacology I	3	Х		CHM 342 Pharmacology II	3	Х						
CHM 351 Medicinal Chemistry I	3	х		CHM 352 Medicinal Chemistry II	3	х						
CHM 310 Survey of Analytical Chemistry	2	Х		BIO 310/311 Genetics and Recitation	4	Х						
CHM 315 Survey of Analytical Chemistry Lab	2	Х	WAC	CHM/BIO Elective (300/400 level)	3 to 4	Х						
Social Science (outside the US/ALAAME)	te (outside the US/ALAAME) 3 to 4 SS Writing Across the Curriculum Elective		Writing Across the Curriculum Elective	3 to 4		WAC						
Semester Total	13 to 14			Semester Total	16 to 18							

			Fo	urth Year			
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed
CHM 471 Faculty Colloquium	1	Х		CHM 472 Student Colloquium	1	Х	CAP
BIO 416/417 Microbiology/Lab	5	Х		CHM 455 Biotechnology Techniques	4	Х	
CHM 402 Biochemistry	3	х		CHM/BIO Elective (300/400 level)	3 to 4	Х	
CHM/BIO Elective (300/400 level)	3 to 4	Х		CHM/BIO Elective (300/400 level)	3 to 4	Х	
Arts & Humanities Elective (outside the US/ALAAME)	3 to 4	Х	A&H	Writing Across the Curriculum Elective	3 to 4		WAC
Apply for Spring graduation prior to Sep 9th	h						
Semester Total	15 to 17		Semester Total 14 to 17				
		Dearee To	tal: 125-	137 (128 hours minimum)		·	•

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes

The plan above is a suggested guide to ensure that all General Education, College, University, and Major requirements are met within 4 years of study. Students may deviate from the suggested placement of Gen Ed courses, although the M/QL and W/C requirements should be completed during the first year of study.

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University Notes:

Gen Ed Key:
INTRO = Introduction to University Life (one course)
W/C = Writing/Composition (two courses; C or better required)
M/QL = Mathematics/Quantitative Literacy (two courses)
NS = Natural Sciences (two courses, one of which must have a lab)

SS = Social Sciences (two courses, one of which must be focused outside the US**)

A&H = Arts & Humanities (two courses, one must be focused outside the US**)

DIV = Social Diversity (two courses; one US Diversity and one African American Experience)

WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required)

CAP = Capstone

** of the SS and A&H courses focused outside the US, one must be focused on Africa, Latin America, Asia or the Middle East (ALAAME)

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Bachelor of Science in Chemistry

CSUTeach Dual Field Licensure in Chemistry and Physics, Grades 7-12
Minor in Physics, Minor in Education

First Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed	Summer Semester	Credits	Major	Gen Ed
ENG 101 English I	3		W/C	ENG 102 English II	3		W/C	African Amer Exp Elective	3 to 4		DIV
MTH 181 Calculus I	4	Х	M/QL	MTH 182 Calculus II	4	Х	M/QL				
PSY 221 Adolescent Psychology	3	Х	SS	CHM 262/267 General Chemistry/Lab II	5	Х	NS				
ASC 101 Introduction to University Life	1		INTRO	EVS 206 Intro to Environmental Science	4	Х	NS				
CHM 261/266 General Chemistry/Lab I	5	Х	NS	EUT 201 Inquiry Approaches to Teaching	1	Х					
Semester Total	16			Semester Total	17			Semester Total	3 to 4		

Second Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed	Summer Semester	Credits	Major	Gen Ed
CHM 331/336 Organic Chemistry/Lab I	6	Х		CHM 332/337 Organic Chemistry/Lab II	6	Х		BIO 380 Biology Content	5	Х	
PHY 243 University Physics I	5	Х	NS;WAC	PHY 244 University Physics II	5	Х	NS;WAC				
MTH 281 Multivariable Calculus	4	Х		EDC 300 Diversity in Educational Settings	3	Х	DIV				
EUT 217 Inquiry in Science	1	Х		Social Sci Elective (outside US/ALAAME)	3 to 4		SS				
Semester Total	16			Semester Total	17 to18			Semester Total	5		

Third Year												
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed	Summer Semester	Credits	Major	Gen Ed	
CHM 310/315 Analytical Chemistry/Lab	4	Х		CHM 320 Survey of Physcial Chemistry**	4	Х		EDL 305 Content Area Lit	3	Х		
CHM 403 Biochemistry II	3	Х		CHM 404 Environmental Chemistry	3	Х						
PHY 330 Intro to Modern Physics	4	Х		PHY 350 Electricity and Magnetism**	4	Х						
PHY 470 Environmental Physics	4	Х		EUT 305 Classroom Interactions	3	Х						
EUT 302 Knowing & Learning	3	Х		Arts & Hum Elective (outside US/ALAAME)	3 to 4		A&H					
Semester Total	18			Semester Total	17 to 18	·		Semester Total	3			

	Fourth Year											
Fall Semester	Credits	Major	Gen Ed	Spring Semester	Credits	Major	Gen Ed	Summer Semester	Credits	Major	Gen Ed	
CHM Elective (300/400 level)	3 to 4	Х		EST 499 STEM Student Teaching	6	Х						
PHY 340 Mechanics and Vibrations**	4	Х		EUT 210 Perspectives in Math & Science	3	Х	A&H					
PHY 474 Thermal Physics	4	Х		CHM 471 Faculty Colloquium	1	Х						
PHY 301 Research Methods	3	Х	WAC	CHM 401 Chemical Information**	2	Х	WAC					
EUT 317 Project-Based Instruction	3	Х		HPR 101 Wellness	1	Х						
Apply for Spring graduation price	or to Se	p 9th										
Semester Total	17 to18			Semester Total	13			Semester Total	0		_	
	Degree Total: 142-145											

Assumptions: college-level readiness in MTH & ENG; no Foreign Language Deficiency

College/ Program Notes

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 $\ensuremath{^{**}}$ Not offered every semester. Check with department for availability

University Notes:

Gen Ed Key:

INTRO = Introduction to University Life (one course)

W/C = Writing/Composition (two courses; C or better required)

M/QL = Mathematics/Quantitative Literacy (two courses)

NS = Natural Sciences (two courses, one of which must have a lab)

SS = Social Sciences (two courses, one of which must be focused outside the US**) A&H = Arts & Humanities (two courses, one must be focused outside the US**)

DIV = Social Diversity (two courses; one US Diversity and one African American Experience)

WAC/SPAC = Writing/Speaking Across the Curriculum (three courses, one in the major; C or better required; CAP = Capstone

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