

# STEM EDUCATION: CHEMISTRY BA PATHWAY

Total Units Required: 190 units

## Required Course Listings

This breakdown shows a STEM Education: Chemistry BA Pathway to be completed in 4 years at La Sierra University. All courses with a star (\*) indicate a prerequisite or multiple prerequisites for the class. By following the suggested/required sequencing all necessary prerequisite courses will be fulfilled. Please consult the Bulletin, Records, or your Guided Pathways Advisor for more information about prerequisites.

Major Requirements (123 units)		
Course	Course Title	Units
CHEM 106	Introductory Chemistry II*	4
CHEM 111	General Chemistry I	4
CHEM 111L	General Chemistry I Lab	1
CHEM 112	General Chemistry II*	4
CHEM 112L	General Chemistry II Lab*	1
CHEM 113	General Chemistry III*	4
CHEM 113L	General Chemistry III Lab*	1
CHEM 224	Analytical Chemistry*	5
CHEM 281	Organic Chemistry I*	4
CHEM 281L	Organic Chemistry I Lab*	1
CHEM 282	Organic Chemistry II*	4
CHEM 282L	Organic Chemistry II Lab*	1
CHEM 321	Molecular Science Research Literature Review*	2
CHEM 322	Molecular Science Research Lab*	2
CHEM 421	Writing for Molecular Science Research*	1
CHEM 422	Molecular Science Research Presentation*	1
PHYS 231A	General Physics I	4
PHYS 231L	General Physics I Lab*	1
PHYS 232A	General Physics II	4
PHYS 232L	General Physics II Lab*	1
PHYS 233A	General Physics III	4
PHYS 233L	General Physics III Lab*	1
PSYC 234	Developmental Psychology*	4
CHEM 3/400	Chemistry Upper Division Elective*	4
EDCI 204	Introduction to Teaching (with Service Learning)	3
EDCI 410	Classroom Management*	3
EDCI 413	Digital Literacy*	3
EDCI 416A	Language & Literacy 9-12	3
EDCI 417C	Culture, Society, & Ethics K-12	2
EDCI 419	Reading In The Content Area*	5
EDCI 429	Middle School Theory*	4
EDCI 430	Secondary Theory & Practice*	4
EDCI 464	Special Ed In General Classroom*	3
EDCI 498	Introduction To Assessment*	3
EDFO 305	Psychological Theories of Instruction*	3
HLSC 214	Dimensions of Wellness*	4
HPSC 274	American Government	4
GEOL 316	Earth & Space Science	4
HPSC 106	Race, Class & Gender in American History	4
MATH 121	College Algebra	4
MATH 122	Trigonometry & Analytical Geometry*	4

General Education Requirements (67 units)		
Course	Course Title	Units
ENGL 111	College Writing I	3
ENGL 112	College Writing II*	3
ENGL 113	College Writing III*	3
HLSC 120	Lifetime Fitness	2
UNST 101	First Year Seminar	3
WDLG 151	World Language I	4
WDLG 152	World Language II*	4
WDLG 153	World Language III*	4
HUMN 10X	HUMN Theme Course	4
NSCI 40X	NSCI Theme Course*	4
RELB X00	Theme IIIBiii - Scripture Elective	4
RLGN 304	Adventism in Global Perspective*	4
SSCI 20X-SL	SSCI Theme Course (with Service Learning)	4
THM2 X00	Theme II Elective	8
THM3 X00	Theme III Elective	8
UNST 404Q-SL	Senior Seminar: Religion, Values & Social Responsibility in Education (with Service Learning)*	4
elct X00	Elective	1

## Sequencing

STEM Education: Chemistry BA Pathway in 4 years at La Sierra University.

Year 1			Year 1			Year 1		
Fall Quarter (16 units)			Winter Quarter (15 units)			Spring Quarter (17 units)		
Course	Course Title	Units	Course	Course Title	Units	Course	Course Title	Units
CHEM 111	General Chemistry I	4	CHEM 112	General Chemistry II*	4	CHEM 113	General Chemistry III*	4
CHEM 111L	General Chemistry I Lab	1	CHEM 112L	General Chemistry II Lab*	1	CHEM 113L	General Chemistry III Lab*	1
EDCI 204	Introduction to Teaching (with Service Learning)	3	HLSC 214	Dimensions of Wellness*	4	HPSC 106	Race, Class & Gender in American History	4
HPSC 274	American Government	4	ENGL 112	College Writing II*	3	ENGL 113	College Writing III*	3
ENGL 111	College Writing I	3	HLSC 120	Lifetime Fitness	2	UNST 101	First Year Seminar	1
UNST 101	First Year Seminar	1	UNST 101	First Year Seminar	1	HUMN 10X	HUMN Theme Course	4
Year 2			Year 2			Year 2		
Fall Quarter (16 units)			Winter Quarter (16 units)			Spring Quarter (16 units)		
Course	Course Title	Units	Course	Course Title	Units	Course	Course Title	Units
CHEM 281	Organic Chemistry I*	4	CHEM 282	Organic Chemistry II*	4	CHEM 224	Analytical Chemistry*	5
CHEM 281L	Organic Chemistry I Lab*	1	CHEM 282L	Organic Chemistry II Lab*	1	EDCI 416A	Language & Literacy 9-12	3
EDCI 413	Digital Literacy*	3	EDFO 305	Psychological Theories of Instruction*	3	WDLG 153	World Language III*	4
MATH 121	College Algebra	4	MATH 122	Trigonometry & Analytical Geometry*	4	SSCI 20X-SL	SSCI Theme Course (with Service Learning)	4
WDLG 151	World Language I	4	WDLG 152	World Language II*	4			
Year 3			Year 3			Year 3		
Fall Quarter (16 units)			Winter Quarter (16 units)			Spring Quarter (15 units)		
Course	Course Title	Units	Course	Course Title	Units	Course	Course Title	Units
PHYS 231A	General Physics I	4	CHEM 321	Molecular Science Research Literature Review*	2	CHEM 322	Molecular Science Research Lab*	2
PHYS 231L	General Physics I Lab*	1	PHYS 232A	General Physics II	4	PHYS 233A	General Physics III	4
EDCI 464	Special Ed In General Classroom*	3	PHYS 232L	General Physics II Lab*	1	PHYS 233L	General Physics III Lab*	1
RLGN 304	Adventism in Global Perspective*	4	PSYC 234	Developmental Psychology*	4	EDCI 429	Middle School Theory*	4
THM2 X00	Theme II Elective	4	EDCI 417C	Culture, Society, & Ethics K-12	2	THM3 X00	Theme III Elective	4
			EDCI 498	Introduction To Assessment*	3			
Year 4			Year 4			Year 4		
Fall Quarter (16 units)			Winter Quarter (14 units)			Spring Quarter (17 units)		
Course	Course Title	Units	Course	Course Title	Units	Course	Course Title	Units
EDCI 410	Classroom Management*	3	CHEM 106	Introductory Chemistry II*	4	CHEM 422	Molecular Science Research Presentation*	1
EDCI 419	Reading In The Content Area*	5	CHEM 421	Writing for Molecular Science Research*	1	CHEM 3/400	Chemistry Upper Division Elective*	4
THM2 X00	Theme II Elective	4	EDCI 430	Secondary Theory & Practice*	4	GEOL 316	Earth & Space Science	4
THM3 X00	Theme III Elective	4	UNST 404Q-SL	Senior Seminar: Religion, Values & Social Responsibility in Education (with Service Learning)*	4	NSCI 40X	NSCI Theme Course*	4
			elct X00	Elective	1	RELB X00	Theme IIIBiii - Scripture Elective	4

## Additional Supporting Summaries

Summary of Units in Guided Pathway	
Total Units in Pathway (not counting 00X)	190
Total Major Units	63
Total Cognate Units	16
Total Major + Cognate Units	79
Total Upper Division Units	59
Total Upper Division Theme Units	16
Count of Service Learning Courses	3
Major Units also as U Studies	4
Cognate Units also as U Studies	8
Credits Below Undergraduate Level	0
Credential Course Units	44

<u>U.Studies Notes</u>	<u>La Sierra Course</u>	<u>La Sierra Title</u>	<u>sum La Sierra Units</u>	<u>Upper Div.</u>	<u>Requirement</u>
Foundational I - First Year Seminar	UNST 101	First Year Seminar	3	FALSE	4 (foundational studies)
Foundational IIA - Rhetoric College Writing	ENGL 111	College Writing I	3	FALSE	4 (foundational studies)
Foundational IIA - Rhetoric College Writing	ENGL 112	College Writing II	3	FALSE	4 (foundational studies)
Foundational IIA - Rhetoric College Writing	ENGL 113	College Writing III	3	FALSE	4 (foundational studies)
Foundational IIB - Upper-division Rhetoric	CHEM 321	Molecular Science Research Literature Review	2	TRUE	1 (major)
Foundational IIB - Upper-division Rhetoric	CHEM 421	Writing for Molecular Science Research	1	TRUE	1 (major)
Foundational IIB - Upper-division Rhetoric	CHEM 422	Molecular Science Research Presentation	1	TRUE	1 (major)
Foundational III - Mathematics	MATH 121	College Algebra	4	FALSE	2 (cognate)
Foundational IV - World Languages	WDLG 151	World Language I	4	FALSE	4 (foundational studies)
Foundational IV - World Languages	WDLG 152	World Language II	4	FALSE	4 (foundational studies)
Foundational IV - World Languages	WDLG 153	World Language III	4	FALSE	4 (foundational studies)
Foundational V - Health and Fitness	HLSC 120	Lifetime Fitness	2	FALSE	4 (foundational studies)
Theme IA - SSCI Theme Course	SSCI 20X-SL	SSCI Theme Course (with Service Learning)	4	FALSE	5 (university studies)
Theme IB - Social Science Breadth Course(s)	HPSC 106	Race, Class & Gender in American History	4	FALSE	2 (cognate)
Theme IIA - HUMN Theme Course	HUMN 10X	HUMN Theme Course	4	FALSE	5 (university studies)
Theme IIB - Arts & Humanities Breadth Courses	THM2 X00	Theme II Elective	8	FALSE	5 (university studies)
Theme III - Religious Beliefs & Practice	RLGN 304	Adventism in Global Perspective	4	TRUE	5 (university studies)

Theme IIIBii - Scripture Course	RELB X00	Theme IIIBiii - Scripture Elective	4	FALSE	5 (university studies)
Theme IIIBiii - Religious Beliefs & Practice Breadth Course	THM3 X00	Theme III Elective	8	FALSE	5 (university studies)
Theme IVA - NSCI Theme Course	NSCI 40X	NSCI Theme Course	4	TRUE	5 (university studies)
Theme IVB - Life Science	CHEM 106	Introductory Chemistry II	4	FALSE	1 (major)
Theme IVCL - Physical Science with lab	GEOL 316	Earth & Space Science	4	TRUE	2 (cognate)
Theme VI - Senior Seminar	UNST 404Q-SL	Senior Seminar: Religion, Values & Social Responsibility in Education (with Service Learning)	4	TRUE	5 (university studies)
Theme V: Service Learning Courses	(3)	EDCI 204, SSCI 20X-SL, UNST 404Q-SL			