

CHEMISTRY TEACHING LICENSURE OPTION BACHELOR OF SCIENCE DEGREE *PROGRAM PLACED ON MORATORIUM*

All students desiring licensure to teach are required to file an Application for Admission to the Educator Preparation Program (<https://catalog.msubillings.edu/undergraduate/college-education>).

Code	Title	Credits
General Education Requirements (https://catalog.msubillings.edu/undergraduate/general-education-requirements)		31

BIOB 160	Principles of Living Systems *
BIOB 161	Principles Living Systems Lab *

Note: Nine credits will be filled with requirements below, leaving 22 credits needed in General Education.

Professional Core (see below)	34
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Chemistry		
CHMY 141	College Chemistry I *	3
CHMY 142	College Chemistry I Lab *	1
CHMY 143	College Chemistry II	3
CHMY 144	College Chemistry II Lab	1
CHMY 311	Analytical Chem-Quant Analysis	3
CHMY 312	Analytical Chm Lab-Quant Anlsys	1
CHMY 321	Organic Chemistry I	3
CHMY 322	Organic Chemistry Lab I	1
CHMY 323	Organic Chemistry II	3
CHMY 324	Organic Chemistry Lab II	1
CHMY 371	Phys Chem-Qntm Chm & Spctrscopy	3
CHMY 372	Physical Chemistry Lab I	1
CHMY 373	Phys Chem-Kntcs & Thrmdynmcs	3
CHMY 374	Physical Chemistry Lab II	1
CHMY 498	Internship/Cooperative Educ	2
BCH 380	Biochemistry	3
BCH 381	Biochemistry Lab	1
Subtotal		34

Chemistry Electives	9
Select nine credits from the following:	9

CHMY 401	Advanced Inorganic Chemistry
CHMY 402	Advanced Inorganic Chem Lab
CHMY 411	Advanced Organic Chemistry
CHMY 412	Advanced Organic Chemistry Lab
CHMY 421	Advanced Instrument Analysis
CHMY 422	Adv Instrument Analysis Lab
CHMY 490	Undergraduate Research
CHMY 491	Special Topics
BCH 480	Advanced Biochemistry I
BCH 481	Advanced Biochemistry I Lab
Subtotal	9

Mathematics		
M 171	Calculus I *	4
M 172	Calculus II	4
STAT 216	Introduction to Statistics *	4
Subtotal		12
Physics		
ASTR 110	Introduction to Astronomy *	3
ASTR 111	Introduction to Astronomy Lab *	1
PHSX 220	Physics I	3
PHSX 221	Physics I Lab	1
PHSX 232	Physics II & Thermo	3
PHSX 233	Physics II & Thermo Lab	1
Subtotal		12
Science electives selected with advisor approval.		4
Total Minimum Credits		127

Certain courses in this program have prerequisites; students should check course descriptions for required prerequisites.

Professional Core Requirements

The Professional Core at Montana State University Billings combines the intellectual foundations of education and the professional knowledge and skills required of all teachers into a coherent sequence of courses. The core provides the basis for understanding the philosophical, historical, cultural, and sociopolitical means by which society attempts cultural transmission and it provides the opportunity to acquire the knowledge and skills that are essential for effective instruction. It includes the range of human development and learning as they affect instructional planning, evaluation, curriculum design and implementation, performance skills, management of classrooms, direction of students, professional responsibilities, and ethical issues affecting teacher effectiveness.

At different points in its sequence of courses, the Professional Core engages students in supervised practice applying their developing knowledge and skills. By having faculty who hold diverse disciplinary perspectives teach throughout its sequence, the Professional Core encourages students to develop a professionally responsible understanding of the diversity that defines learners and teachers. The student teaching experience completes the sequence and includes both a final look at classroom skills and a capstone seminar.

The Professional Core presents a balanced approach to epistemology from philosophical, psychological, and sociological perspectives. The core is predicated on the evidential nature of knowledge required for the professional practice of education. While the professional practice of education is also informed by belief and intuition, it is ultimately defensible only to the extent that it has evidential support. The Professional Core engages students in both the processes and products of human knowing as such knowing is central to all aspects of education. The Professional Core involves the

1. creation,
2. facilitation of change,
3. transmission, and
4. application of human knowledge across the diversity of ways in which individuals understand human knowledge.

Secondary and K-12

Code	Title	Credits
EDSP 204	Intro to Tchng Exceptnl Lnrs	3
EDU 105	Education and Democracy *	3

EDU 220	Human Growth & Development	3
EDU 221	Educ Psyc & Measurement	3
EDU 333	Rd & Wrtng Across Curriculum	3
EDU 354	Secondary Junior Field	2
EDU 380	Intro Curriculum Plan/Practice	2
EDU 406	Phil, Legal & Ethical Issues	3
EDU 495A	Student Teaching: K-12	9
or EDU 495C	Student Teaching: 5-12	
HTH 412	Drugs and Alcohol	1
Content Area Methods Course		2-3
Total Minimum Credits		34-35

* May satisfy General Education requirements.

Suggested Plan of Study

Code	Title	Credits
First Year		
Fall		
CHMY 141 & CHMY 142	College Chemistry I and College Chemistry I Lab	4
BIOB 160 & BIOB 161	Principles of Living Systems and Principles Living Systems Lab	4
M 171	Calculus I	4
Professional Core		v
General Education		v
Total		Varies
Spring		
CHMY 143 & CHMY 144	College Chemistry II and College Chemistry II Lab	4
M 172	Calculus II	4
Professional Core		v
General Education		v
Total		Varies
Second Year		
Fall		
CHMY 321 & CHMY 322	Organic Chemistry I and Organic Chemistry Lab I	4
PHSX 220 & PHSX 221	Physics I and Physics I Lab	4
Professional Core		v
General Education		v
Total		Varies
Spring		
CHMY 323 & CHMY 324	Organic Chemistry II and Organic Chemistry Lab II	4
ASTR 110 & ASTR 111	Introduction to Astronomy and Introduction to Astronomy Lab	4
PHSX 232 & PHSX 233	Physics II & Thermo and Physics II & Thermo Lab	4
Professional Core		v
General Education		v
Total		Varies
Third Year		
Fall		

BCH 380 & BCH 381	Biochemistry and Biochemistry Lab	4
CHMY 311 & CHMY 312	Analytical Chem-Quant Analysis and Analytical Chm Lab-Quant Anlsys	4
CHMY 371 & CHMY 372	Phys Chem-Qntm Chm & Spctrsocpy and Physical Chemistry Lab I	4
Professional Core		v
General Education		v
Total		Varies

Spring		
CHMY 373 & CHMY 374	Phys Chem-Kntcs & Thrmodynms and Physical Chemistry Lab II	4
Professional Core		v
General Education		v
Total		Varies

Fourth Year		
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Fall		
CHMY 498	Internship/Cooperative Educ	1
PHSX 343	Modern Physics	3
Chemistry Elective		4
Professional Core		3
Total		11

Spring		
CHMY 498	Internship/Cooperative Educ	1
Chemistry Elective		5
Professional Core		12
Total		18