

CHEMISTRY: SECONDARY TEACHER CERTIFICATION, BS

Degree Requirements

Requirements for Students Matriculating in or before Academic Year 2023-2024. Learn more about University Academic Regulation 3.1 (<http://catalog.okstate.edu/university-academic-regulations/#matriculation>).

Minimum Overall Grade Point Average: 2.50

Total Hours: 120

Code	Title	Hours
General Education Requirements		
<i>English Composition</i>		
See Academic Regulation 3.5 (http://catalog.okstate.edu/university-academic-regulations/#english-composition)		
ENGL 1113	Composition I	3
or ENGL 1313	Critical Analysis and Writing I	
Select one of the following:		3
ENGL 1213	Composition II	
ENGL 1413	Critical Analysis and Writing II	
ENGL 3323	Technical Writing	
<i>American History & Government</i>		
HIST 1103	Survey of American History	3
or HIST 1483	American History to 1865 (H)	
or HIST 1493	American History Since 1865 (DH)	
POLS 1113	American Government	3
<i>Analytical & Quantitative Thought (A)</i>		
MATH 2144	Calculus I (A) ^{1,2}	4
MATH 2153	Calculus II (A)	3
<i>Humanities (H)</i>		
PHIL 3933	Creation and Evolution ¹	3
Course designated (H)		3
<i>Natural Sciences (N)</i>		
Must include one Laboratory Science (L) course		
BIOL 1113 & BIOL 1111	Introductory Biology (N) and Introductory Biology Laboratory (LN) ^{1, 2}	4
or BIOL 1114	Introductory Biology (LN)	
CHEM 1314	Chemistry I (LN) ^{1,2}	4
PHYS 2014	University Physics I (LN) ^{1,2}	4
or PHYS 1114	College Physics I (LN)	
<i>Social & Behavioral Sciences (S)</i>		
Course designated (S)		3
<i>Additional General Education</i>		
Hours Subtotal		40
Diversity (D) & International Dimension (I)		
May be completed in any part of the degree plan		
Select at least one Diversity (D) course (SPED 3202)		
Select at least one International Dimension (I) course		
College/Departmental Requirements		
<i>First Year Seminar</i>		

(Transfer students with 15 hours exempt)		1
<i>Arts & Humanities</i>		
See note 2.a.		3
<i>Natural & Mathematical Sciences</i>		
CHEM 1515	Chemistry II (LN) ²	5
PHYS 2114	University Physics II (LN) ²	4
or PHYS 1214	College Physics II (LN)	
<i>Foreign Language</i>		
See note 3		
0-6 hours		
<i>Upper-Division General Education</i>		
Select 6 hours outside major department		
See note 2.c.		
Hours Subtotal		13
Major Requirements		
<i>Chemistry Core</i>		
Minimum GPA 2.50 and minimum grade of "C" or "P" in Chemistry Core		
CHEM 2113	Principles of Analytical Chemistry	3
CHEM 2122	Quantitative Analysis Laboratory	2
CHEM 3053	Organic Chemistry I	3
CHEM 3112	Organic Chemistry Laboratory	2
CHEM 3153	Organic Chemistry II	3
CHEM 3353	Descriptive Inorganic Chemistry	3
or CHEM 3363	Bioinorganic Chemistry	
CHEM 3413	Physical Chemistry Applications	3
CHEM 4990	Special Problems in Chemistry	2
BIOC 3653	Survey of Biochemistry	3
STAT 2013	Elementary Statistics (A)	3
or STAT 4013	Statistical Methods I (A)	
<i>Secondary Education Professional Core</i>		
Minimum GPA 2.50 and minimum grade of "C" or "P" in each course		
SMED 1012	Inquiry Approaches to Teaching	2
SMED 3013	Knowing and Learning in Mathematics and Science	3
SMED 4023	Problem-Based Learning in Mathematics and Science	3
SMED 4611	Authentic Research in the Science Classroom	1
SMED 4613	Teaching the Nature of Science Through an Inquiry Approach ³	3
SMED 4713	Teaching and Learning Science in the Secondary School ³	3
SMED 4723	Senior Seminar in Secondary Mathematics and Science Education ³	3
SPED 3202	Educating Exceptional Learners (D)	2
CIED 3313	Field Experience in the Secondary Schools	3
CIED 4133	Introduction to K-12 English Language Learners	3
CIED 4720	Internship in the Secondary Classroom (6 hours) ³	6
Hours Subtotal		59
Electives		

Select 8 hours	8
May need to include 6 hours of a foreign language. See note 3	
MATH 1513 and MATH 1813 required for students who do not place directly into MATH 2144.	
Hours Subtotal	8
Total Hours	120

1

College and Departmental Requirements that may be used to meet General Education Requirements.

2

Minimum GPA 2.50 and minimum grade of "C" or "P"

3

Full admission to Professional Education required.

Other Requirements

- See the College of Arts and Sciences Requirements.
- **Upper-Division Credit:** Total hours must include at least 40 hours in courses numbered 3000 or above.

College of Arts and Sciences Requirements

1. **Hours in One Department:** For B.A. and B.S. degrees, no more than 54 hours in one department may be required to meet degree requirements. Courses used to satisfy the General Education English Composition, U.S. History, American Government, and Mathematics or Statistics requirements will not count toward the 54-hour maximum required from one department.
2. **A&S College/Departmental Requirements**
 - a. Arts and Humanities are defined as any course carrying an (H) designation or courses from AMST, ART, DANC, ENGL (except ENGL 3323 Technical Writing) HIST, MUSI, PHIL (except PHIL 1313 Logic and Critical Thinking (A), PHIL 3003 Symbolic Logic (A) and PHIL 4003 Mathematical Logic and Computability), REL, TH, and foreign languages.
 - b. Natural and Mathematical Sciences are defined as any course from the following prefixes: ASTR, BIOC, BIOL, CHEM, CS (except CS 4883 Social Issues in Computing), GEOL, MATH, MICR, PBIO, PHYS, and STAT; or courses from other departments that carry an (A) or (N) general education designation.
 - c. Six upper-division hours are required from General Education or any CAS courses outside the student's major department (<http://catalog.okstate.edu/college-arts-sciences-major-departments/>). This requirement may be satisfied by courses also used to satisfy any part of a student's degree program (i.e., in General Education, College Departmental Requirements, Major Requirements or Electives).
 - d. Non-Western Studies Requirement for B.A. and B.F.A.; One course in Non-Western Studies (N.W.). This requirement may be satisfied by courses also used to satisfy any part of a student's degree program (i.e., in General Education, College Departmental Requirements, Major Requirements or Electives).
 - e. The College of Arts & Sciences requires a minimum 2.0 GPA in all major requirements and a minimum 2.0 GPA in all major-prefix courses applied to the degree.

3. Foreign Language Proficiency

- a. The foreign language requirement for the B.A. may be satisfied by 9 hours college credit in the same language, which must include 3 hours at the 2000-level, or equivalent proficiency (e.g., passing an advanced standing examination; TOEFL exam; presenting a high school transcript which demonstrates the high school was primarily conducted in a language other than English; etc.). Computer Science courses may not be used to satisfy this requirement. Currently Arabic and Mvskoke are not offered at the 2000-level at OSU.
- b. The foreign language requirement for the B.S., B.M. and B.F.A. may be satisfied by presenting a high school transcript which demonstrates two years of study of a single foreign language (passing grades at second-year level of study). It may also be satisfied by 6 hours college credit in the same language, which must include language courses 1713 and 1813, or equivalent proficiency (e.g., passing an advanced standing examination; TOEFL exam; presenting a high school transcript which demonstrates the high school was primarily conducted in a language other than English; etc.). Computer Science courses may not be used to satisfy this requirement.
- c. In addition to a. and b., students pursuing teacher certification must meet novice-high foreign language proficiency by presenting a high school transcript which demonstrates two years of study of a single foreign language with no grade below B. Or, students may complete 3 hours college credit in a single language with no grade below C (or pass an advanced standing examination, College Level Examination Program (CLEP) exam, or Oral Proficiency Interview developed by the American Council on the Teaching of Foreign Languages, equivalent to 3 hours of college credit.) Or, students may meet the requirement by transfer of documentation of meeting the foreign language competency from one of the teacher education programs in the State of Oklahoma approved by the Oklahoma State Regents for Higher Education.
4. **Exclusions.** Courses with ATHL or LEIS prefixes and leisure activity courses may not be used for degree credit.

Additional State/OSU Requirements

- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 or 50% of the upper-division hours in the major field completed at OSU.
- Limit of: one-half of major course requirements as transfer work; one-fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.
- Degrees that follow this plan must be completed by the end of Summer 2029.

Example Plan of Study

Finish in Four Plan of Study

The plan below is an **example** of how students can successfully complete degree requirements in four years. This suggested class schedule plan may be used as a guide and can be adjusted based on individual needs. Students are required to meet with an academic advisor prior to

enrollment each semester to plan their class schedule, and students are ultimately responsible for completing all degree requirements.

Course	Title	Hours
Freshman		
Fall		
MATH 2144	Calculus I (A)	4
CHEM 1314	Chemistry I (LN)	4
SMED 1012	Inquiry Approaches to Teaching	2
General Education courses		5
Hours		15
Spring		
BIOL 1113 & BIOL 1111	Introductory Biology (N) and Introductory Biology Laboratory (LN)	4
CHEM 1515	Chemistry II (LN)	5
MATH 2153	Calculus II (A)	3
General Education courses		4
Hours		16
Sophomore		
Fall		
CHEM 2113	Principles of Analytical Chemistry	3
CHEM 2122	Quantitative Analysis Laboratory	2
CHEM 3053	Organic Chemistry I	3
PHYS 1114 or PHYS 2014	College Physics I (LN) or University Physics I (LN)	4
Major, College, and Elective courses		4
Hours		16
Spring		
CHEM 3153	Organic Chemistry II	3
CHEM 3112	Organic Chemistry Laboratory	2
SMED 3013	Knowing and Learning in Mathematics and Science	3
General Education and College courses		8
Hours		16
Junior		
Fall		
PHYS 1214 or PHYS 2114	College Physics II (LN) or University Physics II (LN)	4
SPED 3202	Educating Exceptional Learners (D)	2
SMED 4013	Classroom Interactions	3
Major, College, and Elective courses		7
Hours		16
Spring		
CHEM 3353	Descriptive Inorganic Chemistry	3
CHEM 3413	Physical Chemistry Applications	3
CHEM 4990	Special Problems in Chemistry	1
SMED 4611	Authentic Research in the Science Classroom	1
SMED 4613	Teaching the Nature of Science Through an Inquiry Approach	3
Major, College, and Elective courses		5
Hours		16
Senior		
Fall		
BIOC 3653	Survey of Biochemistry	3
CHEM 4990	Special Problems in Chemistry	1
PHIL 3933	Creation and Evolution	3
SMED 4023	Problem-Based Learning in Mathematics and Science	3
SMED 4713	Teaching and Learning Science in the Secondary School	3
College and Elective courses		3
Hours		16
Spring		
CIED 4720	Internship in the Secondary Classroom	6

SMED 4723	Senior Seminar in Secondary Mathematics and Science Education	3
Hours		9
Total Hours		120