

CHEMISTRY MAJOR - SECONDARY EDUCATION

Acceptance to Major Requirements

Chemistry Course Requirements:

Code	Title	Hours
CHEM 125	Introduction to Chemical Structure and Properties	4
CHEM 201	Purification and Separation Lab I	1
CHEM 202	Purification and Chromatography Lab II	1
CHEM 250	Reactions of Nucleophiles and Electrophiles (Reactivity 1)	4
CHEM 251	Intermediate Reactions of Nucleophiles and Electrophiles (Reactivity 2)	4
CHEM 255	Macroscopic Chemical Analysis	4

Other Requirements: Courses must be either completed or in progress

Admission to Teacher Education

Students who want to major or minor in Education need to complete the Education Department's admission process. Admission typically occurs during the sophomore year and is required for all students seeking an Elementary Education major and Secondary Education minor.

The following items are required for application:

- A cumulative, licensure content major, and education coursework GPA of 2.50 or above
- Completed Intent to Apply form (available in the Education Portal in Canvas)
- Disposition reflection and faculty review (usually completed as part of EDUC 111)
- Completion of a 35-hour teacher shadow in a classroom aligned with the student's licensure program, written reflection, and supervisor evaluation (<https://www.csbsju.edu/forms/HIVM8YGXJD/>)
- Submission of a professional recommendation (<https://www.csbsju.edu/forms/TK3D1UYAJN/>) completed by a CSB+SJU faculty member, coach, advisor, or supervisor
- Entry survey form (<https://www.csbsju.edu/forms/A7KUZS93ND/>)

Descriptions of all admission requirements and the application process are specified on the Education Department's website at <https://www.csbsju.edu/education/student-resources/apply-to-the-program> (<https://www.csbsju.edu/education/student-resources/apply-to-the-program/>)

Required Courses for all Chemistry Majors

Code	Title	Hours
CHEM 125	Introduction to Chemical Structure and Properties	4
CHEM 250	Reactions of Nucleophiles and Electrophiles (Reactivity 1)	4
CHEM 251	Intermediate Reactions of Nucleophiles and Electrophiles (Reactivity 2)	4
CHEM 255	Macroscopic Chemical Analysis	4
CHEM 315	Advanced Reactions (Reactivity 3)	4
CHEM 201	Purification and Separation Lab I	1

CHEM 202	Purification and Chromatography Lab II	1
CHEM 203	Synthesis Lab	1
CHEM 205	Chemical Measurement Lab	1
CHEM 304	Analytical Method Development and Validation Laboratory	1
One of the following:		1
CHEM 306A	Advanced Electronics & Instrumentation Lab	
CHEM 306B	Advanced Biochemical Techniques Lab	
CHEM 306C	Advanced Lab Topic: Synthesis	
CHEM 306D	Advanced Lab Topic: Materials	
CHEM 306E	Advanced Lab Topic: Protein Engineering	
CHEM 349	Chemistry in Experience and Practice	1
CHEM 360	Junior/Senior Capstone Research	2
or COLG 398	Distinguished Thesis Essay, Research or Creative Project	
CHEM XXX		0
MATH 119	Calculus I	4
PHYS 105	Physics for the Life Sciences I	4
or PHYS 191	Foundations of Physics I	
PHYS 106	Physics for the Life Sciences II	4
or PHYS 200	Foundations of Physics II	
3@@ Chemistry Courses ¹		12
Total Hours		53

¹ Students must take 12 credits of CHEM 3@@, except CHEM 316 Catalysts & Initiators, CHEM 330 Chemistry Lab Research, CHEM 349 Chemistry in Experience and Practice, CHEM 360 Junior/Senior Capstone Research, CHEM 390 Science Ethics: How Science and Policy Shape How We Live in the World. Note: students can elect to take CHEM 359 Symmetry & Spectroscopy or CHEM 318 Microscopic Chemical Analysis, but not both

Required Education Courses

The following courses are required for the Secondary Education minor which accompanies this major.

Code	Title	Hours
Required Education Courses		
EDUC 111	Introduction to Teaching and Learning in a Diverse World	4
EDUC 203	Development, Learning, and Mental Health in Childhood and Adolescence	4
EDUC 213	Clinical Experience for K-12/5-12 Majors	1-2
EDUC 305	Human Exceptionalities: School, Home, and Community	1
EDUC 352	Teaching Reading in the Middle/Secondary Classroom	1-2
EDUC 359	Issues in Education K-12	1-2
EDUC 379A	Educational Psychology: Myths Versus Science	4
EDUC 390	Ethics in Human Relations	4
Content Specific Pedagogy Courses ¹		4-10
Student Teaching		16
Total Hours		40-49

¹ The number of courses and credits required varies from program to program (see this program's specific requirements below).

Chemistry Pedagogy Required Course

Code	Title	Hours
EDUC 355D	Science Pedagogy in Grades 9-12	4

ACS Certification

Students major can be certified by the ACS with these additional courses:

Code	Title	Hours
CHEM 318	Microscopic Chemical Analysis	4
MATH 120	Calculus II	4
One of the following: additional CHEM 306 lab from the following:		1
CHEM 306A	Advanced Electronics & Instrumentation Lab	
CHEM 306B	Advanced Biochemical Techniques Lab	
CHEM 306C	Advanced Lab Topic: Synthesis	
CHEM 306D	Advanced Lab Topic: Materials	
CHEM 306E	Advanced Lab Topic: Protein Engineering	
CHEM 330	Chemistry Lab Research	2
Total Hours		11

Additional Requirements:

General Education Requirements:

All undergraduate students must complete the requirements of the Integrations Curriculum (IC) which is designed to ensure all of our students receive a liberal arts education. Please review details of the Integrations Curriculum (<https://catalog.csbsju.edu/catalog/academic-programs-policies-regulations/integrations-curriculum/>) requirements here (<https://catalog.csbsju.edu/catalog/academic-programs-policies-regulations/integrations-curriculum/>).

Graduation Requirements:

In addition to the Integrations Curriculum, all undergraduate students must meet the following minimum degree requirements to earn their degree from CSB and SJU.

Credits: 124 total credits, 40 of which must be from upper division coursework

GPA: 2.0 or higher*

Residency: At least 24 of your last 32 credits must be completed at CSB and SJU

Please visit Graduation (<https://catalog.csbsju.edu/catalog/academic-programs-policies-regulations/graduation/>) under the Academic Policies and Regulations (<https://catalog.csbsju.edu/catalog/academic-programs-policies-regulations/>) portion of the catalog for additional details regarding degree requirements.

* Cumulative GPA as well as major(s)/minor(s) GPA. Please note some majors/minors may require a higher GPA to earn their degree.

Chemistry Major with a Minor in Secondary Education

Course	Title	Hours
First Year		
Fall		
CHEM 125 & CHEM 201	Introduction to Chemical Structure and Properties and Purification and Separation Lab I	5
EDUC 111	Introduction to Teaching and Learning in a Diverse World	4
INTG 100	Learning Foundations (LF)	4
INTG 105	College Success	1
MATH 119	Calculus I	4
Hours		18
Spring		
CHEM 250 & CHEM 202	Reactions of Nucleophiles and Electrophiles (Reactivity 1) and Purification and Chromatography Lab II	5
Language 111		4
PHYS 105	Physics for the Life Sciences I	4
Elective (INTG requirement)		4
Hours		17
Second Year		
Fall		
EDUC 203	Development, Learning, and Mental Health in Childhood and Adolescence	4
EDUC 213	Clinical Experience for K-12/5-12 Majors	1
Language 112		4
CHEM 251 & CHEM 203	Intermediate Reactions of Nucleophiles and Electrophiles (Reactivity 2) and Synthesis Lab	5
THEO 100	Theological Explorations (TE)	4
Hours		18
Spring		
CHEM 255 & CHEM 205	Macroscopic Chemical Analysis and Chemical Measurement Lab	5
Elective (INTG Requirement)		4
CHEM 300-level Elective		2
CHEM 349	Chemistry in Experience and Practice	1
Language 211		4
EDUC 305	Human Exceptionalities: School, Home, and Community	1
Hours		17
Third Year		
Fall		
CHEM 315	Advanced Reactions (Reactivity 3)	4
CHEM 304	Analytical Method Development and Validation Laboratory	1
EDUC 355	Pedagogy in Grades 9-12 (fall only)	4
EDUC 352	Teaching Reading in the Middle/Secondary Classroom	1
EDUC 379A	Educational Psychology: Myths Versus Science	4
CHEM 300-level elective		2
Hours		16
Spring		
CHEM 306 Lab		1
CHEM 300-level Electives		4
EDUC 390	Ethics in Human Relations	4
Theological Integrations (TI)		4
Elective (INTG Requirement)		4
Hours		17
Fourth Year		
Fall		
PHYS 106	Physics for the Life Sciences II	4

INTG 300	Learning Integrations	4
CHEM 300-level Electives		6
Hours		14
Spring		
Student Teaching		16
CHEM 360	Junior/Senior Capstone Research	2
Hours		18
Total Hours		135