

Chemistry Education

Department Information

- **Department Location:**
Katherine Kilbourne Burgum Family Life, 4-H Center
- **Department Phone:**
701-231-7921
- **Department Web Site:**
www.ndsu.edu/education/ (<http://www.ndsu.edu/education/>)
- **Credential Offered:**
B.S.; B.A.
- **Official Program Curriculum:**
bulletin.ndsu.edu/undergraduate/program-curriculum/chemistry-education/ (<http://bulletin.ndsu.edu/undergraduate/program-curriculum/chemistry-education/>)

Chemistry involves the study of the composition, structure, properties and interactions of matter. Chemistry is often considered a central or enabling science, because it is foundational to understanding other scientific disciplines. Teaching chemistry in middle and secondary schools requires deep knowledge of (a) science content, (b) current theories of adolescent development, and (c) current best practices in secondary instruction. Accordingly, the chemistry education major combines coursework in chemistry and related sciences with professional education courses on teaching and learning.

The Program

Candidates in chemistry education are prepared to teach students in grades 5-12 with skill and confidence. The program is designed to develop science content knowledge as well as proficiency in a range of science-related skills and laboratory practices. Our professional education courses prepare teacher candidates to incorporate active learning strategies, create effective methods for assessment, and adjust instruction to accommodate diverse learners. Teacher candidates also apply their knowledge and build their teaching skills during multiple clinical experiences in local schools.

Professional Education Courses

Teacher candidates may enroll in the 300-level professional education courses before being formally admitted to the School of Education (SOE). Prior to enrolling in the 400-level courses, teacher candidates must complete the application for admission to the SOE; attain a minimum of a 2.75 grade point average overall in their course work and education courses; pass the Praxis Core Academic Skills test or meet minimum scores on the ACT+. Requirements for admission can be found on the School of Education website (<https://www.ndsu.edu/education/>).

Student Teaching

Student teaching (clinical practice) is the culmination of the teaching program. During the clinical practice, teacher candidates apply the knowledge and skills acquired in their college courses to real-world classrooms under the supervision of experienced classroom teachers in middle or secondary schools. Faculty members from NDSU conduct regular on-site visits to support, encourage, and evaluate teacher candidates so that they gain the confidence and ability to join the teaching profession after graduation.

Student Advisement

Chemistry education teacher candidates are assigned to academic advisors who work closely with them to plan their programs of study and to advise and assist them as they progress to degree completion. Students are encouraged to meet with their advisor at least once every semester, as well as whenever needed. Appointments with advisors can be scheduled through the Navigate online system found on the Student Affairs web page, <https://www.ndsu.edu/enrollmentmanagement/studentsuccess/>

licensure

Upon completing this program, teacher candidates are eligible for teacher licensure in most states. Teacher candidates who take the Praxis Subject Assessment exam for Chemistry will be licensed to teach Chemistry and related high school courses, as well as middle school sciences. Teacher candidates who choose to take the Praxis Subject Assessment exam for General Science will be licensed to teach all areas of middle school and high school science. Our program is accredited by the Council for the Accreditation of Educator Preparation (CAEP) and approved by the North Dakota Education and Standards Practices Board (ESPB).

Career OPPORTUNITIES

Science teachers are in high demand across the country, so our graduates usually obtain full-time employment in school districts shortly after graduation.

Sample Program Guide

Please note this is a sample program guide and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Once admitted, students are encouraged to work with their assigned academic advisor on a regular basis to review degree progress.

| First Year | | | |
|--|---------|---|-----------|
| Fall | Credits | Spring | Credits |
| BIOL 124 & BIOL 100L | | 4 CHEM 122 or 151 (Must be matching lab with lecture) | 3 |
| CHEM 121 or 150 (Must be matching lab with lecture) | | 3 CHEM 122L or 161 (Must be matching lab with lecture) | 1 |
| CHEM 121L or 160 | | 1 COMM 110 | 3 |
| ENGL 110 (or 120 College Composition II based on placement) | | 3 ENGL 120 | 3 |
| GEOL 105 & 105L | | 4 GEOL 106 & 106L | 4 |
| | | Humanities & Fine Arts Gen Ed* | 3 |
| | | 15 | 17 |
| Second Year | | | |
| Fall | Credits | Spring | Credits |
| CHEM 341 & 341L | | 4 CHEM 342 & 342L | 4 |
| EDUC 321 | | 3 EDUC 322 | 3 |
| MATH 165 | | 4 MATH 166 | 4 |
| PHYS 211 & 211L | | 4 PHYS 212 & 212L | 4 |
| Wellness Gen Ed | | 2 Apply to the School of Education | |
| Complete Core Academic Skills Exam or access your ACT+ scores | | | |
| | | 17 | 15 |
| Third Year | | | |
| Fall | Credits | Spring | Credits |
| BIOL 150 & 150L | | 4 BIOC 260 | 4 |
| CHEM 465 | | 4 CHEM 425 | 3 |
| EDUC 451 | | 3 EDUC 481 | 3 |
| Social & Behavioral Science Gen Ed* | | 3 EDUC 486 | 3 |
| Humanities & Fine Arts Gen Ed* | | 3 Social & Behavioral Science Gen Ed* | 3 |
| | | 17 | 16 |
| Fourth Year | | | |
| Fall | Credits | Spring | Credits |
| CHEM 431 & 431L | | 5 EDUC 485 | 1 |
| EDUC 482 | | 3 EDUC 487 | 9 |
| EDUC 489 | | 3 EDUC 488 | 3 |
| ENGL 324 | | 3 | |
| STAT 330 | | 3 | |
| Apply for Student Teaching | | | |

Complete PLT (grades 7-12) Exam

Complete Subject Area Assessment
Exam

17

13

Total Credits: 127

* One of these General Education courses needs to be selected from Category D - Cultural Diversity.