

**Chair:** John Hershberger

**Contact Info:** Office 701-231-8694

Fax: 701-231-8831

**email:** NDSU.Chemistry@ndsu.edu

## Chemistry with Chemical Education

The ACS Certified Chemistry Major is the basic degree designed for students seeking careers in the chemical industry, or careers in law, government, journalism, business, etc., that would benefit from a strong background in the physical sciences and mathematics. Many B.S. graduates go on to M.S. or Ph.D. studies.

Students can apply for scholarships available from the Department of Chemistry and the Department of Polymers and Coatings. See

<http://www.ndsu.edu/finaid/scholarship/scholarship.html>

Graduates completing the standard program for the B.S. Degree in Chemistry are certified by the American Chemical Society. The curriculum for the Polymers and Coatings Option adds specialized courses to the standard program. The curriculum for the Biochemistry Option adds biological sciences courses and substitutes some upper division chemistry courses with advanced biochemistry courses. These two curricula also lead to the ACS Certified B.S. degree in Chemistry.

This option is designed for the student interested in a disciplinary degree in chemistry, but who is also considering becoming a chemistry and physics teacher. The curriculum includes physics coursework beyond the usual chemistry major to enable the graduate to teach physics in most states. For teacher certification, students must apply to the School of Education to enroll in the additional requirements, which includes Educ 389, 451, 481, 486, Educ 487, taken post-baccalaureate.

ACS Certification can be earned by taking Chem 471, 429, and Chem 432/432L as additional courses, and choosing Bioc 460 instead of 260.

Scholarships starting in the sophomore year are available for students in the Chemical Education Option.



## Recommended Curriculum - Chemistry with Coatings Option

<b>B.S. in Chemistry, Chemical Education Option</b>		<b>Credits</b>	
<b>First Year</b>		<b>F</b>	<b>S</b>
Chem 150, 151	Principles of Chemistry I, II	3	3
Chem 160, 161	Principles of Chemistry I, II Labs	1	1
Comm 110	Fundamentals of Public Speaking		3
Engl. 110, 120	College Composition I, II	3	3
Math 165, 166	Calculus I, II	4	4
Biol. 150, 150L	General Biology I and Laboratory	4	
Univ. 189	Skills for Academic Success	1	
Gen. Ed. Electives*			<b>3</b>
		<b>16</b>	<b>17</b>
<b>Second Year</b>			
Chem 341, 342	Organic Chemistry I, II	3	3
Chem 353, 354	Organic Chemistry I, II for Majors Labs	1	2
Math 128	Introduction to Linear Algebra	1	
Math 259**, 266	Calculus III, Intro. to Differential Eq.	3	3
Phys 251, 252	University Physics I, II	4	4
Phys 251L, 252L	University Physics Laboratory I, II	1	1
Gen. Ed. Electives*	Wellness, General Education Electives	2	3
		<b>15</b>	<b>16</b>
<b>Third Year</b>			
Chem 431, 431L	Analytical Chemistry I and Laboratory	5	
Chem 364, 365	Physical Chemistry I, II	4	4
Chem 380	Chemistry Junior Seminar		1
Educ 321, 322	Intro. to Teaching, Ed. Psychology	3	3
Educ 381	Early Experience		1
Gen. Ed. Electives*	General Education Electives	0	6
Physics Elective	Physics Elective	3	0
		<b>15</b>	<b>15</b>
<b>Fourth Year</b>			
Bioc 460	Found. Biochem. & Molecular Biol. I	4	
Chem 425	Inorganic Chemistry	3	
Chem 491	Chemistry Senior Seminar		2
Electives	Electives**	4	6
Gen. Ed. Elective*	General Education Electives	3	6
		<b>14</b>	<b>14</b>
<b>SAMPLE CURRICULUM TOTAL</b>		<b>122</b>	

\*Electives must include 18 credits in humanities and social sciences; six of these must be in humanities/fine arts, and six in social sciences. In addition, three credits must have a global perspective and three must be in the cultural diversity category.

\*\*MATH 265 may be substituted for MATH 259.

\*\*\*A course in earth sciences and in biology may be required for certification in some states. Geol 105/105L and Biol 151/151L are recommended electives.