Bachelor of Science

Chemistry (BS)

Requirements

Lower-Division General Education

Written Communication (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#written)	6
Oral Communication (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#oral)	3
Mathematics (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#math)	3
Language and Culture (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#language)	0-6
Information Literacy and Research (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#information)	3
Human Behavior (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#behavior)	3
Human Creativity (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#creativity)	3
Interpreting the Past (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#interpret)	3
Literature (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#literature)	3
Philosophy and Ethics (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#philosophy)	3
The Nature of Science (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#nature)	8
Impact of Technology (https://catalog.odu.edu/undergraduate/requirements-undergraduate-degrees/#impact)	3

Written Communication: Grade of C or better required in both courses

Oral Communication: COMM 101R

Mathematics: MATH 163

Information Literacy and Research: satisfied in the major by CHEM 160G

The Nature of Science: PHYS 231N-PHYS 232N

Upper-Division General Education

- Option A. Approved Disciplinary Minor (a minimum of 12 hours determined by the department), or second degree or second major.
- Option B: Interdisciplinary Minor (specifically 12 hours, 3 of which may be in the major)
- Option C. An approved Certification Program such as teaching licensure
- Option D. Two Upper-Division Courses from outside the College of Sciences and not required by the major (6 hours)

Requirements for Graduation

Requirements for graduation include the following:

- Minimum of 120 credit hours.
- Minimum of 30 credit hours overall and 12 credit hours of upper-level courses in the major program from Old Dominion University.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward the major.
- Minimum overall cumulative grade point average of C (2.00) in all courses taken toward a minor.
- Completion of ENGL 110C, ENGL 211C or ENGL 231C, and the writing intensive (W) course in the major with a grade of C or better. The W course must be taken at Old Dominion University.
- Completion of Senior Assessment.

Chemistry Major

General Education		
Complete lower-division requirements		41-47
Complete upper-division requirements (minimum of 6 credit hours)		6
Required Courses		
CHEM 121N	Foundations of Chemistry I Lecture (cannot earn credit for both 121N and 105N)	3
CHEM 122N	Foundations of Chemistry I Laboratory	1
CHEM 123N	Foundations of Chemistry II Lecture	3
CHEM 124N	Foundations of Chemistry II Laboratory	1-2
or CHEM 125	Foundations of Chemistry II Lab with Introduction to Chemical Research	
CHEM 160G	Introduction to Chemistry and Biochemistry Research and Careers	3
CHEM 211	Organic Chemistry I Lecture	3
CHEM 212	Organic Chemistry I Laboratory	2
CHEM 213	Organic Chemistry II Lecture	3
CHEM 214	Organic Chemistry II Laboratory	2
or CHEM 216	Advanced Organic Chemistry Laboratory	
CHEM 321 & CHEM 322	Analytical Chemistry Lecture and Analytical Chemistry Laboratory	5
CHEM 351	Inorganic Chemistry	3
CHEM 331	Physical Chemistry Lecture I	3
CHEM 332W	Experimental Physical Chemistry I	2
CHEM 333	Physical Chemistry Lecture II	3
CHEM 334W	Experimental Physical Chemistry II	2
CHEM 421 & CHEM 422	Instrumental Analysis Lecture and Instrumental Analysis Laboratory	6
CHEM 441	Biochemistry Lecture	3
CHEM 485	Chemistry and Biochemistry Seminar	1
Select two CHEM Electives from the following:		6
CHEM 415	Intermediate Organic Chemistry	
CHEM 439	Introduction to Pharmaceutical Chemistry	
CHEM 443	Intermediate Biochemistry	
CHEM 449	Environmental Chemistry	
CHEM 451	Advanced Inorganic Chemistry	
CHEM 453	Essentials of Toxicology	
Select one CHEM Laboratory from the following:		2-4
CHEM 352	Inorganic Chemistry Laboratory	
CHEM 442W	Biochemistry Laboratory	
Other required courses		
MATH 211	Calculus I	4
MATH 212	Calculus II	4
Total Credit Hours		**112-121**

Chemistry majors must have a C or better in all courses required for the major, including prerequisite courses, and must complete a minimum of 12 credits in upper-level (300/400) chemistry courses at Old Dominion University. Written permission by the chief departmental advisor or chair is required prior to taking upper-level chemistry courses at other institutions.

Elective Credit

Elective credit may be needed to meet the minimum requirement of 120 credit hours.

Honors in Chemistry

The honors program provides qualified students the opportunity for supervised individual study in their areas of interest. Admission to the program requires a cumulative GPA of 3.25 or higher and a GPA of 3.50 or higher in the major. Students must take two upper-division courses designated by the department to be honors courses. These are termed "Contract Honors Courses." A description of the procedures for these contract courses is found in the Honors College section of this Catalog.

Degree Program Guide

The Degree Program Guide is a suggested curriculum to complete this degree program in four years. It is just one of several plans that will work and is presented only as broad guidance to students. Each student is strongly encouraged to develop a customized plan in consultation with their academic advisor. Additional information can also be found in Degree Works.

Course	Title	Credit Hours
Freshman		
Fall		
CHEM 121N and CHEM 122N		4
MATH 163	Precalculus II	3
ENGL 110C	English Composition (Grade of C or better required)	3
CHEM 160G	Introduction to Chemistry and Biochemistry Research and Careers	3
	Credit Hours	**13**
Spring		
CHEM 123N AND CHEM 124N or CHEM 125		4-5
MATH 211	Calculus I	4
ENGL 211C or ENGL 231C (Grade of C or better required)		3
Philosophy and Ethics		3
	Credit Hours	**14-15**
Sophomore		
Fall		
CHEM 211 and CHEM 212		5
MATH 212	Calculus II	4
PHYS 231N	University Physics I	4
Human Creativity		3
	Credit Hours	**16**
Spring		
CHEM 213 AND CHEM 214 or CHEM 216		5
CHEM 321 and CHEM 322		5
PHYS 232N	University Physics II	4
Elective		2
	Credit Hours	**16**
Junior		
Fall		
CHEM 331	Physical Chemistry Lecture I	3
CHEM 332W	Experimental Physical Chemistry I (C or better required)	2
CHEM 351	Inorganic Chemistry	3
CHEM 441	Biochemistry Lecture	3
CHEM 352 or CHEM 442W		2-4
Impact of Technology		3
	Credit Hours	**16-18**
Spring		
CHEM 333	Physical Chemistry Lecture II	3
CHEM 334W	Experimental Physical Chemistry II	2
CHEM 415 or CHEM 439 or CHEM 443 or CHEM 451		3
COMM 101R	Public Speaking	3
Literature		3
	Credit Hours	**14**
Senior		
Fall		
CHEM 415 or CHEM 439 or CHEM 443 or CHEM 451		3
Interpreting the Past		3
Human Behavior		3
Elective or Language & Culture I (May be waived; See requirement details)		3
Upper-Division General Education Course (Option D)		3
	Credit Hours	**15**
Spring		
CHEM 421 and CHEM 422		6
CHEM 485	Chemistry and Biochemistry Seminar	1
Upper-Division General Education Course (Option D)		3
Elective or Language and Culture II (May be waived: See requirement details)		3
Elective		3
	Credit Hours	**16**
	Total Credit Hours	**120-123**

Dual Dominion Bachelor's/Master's Degree Programs

The Dual Dominion BS in chemistry and the MS in chemistry allows exceptional students to count up to 12 hours of graduate courses toward both a BS degree in chemistry and an MS degree in chemistry. Students in the combined program must complete Senior Thesis I and II (CHEM 490 and CHEM 499), be accepted into the chemistry master's program, and earn a minimum of 150 credit hours (120 discrete credit hours for the undergraduate degree and 30 discrete credit hours for the graduate degree). Additional requirements apply; please contact the Chief Departmental Advisor.