CHEMISTRY (B.S.)

Bachelor of Science Program
Program Code: BS-AS
Major Code:CHE

Chemistry Department
SAMC 164
(716) 878-5204
chemistry.buffalostate.edu/ (http://chemistry.buffalostate.edu/)

Accredited by the American Chemical Society (ACS)

The B.S. in Chemistry degree is an American Chemical Society Certified program, which equips graduates for entry-level positions as chemists in industrial or governmental laboratories, and also lays a solid foundation for those pursuing specialized graduate-level programs. The elective courses within the program play a crucial role in preparing students for diverse professions, including careers in various health-related fields, medicinal plant sciences, and emerging industries associated with energy and the environment.

Admission Requirements

Transfer Admission Requirements

Transfer students from two-year colleges should have earned credit for courses equivalent to the following to avoid possible delays in the completion of the degree program.

Code	Title	Credit Hours
CHE 111	FUNDAMENTALS OF CHEMISTRY I	3
CHE 112	FUNDAMENTALS OF CHEMISTRY II	3
CHE 113	LABORATORY FOR FUNDAMENTALS OF CHEMISTRY I	1
CHE 114	LABORATORY FOR FUNDAMENTALS OF CHEMISTRY II	1
CHE 201	ORGANIC CHEMISTRY I	3
CHE 202	ORGANIC CHEMISTRY II	3
CHE 203	ORGANIC CHEMISTRY LABORATORY I	1
CHE 204	ORGANIC CHEMISTRY LABORATORY II	1
CHE 301	ANALYTICAL CHEMISTRY (recommended)	4
MAT 161	CALCULUS I	4
MAT 162	CALCULUS II	4
PHY 111	UNIVERSITY PHYSICS I	5
PHY 112	UNIVERSITY PHYSICS II	5

Transfer students must complete a minimum of 10 credits in chemistry at Buffalo State. Chemistry courses taken elsewhere may be substituted for similar courses at Buffalo State only if they have the same or equivalent prerequisites. Grades of C or better in CHE 111 and CHE 112 are required for transfer into the Chemistry B.S. program.

Chemistry courses not meeting these criteria may be transferred as elective credit.

Program Requirements

Code	Title	Credit Hours
General Education 23 Requirements **(**http://ecatalog.buffalostate.edu/undergraduate/collegewide-degree-requirements-baccalaureate-degrees/#IF_Courses**)**		
33 credit hours		33
Chemistry Major Requirements (42-44 credit hours)		
Required Courses (38 credit hours)		
CHE 111	FUNDAMENTALS OF CHEMISTRY I	3
CHE 112	FUNDAMENTALS OF CHEMISTRY II	3
CHE 113	LABORATORY FOR FUNDAMENTALS OF CHEMISTRY I	1
CHE 114	LABORATORY FOR FUNDAMENTALS OF CHEMISTRY II	1
CHE 201	ORGANIC CHEMISTRY I	3
CHE 202	ORGANIC CHEMISTRY II	3
CHE 203	ORGANIC CHEMISTRY LABORATORY I	1
CHE 204	ORGANIC CHEMISTRY LABORATORY II	1
CHE 301	ANALYTICAL CHEMISTRY	4
CHE 331	PRINCIPLES OF PHYSICAL CHEMISTRY	3
CHE 360	INTRODUCTION TO INORGANIC CHEMISTRY	3
CHE 403	INSTRUMENTAL ANALYSIS	3
CHE 404	INSTRUMENTAL ANALYSIS LAB	2

CHE 465	INTERGRATED PHYSICAL AND INORGANIC CHEMISTRY LABORATORY	2
CHE 470	BIOCHEMISTRY I	3
CHE 471	BIOCHEMICAL TECHNIQUES	2
In-depth Elective Courses (4- 6 cr)		
Select two from the following		
CHE 325	MEDICATIONS	3
CHE 327	MEDICINAL PLANT CHEMISTRY	2
CHE 406	ANALYTICAL TOXICOLOGY	3
CHE 427	CANNABIS ANALYSIS	2
CHE 472	BIOCHEMISTRY II	3
Required Credit Hours Outside the Major (21-22 credit hours)		
MAT 161	CALCULUS I	4
MAT 162	CALCULUS II	4
Select one from the following:		
MAT 202	INTRODUCTION TO LINEAR ALGEBRA	
MAT 263	CALCULUS III	
MAT 311	INTRODUCTORY PROBABILITY AND STATISTICS	
PHY 111	UNIVERSITY PHYSICS I	5
PHY 112	UNIVERSITY PHYSICS II	5
All College Electives		
21-24 credit hours		21-24
Total Credit Hours		**120**

Students will:

- establish a robust foundation in both the fundamentals and practical applications of chemistry subdisciplines, encompassing Analytical, Bio-, Inorganic, Organic, and Physical Chemistries.
- develop proficiency in problem-solving, critical thinking, and analytical reasoning, specifically tailored to address challenges within the chemistry field.
- demonstrate the ability to design and execute scientific experiments, strictly adhering to laboratory safety protocols, while meticulously recording and analyzing experimental results.
- effectively communicate scientific findings through proficient oral, written, and electronic formats.
- recognize the pivotal role of chemistry in addressing significant societal issues related to energy, health, environment, and medicine.
- collaborate seamlessly as a valuable member of a problem-solving team within the realm of chemistry.
- explore potential career paths upon fulfilling the program requirements.