CHEMISTRY (BS)

Students are strongly advised to consult with faculty members of the department, not only for assistance in formulating their programs of study, but also for information relative to the many career opportunities afforded a chemistry major.

Benedictine College offers majors leading to the Bachelor of Science (B.S.) and the Bachelor of Arts (B.A.) degrees in chemistry.

For chemistry majors, a GPA of at least 2.00 must be maintained in all courses with a "CHEM" course number taken to date. A grade of at least "C–" must be achieved in all required courses for the major with a 2.0 required in the major to graduate. A grade of "C" or better is required for all prerequisites. Courses required for the major may be repeated, but students must satisfactorily pass all required courses in their first or second attempt.

Program Mission

The mission of the Chemistry Program is to train ethically grounded critically thinking students to apply broad chemical knowledge to solve real-world problems and to prepare them for employment in chemistry-related fields, graduate studies in chemistry, or professional studies through a community of faith and scholarship.

Program Outcomes

1. Graduates will be able to explain fundamental concepts and solve problems in quantitative, biological, inorganic, organic and physical chemistry.
2. Graduates will be proficient in fundamental laboratory skills, including safety and use of instrumentation and computers and in the application of the scientific method.
3. Graduates will be able to communicate scientific results via oral and written reports, with effective use of scientific literature.
4. Graduates will be aware of major ethical issues at the forefront of their discipline and apply ethical principles of the discipline in regard to treatment of experimental data, use of sources, and in collaboration with colleagues in light of cultural differences present in a diverse and multicultural society.
5. Graduates in Chemistry-Secondary education will be competent in the content of chemistry and be able to teach it.

Program Requirements

Code	Title	Hours
Required Courses		
CHEM-1200 & CHEM-1201	General Chemistry I Lecture and General Chemistry I Laboratory	4
CHEM-1210 & CHEM-1211	General Chemistry II Lecture and General Chemistry II Lab	4
CHEM-2200 & CHEM-2201	Organic Chemistry I Lecture and Organic Chemistry I Lab	4
CHEM-2210 & CHEM-2211	Organic Chemistry II Lecture and Organic Chem II Lab	4
CHEM-3300 & CHEM-3301	Quantitative Analysis and Quantitative Analysis Laboratory	4
CHEM-3311	Instrumental Analysis Laboratory	1
CHEM-3400 & CHEM-3401	Inorganic Chemistry and Inorganic Chemistry Laboratory	4
CHEM-3500 & CHEM-3501	Biochemistry I and Biochemistry I Laboratory	4
CHEM-3800 & CHEM-3801	Physical Chemistry I and Physical Chemistry I Laboratory	4
CHEM-4200 & CHEM-4201	Physical Chemistry II and Physical Chemistry II Laboratory	4
CHEM-4801 & CHEM-4811	Research I and Research II	2
CHEM-4900 & CHEM-4901 & CHEM-4902 & CHEM-4903	Chemistry & Biochem Colloquium and Chem & Biochem Colloquium 2 and Chem & Biochem Colloquium 3 and Chem & Biochem Colloquium 4	4
CHEM-COMP	Senior Comprehensive Exam	0
Advanced Courses		
Select two of the followng:		6
CHEM-3150	Computational Chemistry	
CHEM-3250	Environmental Chemistry	
CHEM-3510	Biochemistry II	
CHEM-3650	Polymer Chemistry	
CHEM-3980	Special Topics	
CHEM-4350	Advanced Organic Chemistry I	
CHEM-4450	Topics in Biochemistry	
CHEM-4650	Organometallic Chemistry	
Required Supporting Courses		
MATH-1300	Calculus I	4
MATH-1350	Calculus II	4
PHYS-2100 & PHYS-2101	Classical Physics I and Classical Physics I Lab	4
PHYS-2110 & PHYS-2111	Classical Physics II and Classical Physics II Lab	4
Recommended Supporting Courses		
MATH-2300	Calculus III	4
MATH-3100	Differential Equations	3
PHYS-3200 & PHYS-3201	Relativity & Atomic Physics and Modern Physics Lab	4
Total Hours		**76**

Suggested Sequence of Courses for a Bachelor of Science Degree in Chemistry

Course	Title	Hours
Freshman Year		
First Semester		
CHEM-1200	General Chemistry I Lecture	3
CHEM-1201	General Chemistry I Laboratory	1
MATH-1300	Calculus I	4
ENGL-1010	English Composition	3
GNST-1000	BC Experience	1
Foreign Language		4
	Hours	**16**
Second Semester		
CHEM-1210	General Chemistry II Lecture	3
CHEM-1211	General Chemistry II Lab	1

MATH-1350	Calculus II	4
THEO-1100	Introduction to Theology	3
Foreign Language		4
EXSC-1115	Wellness for Life	1
	Hours	**16**
Sophomore Year		
First Semester		
CHEM-2200	Organic Chemistry I Lecture	3
CHEM-2201	Organic Chemistry I Lab	1
PHYS-2100	Classical Physics I	3
PHYS-2101	Classical Physics I Lab	1
Historical Foundation		3
Faith Foundation		3
Person and Community Foundation		3
	Hours	**17**
Second Semester		
CHEM-2210	Organic Chemistry II Lecture	3
CHEM-2211	Organic Chem II Lab	1
PHYS-2110	Classical Physics II	3
PHYS-2111	Classical Physics II Lab	1
Aesthetic Foundation		3
Historical Foundation		3
PHIL-1750	Principles of Nature	3
	Hours	**17**
Junior Year		
First Semester		
CHEM-3300	Quantitative Analysis	3
CHEM-3301	Quantitative Analysis Laboratory	1
CHEM-3500	Biochemistry I	3
CHEM-3501	Biochemistry I Laboratory	1
CHEM-4900	Chemistry & Biochem Colloquium	1
Advanced Chemistry Elective		3
Philosophical Inquiry Foundation		3
	Hours	**15**
Second Semester		
CHEM-3311	Instrumental Analysis Laboratory	1
CHEM-3400	Inorganic Chemistry	3
CHEM-3401	Inorganic Chemistry Laboratory	1
CHEM-3800	Physical Chemistry I	3
CHEM-3801	Physical Chemistry I Laboratory	1
CHEM-4901	Chem & Biochem Colloquium 2	1
Electives		6
	Hours	**16**
Senior Year		
First Semester		
Advanced Chemistry Elective		3
CHEM-4801	Research I	1
CHEM-4200	Physical Chemistry II	3
CHEM-4201	Physical Chemistry II Laboratory	1
CHEM-4902	Chem & Biochem Colloquium 3	1
Aesthetic Foundation		3
Elective		3
EXSC Fitness Course		1
	Hours	**16**
Second Semester		
CHEM-COMP	Senior Comprehensive Exam	0
CHEM-4811	Research II	1
CHEM-4903	Chem & Biochem Colloquium 4 (with Senior Seminar Presentation)	1
Electives		9
Faith Foundation		3
Philosophical Inquiry Foundation		3
	Hours	**17**
	Total Hours	**130**