

Chemistry

Contact Information

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- Chemistry (p. 1)
- Pre-Medical Concentration
- The Science of the Environment Concentration

The Chemistry curriculum is designed to prepare students for direct entry into the chemical profession or for further studies in graduate or professional programs. The Chemistry program in the School of Integrated Sciences, Sustainability, and Public Health is accredited by the American Chemical Society's Committee on Professional Training. Our curriculum leads to ACS certification in chemistry.

Honors in Chemistry

Chemistry majors may elect to participate in the honors program in Chemistry. To graduate with honors in Chemistry, a student must:

1. Complete all degree requirements.
2. Earn a minimum cumulative GPA of 3.0 for all UIS Chemistry courses and 3.50 for UIS courses overall.
3. Make a public presentation of the results of undergraduate research. (CHE 400 or similar experiential learning project)

Undergraduate Research

One of the advantages of getting a Chemistry degree from UIS is the requirement to conduct an original research project. This requirement is fulfilled by earning three (3) credits of CHE 302 or CHE 400.

These credits can be earned on campus in a project with one of the Chemistry program faculty or in an off-campus research internship. Both courses include a final written report of the research results and a professional presentation. Contact a Chemistry faculty member to discuss possible projects or to get approval of a research opportunity outside the program.

The three credits of CHE 302 or CHE 400 meet the University requirements for three credits of ECCE Engaged Citizenship. Additional Engaged Citizenship credits can be earned in an internship. There are many local paid internships in the sciences. Contact the Internships and Prior Learning office for the current list of available internships.

The Bachelor's Degree

In addition to the B.S. in Chemistry, two concentrations are available for chemistry students – pre-medical and science of the environment. The pre-medical concentration is designed to prepare students for applying to medical school or other health professions. The science of the environment concentration is useful for students seeking a career in environmental technology or government agencies.

- Pre-Medical Concentration
- The Science of the Environment Concentration

Advising

Students wishing to major in Chemistry should consult with an academic advisor upon admission to the University to make sure they are taking required courses in the proper sequence. In order to be a Chemistry major, students need to complete a Change of Curriculum form on the Records and Registration website. There is no separate admission to the major.

First-year students should contact the science advisor in the Center for Academic Success and Advising. Students with more than 30 hours (transfer students and sophomores) should contact the College of Health, Science, and Technology advisor. We suggest that you meet with your advisor one time each semester to discuss courses, careers, and research opportunities. All of the faculty in the Chemistry program are available for advising as well.

Refer to the Chemistry website at www.uis.edu/chemistry/ to view the program's Sample Curriculum / Program Guide.

General Education

All chemistry majors must fulfill the undergraduate general education requirements as described at the beginning of this catalog. Certain courses required for the UIS Chemistry Bachelor of Science degree also fulfill general education requirements, according to the table below. Consult with your academic advisor before registering to ensure that you take the correct courses in the correct sequence.

Grading Policy

Chemistry courses for which the student has attained a grade of C- or better will be applied toward the B.S. degree (grades of D+ or lower will not be accepted). Chemistry majors may repeat program courses for grade improvement only once.

Program Learning Outcomes

A chemist graduating from UIS will be characterized as being able to:

1. Apply the scientific process(es).
2. Communicate scientific information.
3. Integrate chemical knowledge.
4. Participate in the chemical profession.
5. Perform appropriate laboratory skills.

Students majoring in Chemistry may be asked to participate in surveys of focus groups in order to assist the program in assessing the learning outcomes of the program. Other evidences of student learning (e.g., exam scores, research papers) may be used in an anonymous and confidential manner for Chemistry program curriculum review and planning.

Requirements

Life Science

BIO 141	General Biology I	4
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Physical Science

CHE 141	General Chemistry I	4
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Mathematical Skills

MAT 115	Calculus I	4
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A second MAT course beyond MAT 115 is required. ¹ 4

ECCE Engagement Experience

CHE 400	ECCE: Undergraduate Research	3
or CHE 302	ECCE: Undergraduate Research	

¹ Students can take BIO 402 to meet the Math requirement.

Introductory Courses

CHE 141	General Chemistry I	4
CHE 142	General Chemistry II	4
CHE 143	Recitation for General Chemistry I	0
CHE 144	Recitation for General Chemistry II	0
CHE 267	Organic Chemistry I	3
CHE 268	Organic Chemistry I Laboratory	1
CHE 269	Organic Chemistry II	3
CHE 271	Organic Chemistry II Lab	1

Calculus (one year):

MAT 115	Calculus I	8
& MAT 116	and Calculus II	

Physics (one year):

ASP 201	University Physics I	8
& ASP 202	and University Physics II	

Total Hours **32**

Transfer students with deficiencies in the introductory courses may enter the program conditionally but will be required to make up the deficiencies during their first year of study. This extra work may mean that some students will require more than four years to complete the B.S. degree. Transcripts submitted by transfer students must show that the following course requirement categories have been met:

- General Chemistry I and II,
- Organic Chemistry with lab (one year)
- Calculus (one year)
- Physics, calculus based (one year).

Intermediate and Advanced Courses ¹

CHE 301	Scientific Writing and Communication	3
or BIO 301	General Seminar	
CHE 302	ECCE: Undergraduate Research	1-6
or CHE 400	ECCE: Undergraduate Research	
CHE 321	Chemical Analysis	4
CHE 401	Physical Chemistry I - Thermodynamics	3
CHE 402	Physical Chemistry II	3
CHE 421	Instrumental Analysis	4
CHE 475	General Biochemistry	5
& CHE 476	and General Biochemistry Laboratory	
Chemistry Electives (300 or 400-level)		6

Total Hours **29-34**

¹ Courses taken to fulfill the requirements for the Intermediate and Advance Courses core cannot be used to satisfy the Chemistry elective requirement.

Minors

This minor is only open to students who are NOT majoring in Biochemistry.

To earn a minor in Chemistry, students must complete a minimum of 19 semester hours from the following courses. A minimum of eight hours of course work must be taken at UIS.

Requirements

Required Courses

CHE 141	General Chemistry I	4
CHE 142	General Chemistry II	4
CHE 267	Organic Chemistry I	3
CHE 268	Organic Chemistry I Laboratory	1

Electives

Select from the following: **7**

CHE 400	ECCE: Undergraduate Research
CHE 480	Special Topics In Chemistry

Analytical Chemistry

CHE 321	Chemical Analysis
CHE 421	Instrumental Analysis
CHE 431	Environmental Chemistry

Organic and Biochemistry

CHE 269	Organic Chemistry II
CHE 271	Organic Chemistry II Lab
CHE 418	Bioanalytical Chemistry
CHE 475	General Biochemistry
CHE 476	General Biochemistry Laboratory
CHE 485	Advanced Biochemistry

Physical and Inorganic Chemistry

CHE 401	Physical Chemistry I - Thermodynamics
CHE 402	Physical Chemistry II

Total Hours **19**