

CHEMISTRY | BACHELOR OF ARTS: CHEMISTRY

If you're interested in a career as a high school teacher, a chemical librarian, chemical salesperson, medical doctor, pharmaceutical salesperson or chiropractor, the Bachelor of Arts (BA) in Chemistry may be the right option for you. You may pursue a non-specialized degree program or choose from specializations for teacher education or environmental chemistry. Students interested in a career in environmental chemistry or teacher education should follow the Environmental Chemistry emphasis or Teacher Education program as outlined below.

Program Summary

Code	Title	Hours
General Education		34
Bachelor of Arts Language Requirement		10
Major Courses		32
Major Electives		5
Cognates		11-13
Open Electives ¹		26-28
Total Hours		120

¹ Open electives are the credit hours required to reach a minimum of 120 total hours and 45 upper-level hours. The number listed assumes all courses are completed at FHSU as listed. This number may vary if students transfer courses, or have individual substitutions allowed.

Students should speak with their advisor if either situation applies to determine if the number will vary, and to ensure they enroll in a minimum of 45 upper-level hours.

Students entering within 1 year of high school graduation will take UNIV 101 Freshman Seminar and may apply that hour in the open elective category.

Program Requirements

General Education

All undergraduate degrees require completion of the Kansas Systemwide General Education (<https://catalog.fhsu.edu/general-education/>).

Courses identified with ^{GE} on this page may satisfy a general education requirement in addition to the identified degree requirement. Students who apply a degree requirement to satisfy a general education requirement will typically add an equal number of hours to the the university elective category. This flexibility may allow you to complete a minor or certificate within the 120 hour degree. Transfer students and students majoring in programs with approved exceptions (<https://www.fhsu.edu/general-education/documents/fhsu-gen-ed-transfer-exceptions-explainer1.pdf>) are especially encouraged to select these courses in completing General Education requirements to maximize the likelihood of completing the degree with 120 credit hours.

Code	Title	Hours
General Education		34-35

BA Language Requirement

All FHSU students pursuing a BA degree are required to take two consecutive non-English language classes. Students taking beginning

Spanish or French classes may be able to apply the first class to the Arts and Humanities area of the general education requirement.

Code	Title	Hours
Bachelor of Arts Language Requirement		10

Code	Title	Hours
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Modern Language Courses

Select 10 credits of Modern Language Courses (beginning courses I, II, III and lab)		10
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Major Core Courses

CHEM 101	Orientation to Chemistry	1
CHEM 120 & 120L	University Chemistry I and University Chemistry Laboratory I ^{GE}	5
CHEM 122 & 122L	University Chemistry II and University Chemistry Laboratory II ^{GE}	5
CHEM 340 & 340L	Organic Chemistry and Organic Chemistry Laboratory I	5
CHEM 342 & 342L	Organic Chemistry II and Organic Chemistry Laboratory II	5
CHEM 350 & 350L	Chemical Analysis and Chemical Analysis Laboratory	5
CHEM 430 & 430L	Survey of Physical Chemistry and Survey of Physical Chemistry Laboratory	5

CHEM 675	Seminar in Chemistry	1
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Directed Electives		5
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Select five credit hours from Upper Division Chemistry courses

Cognates		
MATH 234	Analytic Geometry and Calculus I ^{GE}	3-5
or MATH 331	Calculus Methods	

Select one option from the following:		8
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Option A

PHYS 111/111L	Physics I ^{GE}	
PHYS 112/112L	Physics II ^{GE}	

Option B

PHYS 211/211L	Engineering Physics I ^{GE}	
PHYS 212/212L	Engineering Physics II ^{GE}	

Total Hours		58-60
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Degree Requirements

Code	Title	Hours
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Bachelor of Arts Degree Language Requirement

Two consecutive semesters of a non-English Language

All bachelor degrees require:

GPA of 2.0 on FHSU courses & 2.0 on all coursework (Higher program requirements prevail over the 2.0 when set)

A minimum of 30 hours earned from FHSU with a grade of D, C, B, or A

Successful completion of an upper division Writing and Information Literacy course (Most majors contain a course designated)

A minimum of 45 hours of recognized upper division credit

A minimum of 120 hours of recognized college credit

Reach out to our faculty mentors for information on a chemistry emphasis:

- **Teacher Education in Chemistry Concentration:** Dr. Edwin Olmstead (eolmstead@fhsu.edu)
- **Pharmacy Concentration:** Dr. Arvin Cruz (ajcruz2@fhsu.edu)
- **Pre-Dental/Pre-Optometry Concentration:** Dr. Krisztina Bencze (kzbencze@fhsu.edu)
- **Pre-Medicine/KCOG/:** Dr. James Balthazor (jrbalthazor@fhsu.edu)

Degree Maps

Course	Title	Hours
First Year		
Fall		
CHEM 101	Orientation to Chemistry	1
CHEM 120 & 120L	University Chemistry I and University Chemistry Laboratory I	5
ENG 101	English Composition I (SGE010 - English Discipline Area)	3
SGE030 - Math Statistics Discipline Area		3
Open Electives		3
UNIV 101	Freshman Seminar	1
Hours		16
Spring		
CHEM 122 & 122L	University Chemistry II and University Chemistry Laboratory II	5
MATH 331	Calculus Methods	3
ENG 102	English Composition II	3
Bachelor of Arts Language Requirement		5
Hours		16
Second Year		
Fall		
CHEM 340 & 340L	Organic Chemistry and Organic Chemistry Laboratory I	5
PHYS 111 & 111L	Physics I and Physics I Laboratory	5
Bachelor of Arts Language Requirement		5
Hours		15
Spring		
CHEM 342 & 342L	Organic Chemistry II and Organic Chemistry Laboratory II	5
PHYS 112 & 112L	Physics II and Physics II Laboratory	5
COMM 100 or COMM 304	Fundamentals of Oral Communication or Intermediate Interpersonal Communication	3
Open Electives		3
Hours		16
Third Year		
Fall		
CHEM 350 & 350L	Chemical Analysis and Chemical Analysis Laboratory	5
SGE050 - Social Behavioral Sciences Discipline Area		3
SGE070 - Institutionally Designated Area: Personal and Professional Development		3
SGE070 - Institutionally Designated Area: Critical Thinking		3
Hours		14
Spring		
CHEM 430 & 430L	Survey of Physical Chemistry and Survey of Physical Chemistry Laboratory	5
SGE050 - Social Behavioral Sciences Discipline Area		3
SGE060 - Arts Humanities Discipline Area		3
Open Electives		3
Hours		14

Fourth Year

Fall		Hours
Directed Electives		5
Open Electives		3
SGE060 - Arts Humanities Discipline Area		3
Open Electives		3
Hours		14
Spring		
CHEM 675	Seminar in Chemistry	1
Directed Electives		3
CHEM 672 or CHEM 673	Readings in Chemistry or Problems in Chemistry	2
Open Electives		3
Open Electives		3
Open Electives		3
Hours		15
Total Hours		120

Academic Degree Maps are term-by-term sample course plans that specify milestones, courses, and special requirements that are necessary for facilitating on-time completion. Degree Maps are *examples* and are not prescriptive. Individualized choices such as concentration options, transfer credits, optional minors, advisory programs (certificates), etc. can alter the recommended coursework. Course offerings are subject to change. Students should consult with their academic advisors for additional guidance on course planning.

To determine courses to take in the directed choices (often listed as Program Elective Course) and directed elective course blocks see the overview tab for courses. To locate approved courses in General Education areas (Undergraduate Programs) see the general education section (<https://catalog.fhsu.edu/general-education/>) of the catalog.

The undergraduate course maps typically advise the most efficient route for students to complete the general education requirements. Courses that are required in the major may be listed as fulfilling relevant general education requirements. This will result in more open elective course hours in some maps than is listed on the degree overview page.