

CHEMISTRY | BACHELOR OF SCIENCE: CHEMISTRY (BIOCHEMISTRY)

Program Summary

Code	Title	Hours
General Education		34
Major Courses		51
Directed Electives		8
Cognates		27
Open Electives ¹		0
Total Hours		120

¹ Open electives are the credit hours required to reach a minimum of 120 total hours and 45 upper division 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 division 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 university elective category. This flexibility may allow you to complete a minor or certificate within the 120 hour degree. Transfer students 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

Effective in Fall 2025 the math pathway course (<https://catalog.fhsu.edu/general-education/gateway-courses/>) identified below is required for this degree.

The General Education Math Pathways course identified for this major is **MATH 110 College Algebra**. All students pursuing this degree program will be required to complete this course or the corequisite support course. Students who place into a higher level math course may be able to satisfy this requirement; consult with your Academic Advisor for additional information.

Placement measures for **MATH 110 College Algebra** include:

- Math ACT: 22 or higher OR
- Math SAT: 540 or higher OR
- ALEKS PPL: 46 or higher OR
- Accuplacer QAS: 263 or higher OR
- HS GPA and Course Grade: 3.25 cumulative GPA (unweighted) and B- or higher in Second semester Algebra 2 or Integrated Math 3 OR
- Institutional Measure

Students who do not meet any of the placement measures listed above will need to register for the corequisite support course: MATH 105 College Algebra with Review. Credit for the corequisite support course will satisfy any requirement for the pathway course listed above.

Code	Title	Hours
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 632 & 632L	Physical Chemistry: Chemical Thermodynamics and Physical Chemistry Laboratory I	5
CHEM 634/634L	Physical Chem: Quantum Mechanics & Chem Kinetics	3
CHEM 656/656L	Instrumental Analysis	3
CHEM 662 & 662L	Biochemistry I and Biochemistry Laboratory I	5
CHEM 664 & 664L	Biochemistry II and Biochemistry Laboratory II	5
CHEM 666	Inorganic Chemistry	3
CHEM 675	Seminar in Chemistry	1

Directed Electives

Select 8 credit hours of the following Advanced Biology Electives:	8
BIOL 325 & 325L	Genetics and Genetics Laboratory
BIOL 435 & 435L	Cellular Biology and Cellular Biology Laboratory
BIOL 490 & 490L	General Microbiology and General Microbiology Laboratory
BIOL 648 & 648L	Immunology and Immunology Laboratory

Cognates

BIOL 180 & 180L	Principles of Biology and Principles of Biology Laboratory	4
MATH 234	Analytic Geometry and Calculus I ^{GE}	5
MATH 235	Analytic Geometry and Calculus II	5
MATH 250	Elements of Statistics	3
PHYS 211 & 211L	Engineering Physics I and Engineering Physics I Laboratory ^{GE}	5

PHYS 212 & 212L	Engineering Physics II and Engineering Physics II Laboratory ^{GE}	5
--------------------	---	---

Degree Requirements

Code	Title	Hours
------	-------	-------

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:

- **Biological Chemistry Concentration:** Dr. James Balthazor (jrbalthazor@fhsu.edu) or Dr. Krisztina Bencze (kzbencze@fhsu.edu)