MEDICINAL CHEMISTRY, BS

Degree Requirements

Requirements for Students Matriculating in or before Academic Year 2023-2024. Learn more about University Academic Regulation 3.1 (http://catalog.okstate.edu/university-academic-regulations/#matriculation).

Minimum Overall Grade Point Average: 2.00
Total Hours: 120

Code	Title	Hours
General Education Requirements		
English Composition		
See Academic Regulation 3.5 (http://catalog.okstate.edu/university-academic-regulations/#english-composition)		
ENGL 1113	Composition I	3
or ENGL 1313	Critical Analysis and Writing I	
ENGL 1213	Composition II	3
or ENGL 1413	Critical Analysis and Writing II	
or ENGL 3323	Technical Writing	
American History & Government		
HIST 1103	Survey of American History	3
or HIST 1483	American History to 1865 (H)	
or HIST 1493	American History Since 1865 (DH)	
POLS 1113	American Government	3
Analytical & Quantitative Thought (A)		
MATH 2144	Calculus I (A) [1]	4
Humanities (H)		
Courses designated (H)		6
Natural Sciences (N)		
Must include one Laboratory Science (L) course.		
BIOL 1113 & BIOL 1111	Introductory Biology (N) and Introductory Biology Laboratory (LN) [1]	4
or BIOL 1114	Introductory Biology (LN)	
CHEM 1314	Chemistry I (LN) [1]	4
Social & Behavioral Sciences (S)		
Course designated (S)		3
Additional General Education		
Courses designated (A), (H), (N), or (S)		7
Subtotal Hours		**40**
Diversity (D) & International Dimension (I)		
May be completed in any part of the degree plan.		
At least one Diversity (D) course		
At least one International Dimension (I) course		
College/Departmental Requirements		
First Year Seminar		
(Transfer students with 15 hours exempt)		1
Arts & Humanities		
(See note 2.a.)		3
Natural & Mathematical Sciences		
CHEM 1515	Chemistry II (LN)	5
PHYS 2014	University Physics I (LN)	4
or PHYS 1114	College Physics I (LN)	
Foreign Languages		
(See note 3.)		
0-6 hours		
Upper-Division General Education		
6 hours outside major department		
(See note 2.c.)		
Subtotal Hours		**13**
Major Requirements		
Minimum major GPA 2.00.		
CHEM 2113	Principles of Analytical Chemistry	3
CHEM 2122	Quantitative Analysis Laboratory	2
CHEM 3053	Organic Chemistry I	3
CHEM 3112	Organic Chemistry Laboratory	2
CHEM 3153	Organic Chemistry II	3
CHEM 3363	Bioinorganic Chemistry	3
or CHEM 3353	Descriptive Inorganic Chemistry	
CHEM 3413	Physical Chemistry Applications	3
or CHEM 3433	Physical Chemistry I	
or BIOC 3223	Physical Chemistry for Biologists	
CHEM 4023	Modern Methods of Chemical Analysis	3
CHEM 4022	Modern Methods of Chemical Analysis Laboratory	2
CHEM 4123	Biomolecular Chemistry and Function	3
CHEM 4313	Medicinal Organic Chemistry	3
CHEM 4990	Special Problems in Chemistry	2
BIOL 3023	General Genetics	3
BIOL 3204	Physiology	4
MATH 2153	Calculus II (A)	3
or STAT 2013	Elementary Statistics (A)	
or STAT 3023	Statistical Reasoning for Medical Applications (A)	
or STAT 4013	Statistical Methods I (A)	
MICR 2123	Introduction to Microbiology	3
MICR 2132	Introduction to Microbiology Laboratory	2
MICR 3223	Advanced Microbiology	3
or BIOC 3653	Survey of Biochemistry	
PHYS 2114	University Physics II (LN)	4
or PHYS 1214	College Physics II (LN)	
Subtotal Hours		**54**
Electives		**13**
May need to include 6 hours of a foreign language (see note 3.).		
May need to include 6 hours upper-division general education major department (see note 2.c.) and 12 additional upper-division hours.		
MATH 1513 and MATH 1813 required for students who do not place directly into MATH 2144.		
Suggested courses:		
MICR 3033	Cell and Molecular Biology	
MICR 3253	Immunology	
MICR 4053	Pathogenic Microbiology	
PSYC 1113	Introductory Psychology (S)	
or SOC 1113	Introductory Sociology (S)	

Subtotal Hours	**13**
Total Hours	**120**

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College and Departmental Requirements that may be used to meet General Education Requirements.

Other Requirements:

- See the College of Arts and Sciences Requirements.
- Minimum 2.00 GPA in all CHEM courses.
- **Upper-Division Credit:** Total hours must include at least 40 hours in courses numbered 3000 or above.
- **Hours in One Department:** For B.A. and B.S. degrees, no more than 54 hours in one department may be applied to degree requirements.

College of Arts and Sciences Requirements

1. **Hours in One Department:** For B.A. and B.S. degrees, no more than 54 hours in one department may be required to meet degree requirements. Courses used to satisfy the General Education English Composition, U.S. History, American Government, and Mathematics or Statistics requirements will not count toward the 54-hour maximum required from one department.
2. **A&S College/Departmental Requirements**
   a. Arts and Humanities are defined as any course carrying an (H) designation or courses from AMST, ART, DANC, ENGL (except ENGL 3323 Technical Writing) HIST, MUSI, PHIL (except PHIL 1313 Logic and Critical Thinking (A), PHIL 3003 Symbolic Logic (A) and PHIL 4003 Mathematical Logic and Computability), REL, TH, and foreign languages.
   b. Natural and Mathematical Sciences are defined as any course from the following prefixes: ASTR, BIOC, BIOL, CHEM, CS (except CS 4883 Social Issues in Computing), GEOL, MATH, MICR, PBIO, PHYS, and STAT; or courses from other departments that carry an (A) or (N) general education designation.
   c. Six upper-division hours are required from General Education or any CAS courses outside the student's major department (http://catalog.okstate.edu/college-arts-sciences-major-departments/). This requirement may be satisfied by courses also used to satisfy any part of a student's degree program (i.e., in General Education, College Departmental Requirements, Major Requirements or Electives).
   d. Non-Western Studies Requirement for B.A. and B.F.A.; One course in Non-Western Studies (N.W.). This requirement may be satisfied by courses also used to satisfy any part of a student's degree program (i.e., in General Education, College Departmental Requirements, Major Requirements or Electives).
   e. The College of Arts & Sciences requires a minimum 2.0 GPA in all major requirements and a minimum 2.0 GPA in all major-prefix courses applied to the degree.
3. **Foreign Language Proficiency**
   a. The foreign language requirement for the B.A. may be satisfied by 9 hours college credit in the same language, which must include 3 hours at the 2000-level, or equivalent proficiency (e.g., passing an advanced standing examination; TOEFL exam; presenting a high school transcript which demonstrates the high school was primarily conducted in a language other than English; etc.). Computer Science courses may not be used to satisfy this requirement. Currently Arabic and Mvskoke are not offered at the 2000-level at OSU.
   b. The foreign language requirement for the B.S., B.M. and B.F.A. may be satisfied by presenting a high school transcript which demonstrates two years of study of a single foreign language (passing grades at second-year level of study). It may also be satisfied by 6 hours college credit in the same language, which must include language courses 1713 and 1813, or equivalent proficiency (e.g., passing an advanced standing examination; TOEFL exam; presenting a high school transcript which demonstrates the high school was primarily conducted in a language other than English; etc.). Computer Science courses may not be used to satisfy this requirement.
   c. In addition to a. and b., students pursuing teacher certification must meet novice-high foreign language proficiency by presenting a high school transcript which demonstrates two years of study of a single foreign language with no grade below B. Or, students may complete 3 hours college credit in a single language with no grade below C (or pass an advanced standing examination, College Level Examination Program (CLEP) exam, or Oral Proficiency Interview developed by the American Council on the Teaching of Foreign Languages, equivalent to 3 hours of college credit.) Or, students may meet the requirement by transfer of documentation of meeting the foreign language competency from one of the teacher education programs in the State of Oklahoma approved by the Oklahoma State Regents for Higher Education.
4. **Exclusions**. Courses with ATHL or LEIS prefixes and leisure activity courses may not be used for degree credit.

Additional State/OSU Requirements

- At least: 60 hours at a four-year institution; 30 hours completed at OSU; 15 of the final 30 or 50% of the upper-division hours in the major field completed at OSU.
- Limit of: one-half of major course requirements as transfer work; one-fourth of hours earned by correspondence; 8 transfer correspondence hours.
- Students will be held responsible for degree requirements in effect at the time of matriculation and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.
- Degrees that follow this plan must be completed by the end of Summer 2029.

Example Plan of Study

Finish in Four Plan of Study

The plan below is an example of how students can successfully complete degree requirements in four years. This suggested class schedule plan may be used as a guide and can be adjusted based on individual needs. Students are required to meet with an academic advisor prior to enrollment each semester to plan their class schedule, and students are ultimately responsible for completing all degree requirements.

Course	Title	Hours
Freshman		
Fall		
MATH 2144	Calculus I (A)	4
CHEM 1314	Chemistry I (LN)	4

General Education and College courses		7
	Hours	**15**
Spring		
BIOL 1113 & BIOL 1111	Introductory Biology (N) and Introductory Biology Laboratory (LN)	4
CHEM 1515	Chemistry II (LN)	5
MATH 2153	Calculus II (A) (or 3 hours STAT)	3
General Education courses		3
	Hours	**15**
Sophomore		
Fall		
CHEM 3053	Organic Chemistry I	3
MICR 2123	Introduction to Microbiology	3
MICR 2132	Introduction to Microbiology Laboratory	2
PHYS 1114 or PHYS 2014	College Physics I (LN) or University Physics I (LN)	4
General Education courses		3
	Hours	**15**
Spring		
CHEM 3153	Organic Chemistry II	3
CHEM 3112	Organic Chemistry Laboratory	2
MICR 3033	Cell and Molecular Biology (recommended elective)	3
PHYS 1214 or PHYS 2014	College Physics II (LN) or University Physics I (LN)	4
General Education and College courses		3
	Hours	**15**
Junior		
Fall		
BIOL 3204	Physiology	4
CHEM 2113	Principles of Analytical Chemistry	3
CHEM 2122	Quantitative Analysis Laboratory	2
BIOC 3653 or MICR 3223	Survey of Biochemistry or Advanced Microbiology	3
College and Elective courses		3
	Hours	**15**
Spring		
BIOL 3023	General Genetics	3
CHEM 3363 or CHEM 3353	Bioinorganic Chemistry (every other year) or Descriptive Inorganic Chemistry	3
CHEM 3413	Physical Chemistry Applications	3
STAT 3023 or STAT 2013 or STAT 4013	Statistical Reasoning for Medical Applications (A) (if did not take MATH 2153) or Elementary Statistics (A) or Statistical Methods I (A)	3
College and Elective courses		3
	Hours	**15**
Senior		
Fall		
CHEM 4313 or CHEM 4322	Medicinal Organic Chemistry (Every other Fall) or Advanced Organic Chemistry Laboratory	3
CHEM 4990	Special Problems in Chemistry	1
College and Elective courses		11
	Hours	**15**
Spring		
CHEM 4022	Modern Methods of Chemical Analysis Laboratory	2
CHEM 4023	Modern Methods of Chemical Analysis	3
CHEM 4123	Biomolecular Chemistry and Function (every other year)	3
CHEM 4990	Special Problems in Chemistry	1
College and Elective courses		6
	Hours	**15**
	Total Hours	**120**

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Speak with academic advisor about saving General Education electives and Humanities (H) for Upper-division courses with International (I) and Diversity (D) dimensions.