MATHEMATICS: PRE-MEDICAL SCIENCES, 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: 2.50
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	
Select one of the following:		3
ENGL 1213	Composition II	
ENGL 1413	Critical Analysis and Writing II	
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
CS 1103	Computer Programming (A) [1]	3
or CS 1113	Computer Science I (A)	
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)	4
or BIOL 1114	Introductory Biology (LN)	
PHYS 1114	College Physics I (LN) [1]	4
or PHYS 2014	University Physics I (LN)	
PHYS 1214	College Physics II (LN) [1]	4
or PHYS 2114	University Physics II (LN)	
Social & Behavioral Sciences (S)		
PSYC 1113	Introductory Psychology (S)	3
Hours Subtotal		**40**
Diversity (D) & International Dimension (I)		
May be completed in any part of the degree plan		
Select at least one Diversity (D) course		
Select at least one International Dimension (I) course		
College/Departmental Requirements		
First Year Seminar		
(Transfer students with 15 hours exempt)		1
Arts & Humanities		*3*
See note 2.a.		
Recommend HIST 3913 or PHIL 3833		
Natural & Mathematical Sciences		
CHEM 1314	Chemistry I (LN)	4
CHEM 1515	Chemistry II (LN)	5
Foreign Language		
See note 3		0
0-6 hours		
Upper-Division General Education		
Select 6 hours outside major department		
See note 2.c.		
Hours Subtotal		**13**
Major Requirements		
A minimum grade of "C" or "P" is required in each course.		
Mathematics Core		
MATH 2153	Calculus II (A)	3
MATH 2163	Calculus III	3
MATH 2233	Differential Equations	3
MATH 3013	Linear Algebra (A)	3
MATH 3613	Introduction to Abstract Algebra	3
Select 3 hours of the following:		3
MATH 3583	Introduction to Mathematical Modeling	
MATH 3933	Introduction to Mathematical Research	
MATH 4423	Geometry and Algorithms in Three-Dimensional Modeling	
Select 3 hours of the following:		3
MATH 4023	Introduction to Analysis	
MATH 4263	Introduction to Partial Differential Equations	
MATH 4513	Introduction to Numerical Analysis	
Select 9 hours of the following:		9
MATH 4013	Calculus of Several Variables	
MATH 4023	Introduction to Analysis	
MATH 4063	Advanced Linear Algebra	
MATH 4083	Intermediate Analysis	
MATH 4143	Advanced Calculus I	
MATH 4153	Advanced Calculus II	
MATH 4233	Intermediate Differential Equations	
MATH 4263	Introduction to Partial Differential Equations	
MATH 4283	Complex Variables	
MATH 4343	Introduction to Topology	
MATH 4403	Geometry	
MATH 4423	Geometry and Algorithms in Three-Dimensional Modeling	
MATH 4453	Mathematical Interest Theory	
MATH 4513	Introduction to Numerical Analysis	
MATH 4553	Introduction to Optimization	
MATH 4603	Intermediate Abstract Algebra	
MATH 4613	Abstract Algebra I	
MATH 4623	Abstract Algebra II	

MATH 4663	Combinatorics	
MATH 4713	Number Theory	
MATH 4753	Introduction to Cryptography	
MATH 4813	Groups and Representations	
Select 3 hours of the following:		3
STAT 4013	Statistical Methods I (A)	
STAT 4033	Engineering Statistics	
STAT 4053	Statistical Methods I for the Social Sciences (A)	
Select 3 hours of 4000-level MATH or STAT [2]		3
Select 3 hours of the following:		3
4000-level MATH or STAT		
Upper-Division CS or PHYS		
CHEM 3433	Physical Chemistry I	
MICR 4203	Bioinformatics	
Pre-Med Sciences		
Biology:		
BIOL 1604	Animal Biology	4
Physiology or Organic Chemistry:		
Select 8 hours from the following:		8
BIOL 3204 & BIOL 3214	Physiology and Human Anatomy	
CHEM 3053 & CHEM 3153 & CHEM 3112	Organic Chemistry I and Organic Chemistry II and Organic Chemistry Laboratory	
Select 6 hours from the following, with 3 hours upper-division:		6
BIOC 3653	Survey of Biochemistry	
BIOL 3023	General Genetics	
BIOL 3233	Human Reproduction	
MICR 2123	Introduction to Microbiology	
MICR 2132	Introduction to Microbiology Laboratory	
MICR 3033	Cell and Molecular Biology	
MICR 3223	Advanced Microbiology	
MICR 3253	Immunology	
PSYC 2583	Developmental Psychology (S)	
PSYC 3443	Psychopathology (S)	
Hours Subtotal		**57**
Electives		
Select 10 hours		10
May need to include 6 hours of a foreign language. (see note 3.)		
May need to include 6 hours upper-division general education outside major department (see note 2.c.)		
MATH 1513 and MATH 1813 required for students who do not place directly into MATH 2144.		
Strongly recommended:		
SOC 1113	Introductory Sociology (S)	
Additional requirements for professional school admission exist. View the Admission Requirement Sheets at http://preprofessional.okstate.edu		
Hours Subtotal		**10**
Total Hours		**120**

[1]

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

[2]

STAT 4023 Statistical Methods II, STAT 4043 Applied Regression Analysis or STAT 4063 Statistical Methods II for the Social Sciences recommended.

Other Requirements

- See the College of Arts and Sciences Requirements.
- Minimum 2.50 GPA in all required MATH courses.
- **Upper-Division Credit:** Total hours must include at least 40 hours in courses numbered 3000 or above.

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		
ENGL 1113	Composition I	3
or ENGL 1313	or Critical Analysis and Writing I	
MATH 2144	Calculus I (A)	4
BIOL 1114	Introductory Biology (LN)	4
General Education courses		4
	Hours	**15**
Spring		
ENGL 1213	Composition II	3
or ENGL 1413	or Critical Analysis and Writing II	
MATH 2153	Calculus II (A)	3
BIOL 1604	Animal Biology	4
General Education courses		5
	Hours	**15**
Sophomore		
Fall		
MATH 2163	Calculus III	3
PHYS 1114	College Physics I (LN)	4
or PHYS 2014	or University Physics I (LN)	
CHEM 1314	Chemistry I (LN)	4
General Education courses		4
	Hours	**15**
Spring		
MATH 2233	Differential Equations	3
MATH 3013	Linear Algebra (A)	3
PHYS 1214	College Physics II (LN)	4
or PHYS 2114	or University Physics II (LN)	
CHEM 1515	Chemistry II (LN)	5
	Hours	**15**
Junior		
Fall		
MATH 3613	Introduction to Abstract Algebra	3
MATH 3583	Introduction to Mathematical Modeling (option)	3
BIOL 3204	Physiology	4
or CHEM 3053	or Organic Chemistry I	
Major, College, and Elective courses		5
	Hours	**15**
Spring		
MATH 4023	Introduction to Analysis	3
BIOL 3214	Human Anatomy	4
or CHEM 3153	or Organic Chemistry II	
CHEM 3112	Organic Chemistry Laboratory (if CHEM 3153)	2
Major, College, and Elective courses		6
	Hours	**15**
Senior		
Fall		
BIOC 3653	Survey of Biochemistry (optional)	3
Major, College, and Elective courses		12
	Hours	**15**
Spring		
Major, College, and Elective courses		15
	Hours	**15**
	Total Hours	**120**