

MATHEMATICS, BS

Degree Requirements

Requirements for Students Matriculating in or before Academic Year 2024-2025. 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 | | |
| <i>English Composition</i> | | |
| 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 | |
| <i>American History & Government</i> | | |
| 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 |
| <i>Analytical & Quantitative Thought (A)</i> | | |
| MATH 2144 | Calculus I (A) ¹ | 4 |
| CS 1103 | Computer Programming (A) ¹ | 3 |
| or CS 1113 | Computer Science I (A) | |
| <i>Humanities (H)</i> | | |
| Courses designated (H) | | 6 |
| <i>Natural Sciences (N)</i> | | |
| Must include one Laboratory Science (L) course | | |
| PHYS 1114 | College Physics I (LN) ¹ | 4 |
| or PHYS 2014 | University Physics I (LN) | |
| Course designated (N) | | 2 |
| <i>Social & Behavioral Sciences (S)</i> | | |
| Course designated (S) | | 3 |
| <i>Additional General Education</i> | | |
| Courses designated (A), (H), (N), or (S) | | 6 |
| 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 | | |
| <i>First Year Seminar</i> | | |
| (Transfer students with 15 hours exempt) | | 1 |
| <i>Arts & Humanities</i> | | |
| See note 2.a. | | 3 |
| <i>Natural & Mathematical Sciences</i> | | |

| | | |
|---|---|------------|
| MATH 2153 | Calculus II (A) | 3 |
| PHYS 1214 | College Physics II (LN) | 4 |
| or PHYS 2114 | University Physics II (LN) | |
| Select two additional hours | | 2 |
| See note 2.b. | | |
| <i>Foreign Language</i> | | |
| See note 3 | | |
| 0-6 hours | | |
| <i>Upper-Division General Education</i> | | |
| Select 6 hours outside major department | | |
| See note 2.c. | | |
| Hours Subtotal | | 13 |
| Major Requirements | | |
| A minimum grade of "C" or "P" required in each course. Minimum 2.0 GPA in all MATH courses. | | |
| <i>Major Foundation</i> | | |
| MATH 2163 | Calculus III | 3 |
| MATH 2233 | Differential Equations | 3 |
| MATH 3013 | Linear Algebra (A) | 3 |
| MATH 3613 | Introduction to Abstract Algebra | 3 |
| MATH 4023 | Introduction to Analysis | 3 |
| Select one 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 one of the following: | | 3 |
| STAT 4013 | Statistical Methods I (A) | |
| STAT 4033 | Engineering Statistics | |
| STAT 4053 | Statistical Methods I for the Social Sciences (A) | |
| <i>Tracks</i> | | |
| Select one track (p. 2) | | 21 |
| Hours Subtotal | | 42 |
| Electives | | |
| Select 25 hours ² | | 25 |
| 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.) and 4 additional upper division hours | | |
| MATH 1513 and MATH 1813 required for students who do not place directly into MATH 2144. | | |
| Hours Subtotal | | 25 |
| Total Hours | | 120 |

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

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With departmental approval, up to 30 hours from an accredited doctoral law or health program may be substituted for these areas.

Tracks

General Track

| Code | Title | Hours |
|-----------------------------------|---|-------|
| Select 12 hours of the following: | | 12 |
| MATH 4013 | Calculus of Several Variables | |
| MATH 4033 | History of Mathematics | |
| 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 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 | |
| STAT 4203 | Mathematical Statistics I | |

Select 3 hours of 4000-level courses in MATH or STAT or upper-division CS or PHYS or CHEM 3433, or ENSC 3233 3

Select 6 hours of upper division courses in any field ² 6

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With departmental approval, up to 30 hours from an accredited doctoral law or health program may be substituted for these areas.

Preparation for Graduate Study Track

| Code | Title | Hours |
|------------------------------------|----------------------------------|-------|
| MATH 4063 | Advanced Linear Algebra | 3 |
| MATH 4283 | Complex Variables | 3 |
| Select 3 hours of the following: | | 3 |
| Algebra | | |
| MATH 4613 | Abstract Algebra I ³ | |
| MATH 4623 | Abstract Algebra II | |
| MATH 4663 | Combinatorics | |
| MATH 4713 | Number Theory | |
| MATH 4813 | Groups and Representations | |
| Select 3 hours from the following: | | 3 |
| Analysis | | |
| MATH 4013 | Calculus of Several Variables | |
| MATH 4083 | Intermediate Analysis | |
| MATH 4143 | Advanced Calculus I ³ | |
| MATH 4153 | Advanced Calculus II | |

Select one of the following: 3

Geometry or Topology

MATH 4343 Introduction to Topology

MATH 4403 Geometry

MATH 5413 Differential Geometry

Applied Math

MATH 4233 Intermediate Differential Equations

MATH 4263 Introduction to Partial Differential Equations

MATH 4513 Introduction to Numerical Analysis

MATH 4553 Introduction to Optimization

Select 6 hours of 4000-level courses in MATH or STAT 6

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Recommended as preparation for doctoral study.

Other Requirements

- See the College of Arts and Sciences Requirements.
- **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, BIOG, 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 2030.

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 | | |
| First Year Seminar | | 1 |
| ENGL 1113 or ENGL 1313 | Composition I or Critical Analysis and Writing I | 3 |
| MATH 2144 | Calculus I (A) | 4 |
| General Education courses | | 7 |
| Hours | | 15 |
| Spring | | |
| ENGL 1213 or ENGL 1413 | Composition II or Critical Analysis and Writing II | 3 |
| MATH 2153 | Calculus II (A) | 3 |
| General Education courses | | 10 |
| Hours | | 16 |
| Sophomore | | |
| Fall | | |
| MATH 2163 | Calculus III | 3 |
| PHYS 1114 or PHYS 2014 | College Physics I (LN) or University Physics I (LN) | 4 |
| General Education courses | | 9 |
| Hours | | 16 |
| Spring | | |
| MATH 2233 | Differential Equations | 3 |
| MATH 3013 | Linear Algebra (A) | 3 |
| PHYS 1214 or PHYS 2114 | College Physics II (LN) or University Physics II (LN) | 4 |
| College and Elective courses | | 3 |
| Hours | | 13 |
| Junior | | |
| Fall | | |
| MATH 3613 | Introduction to Abstract Algebra | 3 |
| Major, College, and Elective courses | | 12 |
| Hours | | 15 |
| Spring | | |
| MATH 4023 | Introduction to Analysis | 3 |
| Major, College, and Elective courses | | 12 |
| Hours | | 15 |
| Senior | | |
| Fall | | |
| Major, College, and Elective courses | | 15 |
| Hours | | 15 |
| Spring | | |
| Major, College, and Elective courses | | 15 |
| 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.