## MATHEMATICS, BS

### Requirements for Students Matriculating in or before Academic Year 2019-2020.
Learn more about University Academic Regulation 3.1 ([http://catalog.okstate.edu/university-academic-regulations/#matriculation](http://catalog.okstate.edu/university-academic-regulations/#matriculation)).

**Minimum Overall Grade Point Average:** 2.00

**Total Hours:** 120

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<th>Code</th>
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<th>Hours</th>
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### General Education Requirements

**English Composition**

See Academic Regulation 3.5 ([http://catalog.okstate.edu/university-academic-regulations/#english-composition](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
- CS 1113 Computer Science I (A) 3

**Humanities (H)**

Courses designated (H) 6

**Natural Sciences (N)**

Must include one Laboratory Science (L) course

- PHYS 1114 College Physics I (LN) 1 4
- or PHYS 2114 University Physics I (LN) 4

Course designated (N) 2

**Social & Behavioral Sciences (S)**

Course designated (S) 3

**Additional General Education**

Courses designated (A), (H), (N), or (S) 6

**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

**Hours Subtotal** 40

### Major Requirements

A minimum grade of “C” or “P” required in each course. Minimum 2.0 GPA in all MATH courses.

**Major Foundation**

- MATH 2153 Calculus II (A) 3
- MATH 2233 Differential Equations 3
- MATH 3013 Linear Algebra (A) 3
- MATH 3613 Introduction to Abstract Algebra 3

Select one of the following: 3

- MATH 3583 Introduction to Mathematical Modeling
- MATH 3933 Research Methods
- 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)

**Tracks**

Select one track (p. 1) 24

**Hours Subtotal** 42

### Electives

Select 25 hours 2

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

**Hours Subtotal** 25

**Total Hours** 120

1 College and Departmental Requirements that may be used to meet Gen Ed Requirements.

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

### Tracks

#### General Track

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<tr>
<th>Code</th>
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<th>Hours</th>
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<tbody>
<tr>
<td>MATH 403</td>
<td>Introduction to Analysis</td>
<td>3</td>
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</table>

Select 12 hours of the following:

- MATH 4013 Calculus of Several Variables
- MATH 4063 Advanced Linear Algebra
- MATH 4083 Intermediate Analysis
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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  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 4000-level courses in MATH or STAT or upper-division CS or PHYS

Select 6 hours of upper division AGEC, BIOL, CHEM, CS, ECON, FIN, GEOG, GEOL, MICR, PBIO, PHYS, or engineering

Preparation for Graduate Study Track

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<th>Hours</th>
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<tr>
<td>MATH 4023</td>
<td>Introduction to Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 4063</td>
<td>Advanced Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 4283</td>
<td>Complex Variables</td>
<td>3</td>
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Select 9 hours of the following, with at least 3 hours from each group:

Algebra and Discrete Math

MATH 4603  Intermediate Abstract Algebra
MATH 4613  Abstract Algebra I
MATH 4623  Abstract Algebra II
MATH 4663  Combinatorics
MATH 4713  Number Theory
MATH 4813  Groups and Representations

Analysis

MATH 4013  Calculus of Several Variables
MATH 4083  Intermediate Analysis
MATH 4143  Advanced Calculus I
MATH 4153  Advanced Calculus II

Select one of the following: 3

MATH 4233  Intermediate Differential Equations
MATH 4263  Introduction to Partial Differential Equations
MATH 4343  Introduction to Topology
MATH 4403  Geometry
MATH 4423  Geometry and Algorithms in Three-Dimensional Modeling
MATH 4453  Mathematical Interest Theory
MATH 4513  Numerical Analysis
MATH 5413  Differential Geometry

Select 3 hours of 4000-level courses in MATH or STAT

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.
• 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. General Education Requirements
   No more than two courses (or eight hours) from the major department may be used to meet General Education and College and Departmental Requirements. The General Education required English Composition, required U.S. History, required American Government,
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one required MATH or STAT course, and required foreign language for B.A. degrees do not count against the two-course maximum.

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. The required six hours of upper-division General Education may not include courses from the student's major department. 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 3-hour 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
   a. 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 allowed from one department.
   b. Courses with ATHL or LEIS prefixes and leisure activity courses may not be used for degree credit.

5. Teacher Certification
   Students can satisfy the requirements for secondary schools teaching certification while earning a B.A. or B.S. in the College of Arts & Sciences. Those interested should see their Arts and Sciences advisor and the OSU Professional Education Unit in room 325 Willard.

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 2025.