

MATHEMATICS: ACTUARIAL SCIENCE AND FINANCIAL MATHEMATICS, BS

Degree Requirements

Requirements for Students Matriculating in or before Academic Year 2025-2026. Learn more about University Academic Regulation 3.1 (<https://catalog.okstate.edu/university-academic-regulations/#matriculation>).

Minimum Overall Grade Point Average: 2.50

Total Hours: 120

Code	Title	Hours
General Education Requirements		
<i>English Composition</i>		
See Academic Regulation 3.5 (https://catalog.okstate.edu/university-academic-regulations/#english-composition)		
ENGL 1113 or ENGL 1313	Composition I Critical Analysis and Writing I	3
Select one of the following:		
ENGL 1213 ENGL 1413 ENGL 3323	Composition II Critical Analysis and Writing II Technical Writing	3
<i>American History & Government</i>		
HIST 1103 or HIST 1483 or HIST 1493	Survey of American History American History to 1865 (H) American History Since 1865 (DH)	3
POLS 1113	American Government	3
<i>Quantitative Thought & Logical Reasoning (Q)</i>		
MATH 2144 CS 1103 or CS 1113	Calculus I (Q) ¹ Computer Programming (Q) ¹ Computer Science I (Q)	4 3
<i>Understanding Humanities-Human Heritage & Cultures (H)</i>		
Courses designated (H)		
<i>Reasoning in the Natural Sciences (N)</i>		
Must include one Laboratory-Based Inquiry (L) course		
PHYS 1114 or PHYS 2014	College Physics I (LN) ¹ University Physics I (LN)	4
Course designated (N)		
<i>Exploring Society & Human Behavior (S)</i>		
ECON 2103	Introduction to Microeconomics (S) ^{1,2}	3
<i>Diversity (D)</i>		
Courses designated (D)		
<i>Global Cultural Competency (G)</i>		
Courses designated (G)		
<i>Additional General Education</i>		
Additional general education credit hours may be required to meet the total 40-hour minimum of general education credit if courses carry more than one general education designation and can be used to meet multiple general education designation hour requirements above.		

Courses designated (Q), (H), (N), (S), (D), (G), or (F).		0
Hours Subtotal		40
College/Departmental Requirements		
UNIV 1111	First Year Seminar (or other approved first-year seminar course)	1
<i>Arts & Humanities</i>		
See note 2.a.		
<i>Natural & Mathematical Sciences</i>		
MATH 2153	Calculus II (Q)	3
MATH 2163	Calculus III	3
MATH 2233	Differential Equations	3
<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		
Minimum GPA 2.50 and minimum grade of "C" or "P" in each course in Major Requirements.		
<i>Mathematics Core (30 hours)</i>		
MATH 3013	Linear Algebra (Q)	3
MATH 3613	Introduction to Abstract Algebra	3
MATH 3583	Introduction to Mathematical Modeling	3
MATH 4453	Mathematical Interest Theory	3
STAT 4013 or STAT 4053	Statistical Methods I (Q) Statistical Methods I for the Social Sciences (Q)	3
STAT 4203 or STAT 4123	Mathematical Statistics I Probability Theory	3
Select 9 hours of the following:		
MATH 4013	Calculus of Several Variables	3
MATH 4023	Introduction to Analysis	3
MATH 4083	Intermediate Analysis	3
MATH 4233	Intermediate Differential Equations	3
MATH 4263	Introduction to Partial Differential Equations	3
MATH 4513	Introduction to Numerical Analysis	3
MATH 4553	Introduction to Optimization	3
MATH 4573	Introduction to Mathematical Epidemiology	3
MATH 4663	Combinatorics	3
MATH 4753	Introduction to Cryptography	3
MATH 5473	Financial Calculus	3
STAT 4213	Mathematical Statistics II ²	3
Select 3 hours of the following:		
ECON 4213	Econometric Methods	3
ECON 4223	Business and Economic Forecasting	3
STAT 4043	Applied Regression Analysis	3
<i>Professional Requirements (21 hours)</i>		
ACCT 2003	Survey of Accounting ²	3
ECON 2203	Introduction to Macroeconomics ²	3
FIN 3113	Principles of Finance ²	3
Select 3 hours of the following:		
3		

FIN 4223	Investments	
FIN 4333	Financial Modeling	
FIN 4763	Financial Futures and Options Markets	
FIN 4843	Risk Management	
FIN 3613	General Insurance	
Select 3 hours of the following:		3
CS 1113	Computer Science I (Q)	
ENGR 1412	Introductory Engineering Computer Programming	
MSIS 3333	Database Systems Development	
MSIS 4673	Data Visualization	
STAT 4091	Sas Programming	
STAT 4191	R Programming	
STAT 4193	SAS and R Programming	
Select 6 hours of the following:		6
4000-level courses in MATH or STAT		
STAT 5053	Time Series Analysis	
Upper-division courses in AGECE, ECON, or FIN		
Hours Subtotal		51
Electives		
Select 16 hours		16
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.		
Recommended:		
BCOM 3113	Written Communication	
or BCOM 3223	Oral Communication	
or SPCH 3723	Business and Professional Communication	
MKTG 3213	Marketing (S) ³	
MGMT 3013	Fundamentals of Management (S) ³	
Hours Subtotal		16
Total Hours		120

1

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

2

Minimum grade of B required for the Society of Actuaries' Validation by Educational Experience (VEE) certification.

3

These courses should be selected when including pre-MBA preparation.

Other Requirements

- See the College of Arts and Sciences Requirements.
- Minimum grade of "C" or "P" in all 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 (Q), PHIL 3003 Symbolic Logic (Q) 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 (Q) 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 (<https://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 2031.