MATHEMATICS: DATA SCIENCE, 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: 2.50
Total Hours: 120

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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:
ENGL 1213 Composition II 3
ENGL 1413 Critical Analysis and Writing II
ENGL 3323 Technical Writing 3

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) 4
MATH 2153 Calculus II (A) 3
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) 4
or PHYS 2014 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) 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

See note 2.a.

Natural & Mathematical Sciences

MATH 2163 Calculus III 3
CS 2133 Computer Science II 3
STAT 4013 Statistical Methods I (A) 3
or STAT 4053 Statistical Methods I for the Social Sciences (A) 3

See note 2.b.

Foreign Language

See note 3

0-6 hours

Upper-Division General Education

Select 6 hours outside major department
See note 2.c.

Hours Subtotal 13

Major Requirements

Minimum GPA of 2.50 and minimum grade of "C" or "P" required in each course in Major Requirements.

Foundation

MATH 2233 Differential Equations 3
MATH 3013 Linear Algebra (A) 3
MATH 3613 Introduction to Abstract Algebra 3
MATH 3583 Introduction to Mathematical Modeling 3

Major core

MATH 4533 Matrix Methods in Machine Learning 3
MATH 4663 Combinatorics 3
STAT 4043 Applied Regression Analysis 3
STAT 4203 Mathematical Statistics I 3
6 hours from 4000-level MATH excluding 0-ending or thesis courses. 6

Professional Requirements

CS 3353 Data Structures and Algorithm Analysis I 3
CS 4433 Introduction to Database Systems 3
Select 3 hours from the following: 3
CS 3443 Computer Systems
CS 4523 Cloud Computing and Distributed Systems
CS 4783 Machine Learning
CS 4883 Social Issues in Computing
Select 3 hours from the following: 3
CS 1103 Computer Programming (A)
CS 2351 Unix Programming
CS 2433 C/C++ Programming
ENGR 1412 Introductory Engineering Computer Programming
MSIS 2103 Business Data Science Technologies
STAT 4091 Sas Programming
STAT 4191 R Programming
STAT 4193 SAS and R Programming
Select 9 hours from the following: 9
Upper division CS
4000-level MATH
MSIS 3103 End User Database Systems Design and Management
or MSIS 3333 Database Systems Development
**Requirements**

**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, BIOL, 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.