

Bachelor of Science in Mathematics

Admission Requirements

Satisfy the Application and Admission Requirements for Baccalaureate Programs (<http://catalog.uaa.alaska.edu/academicpoliciesprocesses/admissions/undergraduate>).

Graduation Requirements

- Satisfy the General University Requirements for Baccalaureate Degrees (<http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements>).
- Complete the General Education Requirements for Baccalaureate Degrees (<http://catalog.uaa.alaska.edu/undergraduateprograms/baccalaureaterequirements/gers>).
- Complete the major and additional requirements below.

Major Requirements

Code	Title	Credits
Core Courses		
MATH A251	Calculus I	4
MATH A252	Calculus II	4
MATH A253	Calculus III	4
MATH A264	Introduction to the Mathematics Major	1
MATH A265	Fundamentals of Mathematics	3
MATH A303	Introduction to Abstract Algebra	3
MATH A306	Discrete Methods	3
MATH A314	Linear Algebra	3
MATH A324	Introduction to Real Analysis	3
Analysis and Topology		
Select one of the following:		3
MATH A321	Analysis of Several Variables	
MATH A410	Introduction to Complex Analysis	
MATH A430	Concepts of Topology	
MATH A431	Introduction to Differential Geometry	
Applied Math		
Select one of the following:		3
BIOL/CHEM/PHYS A456	Nonlinear Dynamics and Chaos	
MATH A302	Ordinary Differential Equations	
MATH A422	Partial Differential Equations	
MATH A426	Numerical Analysis	
Statistics		
Select one of the following:		3-4
MATH A371	Stochastic Processes	
MATH A407	Mathematical Statistics	

STAT A307	Probability and Statistics
STAT A308	Intermediate Statistics for the Sciences
STAT A401	Statistical Methods
STAT A402	Scientific Sampling
STAT A403	Regression Analysis
STAT A404	Analysis of Variance
STAT A407	Time Series Analysis
STAT A408	Multivariate Statistics

Other Mathematics Courses

Select one of the following: 3

MATH A305	Introduction to Geometries
MATH A309	Introduction to Number Theory
MATH A420	Historical Mathematics
MATH A490	Selected Topics in Mathematics

Select 6 additional credits from the four categories above. 6

Select from one of the following options: 12-18

Option 1: Statistics (12 credits)

Complete 12 additional credits not already selected from the statistics list above

Option 2: Computer Science (13 credits)

CSCE A201 Computer Programming I

Complete 9 additional credits from CSCE with at most 3 credits from the 100-level

Option 3: Physics (14 credits)

PHYS A211 General Physics I

PHYS A211L General Physics I Laboratory

PHYS A212 General Physics II

PHYS A212L General Physics II Laboratory

Complete 6 additional credits of upper-division PHYS courses not applied above

Option 4: Finance (18 credits)

CIS A110 Computer Concepts in Business

BA A273 Introduction to Statistics for Business and Economics

BA A325 Corporate Finance

Complete 9 credits of upper-division finance courses from the list below:

BA A380 Investment Management

BA A385 Intermediate Financial Management

BA A427 International Finance

BA A451 Advanced Investment Strategies

BA A452 Financial Derivatives

Mathematics Capstone Experience 1

Select from one of the following options.

MATH A495A Mathematics Practicum

MATH A495B Mathematics or Statistics Internship

MATH A496	Advanced Readings in Mathematics	
MATH A498	Individual Research	
Total Credits		59-66

* A maximum of 6 credits of MATH A490, MATH A495A, MATH A495B, MATH A496 and MATH A498 may be applied to the degree requirements.

Additional Requirements

- All mathematics majors must take a standardized test of knowledge of mathematics approved by the mathematics faculty for the purpose of evaluating program effectiveness. There is no minimum score required for graduation. This test will normally be taken during the senior year.
- All mathematics majors must complete a portfolio demonstrating their mathematics knowledge. There is no grade for this requirement. The portfolio will normally be submitted in the semester of graduation.

A total of 120 credits is required for the degree, of which 42 credits must be upper-division.

Honors in Mathematics

Students majoring in mathematics are eligible to graduate with departmental honors if they satisfy the following requirements:

1. Meet the requirements for Graduation with Honors (<http://catalog.uaa.alaska.edu/academicpoliciesprocesses/academicstandardsregulations/graduation>).
2. Meet the requirements for a BA/BS in Mathematics.
3. Earn a cumulative grade point average of 3.50 or above in the major requirements.
4. Complete a minimum of 12 upper-division credits required for the major in residence.

Program Student Learning Outcomes

Students graduating with a Bachelor of Science in Mathematics will be able to:

- Demonstrate knowledge of the techniques of modern mathematical subjects including calculus, linear algebra, abstract algebra, real analysis, discrete mathematics, and probability and statistics.
- Demonstrate an ability to construct proofs and solve problems using deductive logic, data analysis, computation, modeling, and connections.
- Demonstrate an ability to read, write, and speak mathematics.
- Demonstrate cognizance of their mathematical knowledge, of mathematics around them, and the need for life-long learning.