

Mathematics



College of Science, Engineering and Mathematics
Department of Mathematical Sciences
(907) 474-7332

www.cs.uaf.edu

Degrees: B.A., B.S., M.A.T., M.S., Ph.D.

Minimum Requirements for Degrees: B.A.: 120 credits; B.S.: 120 credits; M.A.T.: 36 credits; M.S.: 30-35 credits; Ph.D.: 18 thesis credits

The number of new fields in which professional mathematicians find employment grows continually. This department prepares students for careers in industry, government and education.

The M.S. in mathematics prepares students for Ph.D. work, in addition to providing a terminal degree for those planning to enter industry or education. The M.A.T. degree prepares graduates to teach secondary school mathematics. The aim of the Ph.D. program is to provide the student with the expertise to accomplish significant research in applied or pure mathematics, as well as to provide a broad and deep professional education.

In addition to the major programs, the department provides a number of service courses in support of other programs within the university. Current and detailed information on mathematics degrees and course offerings is available from the department.

The department maintains a math lab which is available for assistance to all students studying mathematics at the baccalaureate level.

The department of mathematical sciences also offers programs in computer science and statistics (see separate listings).

UNDERGRADUATE PROGRAM

MAJOR

Mathematics—B.A. or B.S. Degree

1. Complete the following pre-major requirement:
 - a. Students must be ready to matriculate into MATH 200, before they will be allowed to declare mathematics as their major.
 2. Complete the general university requirements (page 28).
 3. Complete the B.A. or B.S. degree requirements (page 33 or 34). (As part of the B.S. degree requirements, complete PHYS 103X and PHYS 104X, or PHYS 211X and PHYS 212X.)
4. Complete the following program (major) requirements:*

MATH 200X—Calculus**	4
MATH 201X—Calculus**	4
MATH 202X—Calculus	4
MATH 215—Introduction to Mathematical Proofs	2
MATH 308—Abstract Algebra	3
MATH 314—Linear Algebra	3
MATH 401W—Advanced Calculus	3
MATH 490O—Senior Seminar	1

5. Complete 21 credits of an elective package.* The following are suggested elective packages:***
 - a. Pure math electives:

MATH 305—Geometry	3
MATH 307—Discrete Mathematics	3
MATH 402—Advanced Calculus	3
MATH 404W—Topology	3
Approved electives	9
 - b. Applied math electives:

MATH 302—Differential Equations	3
MATH 421—Applied Analysis	4
MATH 422—Introduction to Complex Analysis	3
MATH 460W,O—Mathematical Modeling	3
Approved electives	3

 Complete 2 of the following:

MATH 307—Discrete Mathematics	3
MATH 310—Numerical Analysis	3
MATH 402—Advanced Calculus	3
STAT 300—Statistics	3
 - c. Secondary education electives:

CS 201—Computer Science I	3
MATH 305—Geometry	3
MATH 306—Introduction to the History and Philosophy of Mathematics	3
STAT 300—Statistics	3
Approved electives	9
 - d. Statistics concentration electives:

MATH 371—Probability	3
MATH 408—Mathematical Statistics	3
MATH 460W,O—Mathematical Modeling	3
STAT 300—Statistics	3
STAT 401—Regression and Analysis of Variance	4
Approved electives	6
6. Minimum credits required 120

* Student must earn a C grade or better in each course.

** Satisfies core or B.A. or B.S. degree requirements.

*** An elective package must be approved by a mathematical sciences advisor and must include at least 12 credits at the 300-level or above. Students who are obtaining a single B.S. or B.A. with mathematics as a second major may substitute up to 9 credits of approved courses with strong mathematical content for mathematical sciences electives.

Note: All mathematics majors—including double majors—must have an advisor from the mathematical sciences department. Students preparing to teach mathematics in secondary schools should contact the education department for a list of mathematics and education courses necessary to obtain an Alaska teaching certificate.

Note: In addition to meeting all the general requirements for the specific degree, certain mathematics courses are required of all mathematics majors. (At least 12 approved mathematics credits at the 300 level or above must be taken while in residence on the Fairbanks campus.) All electives must be approved by the department.



University of Alaska Fairbanks

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MINOR

- 1. Complete the following:
 - Math 200X—Calculus 4
 - Math 201X—Calculus 4
 - Math 202X—Calculus 4
 - At least 9 additional credits from MATH 215, STAT 300, any 300- or 400-level MATH course; or electives approved by mathematics advisor 9
- 2. Minimum credits required 21

Note: Courses completed to satisfy this minor can be used to simultaneously satisfy other major or general distribution requirements.

GRADUATE PROGRAM

Mathematics—M.A.T. Degree

- 1. Complete the following admission requirements:
 - a. The department does not require any GRE, but recommends applicants provide GRE general scores.
 - b. Complete and submit a TOEFL score of at least 600 (this requirement is only for foreign applicants who seek a teaching assistantship).
 - c. The department gives preference to foreign applicants who also submit results of the Test of Spoken English (TSE).
- 2. Complete the general university requirements (page 43).
- 3. Complete the M.A.T. degree requirements (page 47).
- 4. Complete the following:
 - MATH courses* 18
 - Research 36
- 5. Minimum credits required 36

** At least 12 credits must be at the 600-level.*

Mathematics—M.S. Degree

- 1. Complete the following admission requirements:
 - a. The department does not require any GRE, but recommends applicants provide GRE general scores.
 - b. Complete and submit a TOEFL score of at least 600 (this requirement is only for foreign applicants who seek a teaching assistantship).
 - c. The department gives preference to foreign applicants who also submit results of the Test of Spoken English (TSE).
- 2. Complete the general university requirements (page 43).
- 3. Complete the master's degree requirements (page 46).
- 4. Complete mathematics courses and electives.
- 5. Complete a project or thesis.
- 6. Minimum credits required 30-35

Mathematics—Ph.D. Degree

- 1. Complete the following admission requirements:
 - a. The department does not require any GRE, but recommends applicants provide GRE general scores.
 - b. Complete and submit a TOEFL. (For teaching assistantship consideration, foreign applicants whose native language is not English. Score of at least 600.)
 - c. The department gives preference to applicants who also submit results of the Test of Spoken English (TSE).
- 2. Complete the general university requirements (page 43).
- 3. Complete the Ph.D. degree requirements (page 48).
- 4. Minimum credits required 18

