Mathematics

College of Natural Science and Mathematics
Department of Mathematics and Statistics
(907) 474-7332
www.dms.uaf.edu

B.A., B.S. Degrees

Minimum Requirements for Degrees: 120 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.

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 Mathematics and Statistics also offers programs in statistics (see separate listings).

Major—B.A. or B.S. Degree

1. Complete the following pre-major requirement:
   a. Students must be ready to matriculate into MATH 200X before they will be allowed to declare mathematics as their major.
2. Complete the general university requirements (page 116).
3. Complete the B.A. or B.S. degree requirements. (See page 120 or 121. 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 314—Linear Algebra 3
   MATH 401W—Advanced Calculus 3
   MATH 405W—Abstract Algebra 3
   MATH 490O—Senior Seminar 1
5. Complete 21 additional credits of electives.* Acceptable elective courses include any MATH course at the 300-level or above, any STAT course at the 300-level or above, and CS 201. At least 15 credits must be MATH courses. [For exceptions see below.***] The following are some suggest elective packages:
   a. Pure math electives:
      MATH 305—Geometry 3
      MATH 307—Discrete Mathematics 3
      MATH 402—Advanced Calculus 3
      MATH 404—Topology 3
      Additional elective credits 9
   b. Applied math electives:
      MATH 302—Differential Equations 3
      MATH 421—Applied Analysis 4
      MATH 422—Introduction to Complex Analysis 3
      MATH 460—Mathematical Modeling 3
      Complete two of the following:
      MATH 307—Discrete Mathematics 3
      MATH 310—Numerical Analysis 3
      MATH 402—Advanced Calculus 3
      STAT 300—Statistics 3
      Additional elective credits 3
   c. Requirements for mathematics teachers (grades 7 - 12):****
      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) or MATH 371—Probability and MATH 408—Mathematical Statistics (6) 3–6
      Two courses chosen from:
      MATH 302—Differential Equations (3)
      MATH 307—Discrete Mathematics (3)
      MATH 310—Numerical Analysis (3)
      MATH 460—Mathematical modeling (3) 6
      Additional elective credits 3
   d. Statistics concentration electives:
      MATH 371—Probability 3
      MATH 408—Mathematical Statistics 3
      MATH 460—Mathematical Modeling 3
      STAT 300—Statistics 3
      STAT 401—Regression and Analysis of Variance 4
      Additional elective credits 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.*

**** In some cases, courses with strong mathematical content from other disciplines may be used as electives. Such an elective package must be approved by an advisor in the math or statistics department. The requirement that at least 15 credits be math courses still applies.*

*****We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in your undergraduate degree program, so that you can be appropriately advised of the state of Alaska requirements for teacher licensure. You will apply for admission to the UAF School of Education's post-baccalaureate teacher preparation program, a one-year intensive program, during your senior year.*

Note: All mathematics majors—including double majors—must have an advisor from the mathematical sciences department.

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.

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.

Baccalaureate Core Requirements

All degrees (e.g. B.A., B.S., etc.) require additional courses. Refer to specific degree and program requirements.

COMMUNICATION (9)

Complete the following:
ENGL 111X ..... (3) _____
ENGL 190H may be substituted.

Complete one of the following:
ENGL 211X **OR** ENGL 213X ..... (3) _____

Complete one of the following:
COMM 131X **OR** COMM 141X ..... (3) _____

PERSPECTIVES ON THE HUMAN CONDITION (18)

Complete all of the following four courses:
ANTH 100X/SOC 100X ..... (3) _____
ECON 100X **OR** PS 100X ..... (3) _____
HIST 100X ..... (3) _____
ENGL/FL 200X ..... (3) _____

Complete one of the following three courses:
ART/MUS/THR 200X, HUM 201X **OR** ANS 202X ..... (3) _____

Complete one of the following six courses:
BA 323X, COMM 300X, JUST 300X, NRM 303X,
PS 300X **OR** PHIL 322X ..... (3) _____

OR complete 12 credits from the above courses PLUS
- two semester-length courses in a single Alaska Native language or other non-English language **OR**
- three semester-length courses (9 credits) in American Sign Language taken at the university level.

MATHEMATICS (3)

Complete one of the following:
MATH 103X, MATH 107X, MATH 161X **OR** STAT 200X ..... (3-4) _____
** No credit may be earned for more than one of MATH 107X or 161X.*

OR complete one of the following:*
MATH 200X, MATH 201X, MATH 202X,
MATH 262X **OR** MATH 272X ..... (4) _____
**Or any math course having one of these as a prerequisite*

NATURAL SCIENCES (8)

Complete any two (4-credit) courses:
ATM 101X ..... (4) _____
BIOL 100X ..... (4) _____
BIOL 103X ..... (4) _____
BIOL 104X ..... (4) _____
BIOL 105X ..... (4) _____
BIOL 106X ..... (4) _____
BIOL 111X ..... (4) _____
BIOL 112X ..... (4) _____
CHEM 100X ..... (4) _____
CHEM 103X ..... (4) _____
CHEM 104X ..... (4) _____
CHEM 105X ..... (4) _____
CHEM 106X ..... (4) _____
GEOG 205X ..... (4) _____
GEOS 100X ..... (4) _____
GEOS 101X ..... (4) _____
GEOS 112X ..... (4) _____
GEOS 120X ..... (4) _____
GEOS 125X ..... (4) _____
MSL 111X ..... (4) _____
PHYS 102X ..... (4) _____
PHYS 103X ..... (4) _____
PHYS 104X ..... (4) _____
PHYS 115X ..... (4) _____
PHYS 116X ..... (4) _____
PHYS 175X ..... (4) _____
PHYS 211X ..... (4) _____
PHYS 212X ..... (4) _____
PHYS 213X ..... (4) _____

LIBRARY AND INFORMATION RESEARCH (0–1)
Successful completion of library skills competency test **OR**
LS 100X or 101X prior to junior standing ..... (0–1) _____

UPPER-DIVISION WRITING AND ORAL COMMUNICATION (0)

Complete the following:
Two writing intensive courses designated (W) ..... (0) _____
One oral communication intensive course designated (O) ..... (0) _____
OR two oral communication intensive courses designated (O/2), at the upper-division level (see degree and/or major requirements) ..... (0) _____

TOTAL CREDITS REQUIRED 38–39

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