# Statistics

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

## B.S. Degree

Minimum Requirements for Degree: 120 credits

Statistics is a collection of methods and theories for making decisions or estimating unknown quantities from incomplete information. Statistical techniques are useful, for example, in estimating plant, animal and mineral abundances; forecasting social, political and economic trends; planning field plot experiments in agriculture; performing clinical trials in medical research; and maintaining quality control in industry. Employment opportunities are excellent for statisticians in many of these areas of application.

The curriculum for the B.S. degree program in statistics was developed using guidelines proposed by the American Statistical Association and provides graduates with a strong mathematics, computation and statistics background and integrates this with an area of application. The program allows considerable flexibility in the choice of the area of application by requiring a minor in any area offered by UAF.

The statistics program is administered by the Department of Mathematics and Statistics. In addition to the B.S. in statistics, the department offers a bachelor's degree in mathematics with an emphasis in statistics. A minor in statistics is also available.

### Major—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 statistics as their major.
2. Complete the general university requirements. (See page 116. As part of the core curriculum requirements, complete MATH 200X*. ENGL 314 is recommended to fulfill one of the writing intensive course requirements.)
3. Complete the B.S. degree requirements. (See page 121. As part of the B.S. degree requirements, complete MATH 201X*.)
4. Complete the following statistics core courses:*
   MATH 202X—Calculus ..... 4
   MATH 314—Linear Algebra ..... 3
   MATH 371—Probability ..... 3
   MATH 408—Mathematical Statistics ..... 3
   STAT 200X—Elementary Probability and Statistics (3)
   or STAT 300—Statistics (3) ..... 3
   STAT 401—Regression and Analysis of Variance ..... 4
   STAT 402—Scientific Sampling ..... 3
   STAT 498—Senior Project ..... 3
5. Complete two of the following statistics or mathematics electives:*
   MATH 307—Discrete Mathematics ..... 3
   MATH 310—Numerical Analysis ..... 3
   MATH 401W—Advanced Calculus ..... 3
   MATH 402—Advanced Calculus ..... 3
   MATH 460—Mathematical Modeling ..... 3
   STAT 461—Applied Multivariate Statistics ..... 3
   STAT, MATH or statistical discipline oriented course approved by the statistics program coordinator ..... 3
6. Complete two of the following computational electives:*
   CS 103—Introduction to Computer Programming (3)
   or any higher-level CS course (3) ..... 3
   AIS 101—Effective Personal Computer Use ..... 3
   NRM 338—Introduction to Geographic Information Systems ..... 3
   NRM 341—GIS Analysis ..... 4
7. Complete a minor in any discipline in which UAF offers a minor. A mathematics minor is completed by all statistics majors and may be used to meet this requirement.
8. Minimum credits required ..... 120

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

*Note: A double major in statistics and math may be obtained by completing the following: 2, 3, 4, 5 and 6 above, MATH 215, 308, 401W, 490O and 9 additional credits in upper-division math or statistics. A math elective package is MATH 371 and MATH 408, and STAT 401 and STAT 402 plus 8 credits upper-division MATH or STAT. The statistics elective package is MATH 215 and MATH 401W. Minimum credits required is 60 including MATH 200X and MATH 201X. Other double majors are available.*

### Minor

1. Complete the following:
   STAT 200X—Elementary Probability and Statistics (3)
   or STAT 300—Statistics (3) ..... 3
   STAT 401—Regression and Analysis of Variance ..... 4
   MATH 371—Probability* ..... 3
   MATH 408—Mathematical Statistics ..... 3
   MATH, STAT or STAT related course work** ..... 3
2. Minimum credits required ..... 16

**MATH 371 requires MATH 200X, 201X and 202X as prerequisites.*

*** e.g., BA 360, GEOS 430, ANTH 424, MATH 460, etc.*

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

*Note: Fisheries majors selecting the research option need only complete MATH 371 and MATH 408 in addition to their fisheries requirements to obtain a minor in statistics.*


UA is an AA/EO employer and educational institution and prohibits illegal discrimination against any individual: www.alaska.edu/titleIXcompliance/nondiscrimination.

# 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**

**UNIVERSITY OF ALASKA FAIRBANKS**
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