

# Statistics

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

- Complete the following pre-major requirement:
  - Students must be ready to matriculate into MATH 200X before they will be allowed to declare statistics as their major.
- Complete the general university requirements (page 106. As part of the core curriculum requirements, complete: MATH 200X\*. ENGL 314 is recommended to fulfill one of the writing intensive course requirements.)
- Complete the B.S. degree requirements (page 112. As part of the B.S. degree requirements, complete: MATH 201X\*.)
- 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 200—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
- Complete 2 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 460W,O—Mathematical Modeling .....	3
STAT 461—Applied Multivariate Statistics .....	3
STAT, MATH or statistical discipline oriented course approved by the statistics program coordinator .....	3

- Complete 2 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

- 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.

- 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

- Complete the following:
 

STAT 200—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
- Minimum credits required ..... 15

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

\*\* e.g., BA 360, GEOS 430, ANTH 424, MATH 460W,O, 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.

**Note: Page numbers refer to the UAF 2004-2005 academic catalog, which can be viewed online at [www.uaf.edu/catalog/](http://www.uaf.edu/catalog/).**

## General University Requirements

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

### COMMUNICATIONS (9)

Complete the following:

ENGL 111X ..... (3) \_\_\_\_\_  
ENGL 211X OR 213X ..... (3) \_\_\_\_\_  
COMM 131X OR 141X ..... (3) \_\_\_\_\_

### LIBRARY & INFORMATION SKILLS (0-1)

Complete the following:

LS 100X OR 101X ..... (0-1) \_\_\_\_\_  
OR Successful completion of library skills competency test.

### PERSPECTIVES ON THE HUMAN CONDITION (18)

Complete either the following six courses:

ANTH 100X OR SOC 100X ..... (3) \_\_\_\_\_  
ECON/PS 100X ..... (3) \_\_\_\_\_  
HIST 100X ..... (3) \_\_\_\_\_  
ART/MUS/THR 200X, HUM 201X OR ANS 202X ..... (3) \_\_\_\_\_  
ENGL/FL 200X ..... (3) \_\_\_\_\_  
PHIL 322X, NRM 303X, COMM 300X,  
PS 300X OR JUST 300X ..... (3) \_\_\_\_\_

OR Complete 12 cr from the above list PLUS two semester-length courses in a single non-English or Alaska Native language at the university level OR three semester-length courses (9 cr) in American Sign Language.

### MATHEMATICS (3-4)

Complete 3-4 credits from the following:

MATH 107X ..... (3) \_\_\_\_\_  
OR MATH 131X (except for BBA) ..... (3) \_\_\_\_\_  
OR MATH 161X ..... (3) \_\_\_\_\_  
MATH 200X ..... (4) \_\_\_\_\_  
MATH 201X ..... (4) \_\_\_\_\_  
MATH 202X ..... (4) \_\_\_\_\_  
MATH 262X ..... (4) \_\_\_\_\_  
MATH 272X ..... (3) \_\_\_\_\_

NOTE: Additional 3 cr of math needed for degree requirements.

### NATURAL SCIENCES (8)

Complete 8 credits from the following:

ATM 101X ..... (4) \_\_\_\_\_  
BIOL 103X OR 104X ..... (4) \_\_\_\_\_  
BIOL 105X-106X ..... (8) \_\_\_\_\_  
BIOL 111X-112X ..... (8) \_\_\_\_\_  
CHEM 100X ..... (4) \_\_\_\_\_  
CHEM 103X-104X ..... (8) \_\_\_\_\_  
CHEM 105X-106X ..... (8) \_\_\_\_\_  
GEOG 205X ..... (4) \_\_\_\_\_  
GEOS 100X OR 120X OR 125X ..... (4) \_\_\_\_\_  
GEOS 101X-112X ..... (8) \_\_\_\_\_  
MSL 111X ..... (4) \_\_\_\_\_  
PHYS 102X OR 175X ..... (4) \_\_\_\_\_  
PHYS 103X-104X ..... (8) \_\_\_\_\_  
PHYS 211X-212X ..... (8) \_\_\_\_\_  
PHYS 211X-213X ..... (8) \_\_\_\_\_  
PHYS 212X-213X ..... (8) \_\_\_\_\_