

# Statistics

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

## M.S. Degree

Minimum Requirements for Degree: 30 credits

Statistics is a collection of methods and theories used to make decisions or estimate 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.

The M.S. degree program in statistics builds upon UAF's strength in the sciences and our setting in Alaska by introducing a strong quantitative alternative or supplement to existing programs. The curriculum is built around four statistics core courses and flexibility in selection of elective courses. The core courses are designed to blend mathematical statistics course work typical of most M.S. programs in statistics with real applications. We believe this blending provides a substantial improvement in the graduate's skills. Graduates of this program could be labeled quantitative biologists, biometricians, quantitative geologists, geostatisticians, or mathematical statisticians depending upon their specific course work. In addition, this program prepares individuals for Ph.D. level work in statistics or their area of application.

The statistics program is administered by the Department of Mathematics and Statistics.

## Graduate Program—M.S. Degree

1. Complete the following admission requirement:
  - a. Submit three letters of recommendation concerning the applicant's educational background and quantitative training.
  - b. Submit complete transcripts for all college-level work.
  - c. Submit a resume.
  - d. Submit a written statement of goals.
  - e. Submit GRE scores.
  - f. The applicant must have completed a bachelor's degree from an accredited institution with a GPA of at least 3.0.
  - g. Must have completed the following courses or their equivalent with a B grade or better: full calculus sequence (MATH 200, 201, 202); or students completing MATH 262 or 272 must take MATH 201 and 202 before acceptance; and a course in linear algebra (MATH 314), at least one introductory statistics or probability course (STAT 200, 300 or MATH 371, 408). Students lacking MATH 314 may be accepted on probation.
2. Complete the general university requirements (page 176).
3. Complete the master's degree requirements (page 180).
4. Complete the following statistics (core) courses:

STAT 651—Statistical Theory I .....	3
STAT 652—Statistical Theory II .....	4
STAT 653—Statistical Theory III—Linear Models .....	3
STAT 654—Statistical Consulting Seminar .....	1
STAT 698—Project .....	6
5. Complete two of the following courses:

STAT 461—Applied Multivariate Statistics .....	3
STAT 602—Experimental Design .....	3
STAT 605—Spatial Statistics .....	3
STAT 631—Categorical Data analysis .....	3
STAT 661—Sampling Theory .....	3
STAT 611—Time Series .....	3
6. Complete at least 6 credits of approved courses from an application area or courses with substantial statistical and/or mathematical content.\*
7. Minimum credits required .....30

\* Examples of courses for specific areas of concentration include: wildlife WLF 625; fisheries FISH 601, 602, 621, 622, 625; mathematics MATH 641, 660 or other 600-level MATH course.

*Note: Each student must take and pass a three-part comprehensive exam. The first part, written by the statistics faculty, is a written exam (not a take-home exam) covering the material in the core statistics courses. The second part is a take-home exam covering the student's area of application. The last part is an oral exam covering any material from courses the student has taken along with their project.*

*Note: Page numbers refer to the UAF 2006-2007 academic catalog, which can be viewed online at [www.uaf.edu/catalog/](http://www.uaf.edu/catalog/).*