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Science &  
Mathematics  
Education

Statistics

Zoology

# Statistics

Theory and practical applications. The department's missions are to train graduate students in the theory and practice of statistics; to engage them with faculty in research and other scholarly activities; and to provide statistical service to other university units and the people of Oregon.

## Areas of research include:

- Biostatistics
- Environmental statistics
- Experimental design
- Generalized regression models
- Longitudinal data analysis
- Optimization
- Sampling methodology
- Statistical ecology

The Department of Statistics was founded in 1957; it grew over the prior ten-year period out of a statistical consulting unit in the College of Agriculture. Today, the department resides in both the College of Science and the College of Agricultural Sciences, and it has strong ties to many research departments at OSU as well as to the Corvallis location of the U. S. Environmental Protection Agency (EPA).

Graduate students receive training with particular emphasis on those aspects of statistics that are central to practical applications. Their research experience and scholarly activities not only expand knowledge but also promote the proper use of statistical methodology.

Their service component involves university and external groups and includes collaboration, consulting, and training. A particular emphasis of applied training is in environmental statistics.

Typically, 40 graduate students are studying in the department, in both statistics and operations research. Several recent graduate students have won prestigious university awards, including OSU's Frolander Award for Outstanding Graduate Teaching Assistant (2003).

## Research

The Department received an EPA/Science To Achieve Results (STAR) grant of \$3 million to pursue research in statistical designs for monitoring of aquatic resources. This research, motivated by the Clean Water Act, will help guide the mapping and monitoring activities of the Environmental Monitoring and Assessment Program of EPA. The project includes collaborative research with Colorado State University, Iowa State University, and the University of Washington.

OSU's statistics department was instrumental in developing the survey methodology and proof of concept for this ongoing research to measure over time the fundamental status and changing trends in conditions of ecosystems across the United States.

The Department also receives funding from the National Science Foundation, the National Institutes of Health, and other federal, state and regional sources.

Members of the Department pursue research in methods of statistics and operations research, motivated by problems in such areas as clinical trials, optimal use of forest resources, and survey design.

A variety of collaborative research activities are carried out with colleagues from the College of Science and from other colleges and centers, including the College of Agricultural Sciences, the College of Health and Human Performance, and the Environmental Health Sciences Center.



Statistics faculty and graduate students collaborate with others at four universities and representatives of 11 state, federal, or tribal governments to design and test groundbreaking survey methodology, analysis, and data visualization that assess and monitor the nation's ecosystems.

# Statistics

**OSU's M.S. in operations research and its Ph.D. in statistics are the only such degrees offered by any of Oregon universities.**

**All statistics students obtain experience as statistical consultants for problems in a variety of areas, including agriculture, biology, forestry, exercise physiology, engineering, and environmental sciences.**

**Statistics faculty and students serve the people of the state of Oregon and the nation by providing knowledge on the practice of statistics and through leadership in professional associations.**

## Education

The statistics department offers M.S. degrees in both statistics and operations research, and the Ph.D. degree in statistics. Major fields include applied statistics, mathematical statistics, environmental statistics, and operations research (M.S. only). Students can concentrate on theory or applications, and programs can be tailored to emphasize such areas of interest as ecology, engineering, forestry, mathematics, or oceanography. Students interested in environmental sciences have the opportunity to obtain experience both in and outside the classroom with statistical methods for environmental data.

## Professional Service

Members of the department are active in professional associations in statistics and operations research, including service on key committees of the American Statistical Association and the Institute for Operations Research and the Management Sciences (INFORMS). Several members serve on editorial boards of journals, and two members are current or past presidents of the Oregon Chapter of the American Statistical Association.

## Outreach

Department members are active as judges in local and regional high school student science fairs and have made presentations about statistics to local high school and college audiences. The department also operates the Survey Research Center, which conducts and analyzes surveys for the university and for state and local government agencies.

## Faculty

The department has 11 faculty members, who have received recognition for their research and teaching:

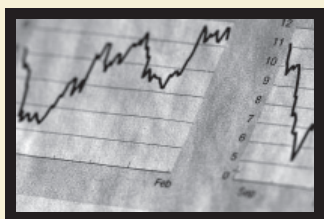
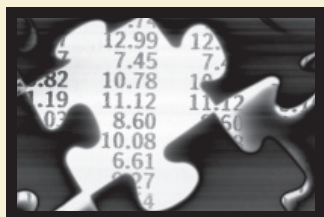
College of Science Carter Award for Excellence in Graduate Teaching (2)

Fellow of the American Statistical Association (3)

Fellow of the Institute for Mathematical Statistics (1)

National Science Foundation Career Award (1)

In addition, over 20 emeritus, courtesy, and instructor faculty support educational programming in the Department of Statistics.



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