# DEPARTMENT OF STATISTICS

The Statistics Department is shared with the College of Science and its mission is to contribute to the overall objectives of Oregon State University through excellence in research and education in the statistical sciences and through service to the university community, statistical profession, and society at large. The teaching mission of the department falls within the College of Science and it regularly teaches undergraduates across campus in addition to nearly every graduate student as the non-major graduate-level statistics sequences contribute to almost every graduate MS and Ph.D. program at OSU.

## Faces of AgSci

" *There are a lot of great professors and the coursework was very valuable. Right away, I applied things that I was learning to my real-life job.*

Audrey Dickenson, MS Data Analytics

Read more at **agsci.oregonstate.edu**

## DEPARTMENT OF STATISTICS AT A GLANCE

**19** **Faculty** (3 supported by CAS)

**65** **Undergraduate Students**

**165** **Graduate Students**

## Degree Programs

**Undergraduate**
Statistics minor

**Graduate**
Data Analytics | M.S. | Certificate
Statistics | M.S. | Ph.D.

## Experiential Learning Opportunities

- Consulting Practicum provides statistics graduate students with statistical collaboration and consultation experience. Statistical advice is provided to graduate student researchers across OSU by a consulting team of a Ph.D. consultant, an MS secondary consultant, an undergraduate minor student observer, and a faculty advisor.

- Oregon State Statistical Students Organization (OSSSO) is the Department of Statistics student organization whose purpose is to foster interactions between students, faculty, professionals, and the community.

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# Research

**2022 Research Expenditures: $569,873** (College of Agricultural Sciences/Does not include College of Science)

### Research Focus Areas:

- High-dimensional structured density estimation
- Unsupervised learning especially clustering and manifold learning
- Adaptive and group sequential clinical trials methodology
- Quasi-likelihood methods, mixed models, and inference on dependent samples
- High-throughput genetic sequencing
- Statistical methods for RNA-Sequence data
- Incorporating genetic prior information into association studies
- Dependent discrete data
- Abundance and occupancy modelling
- Network sampling
- Respondent-driven sampling
- Self-exciting point processes
- Nonparametric curve estimation
- Polynomial spline smoothing
- Graphical models
- Inference for data networks

# Outreach and Engagement Highlights

While there are no Extension-specific programs in the department, its Survey Research Center (SRC) offers clients rigorous statistical expertise in the most efficient sampling designs, analyses, and interpretation of valid survey results. SRC's clients include federal, state, and local agencies, national non-profit organizations, and OSU-affiliated entities. The SRC maintains several on-going contracts to provide expertise on monthly, yearly or multi-year time scales. Survey statisticians will: :

- Design, develop and format the survey instrument
- Develop appropriate sample selection based on the characteristics of the population
- Prepare recruitment materials for the sample frame
- Survey administration
- Provide data entry (if applicable)
- Apply coding techniques
- Verify survey response data
- Analyze data based on study objectives
- Prepare a final report summarizing the project.

In addition to the beforementioned details, study methodology, a standardized survey research method response rate, and frequency results and interpretation are provided.

# The Future of the Statistics Department

Statistics faculty supported by the College of Agricultural Sciences have portions of their research portfolio and position description dedicated to research collaboration with other faculty in the College. Our faculty continue to provide rigorous cutting-edge statistical advancements and they serve as co-PI's on AgSci grants—from viticulture and animal sciences to microbiology and food science. Our student-driven Consulting Practicum provides both short-term and long-term consulting for graduate students and we seek to constantly adapt this program to new developments in Statistics. The Statistics department is also engaged in the development of the new Collaborative Innovation Center that will support transdisciplinary research.

**Oregon State University**
College of Agricultural Sciences