

LEARNING GOALS FOR THE STATISTICS MS PROGRAM

Upon completion of the MS in Statistics program, students will be able to:

1. **Demonstrate** a strong understanding of fundamental concepts in probability, statistical inference, and statistical methodology, including the theoretical principles underlying statistical procedures.
2. **Select, implement, and interpret** appropriate statistical methods and models to address scientific, technological, business, and societal problems using real-world data.
3. **Use** statistical software, programming languages, and computational techniques to manage and analyze data, implement statistical methods, conduct simulations, and develop reproducible analytical workflows.
4. **Formulate and evaluate** statistical questions and analytical approaches, critically assess modeling assumptions and empirical findings, and draw defensible conclusions while accounting for uncertainty and limitations.
5. **Communicate** statistical concepts, methods, and findings effectively to technical and nontechnical audiences through written reports, oral presentations, and visualizations, and collaborate with researchers and practitioners from other disciplines.
6. **Recognize and address** ethical considerations in statistical analysis and research, including potential bias, appropriate interpretation of results, and responsible use of data and statistical methods.
7. **Optional: Prepare for doctoral study:** Students interested in pursuing a PhD in statistics or a related discipline will develop additional theoretical depth, methodological expertise, and research skills that provide a foundation for doctoral-level study and research.