SUMMARY OF ASSESSMENT

College	Science
Department	Statistics and Biostatistics
Program	MS Statistics
Reporting for Academic Year	2024-2025

Program Learning Outcomes (PLO)

PROGRAM LEARNING OUTCOMES (PLOs)	
Students graduating with a MS in Statistics will be able to:	
PLO 1	Apply statistical methodologies, including a) descriptive statistics and graphical displays, b) probability models for uncertainty, stochastic processes, and distribution theory, c) hypothesis testing and confidence intervals, d) ANOVA and regression models (including linear, and multiple linear) and analysis of residuals from models and trends at the Master's level.
PLO 2	Derive basic theory underlying these methodologies.
PLO 3	Model practical problems for solutions using these methodologies.
PLO 4	Produce relevant computer output using standard statistical software and interpret the results appropriately.
PLO 5	Communicate statistical concepts and analytical results clearly and appropriately to others; and,
PLO 6	Employ theory, concepts, and terminology at a level that supports lifelong learning of related methodologies.

Program Learning Outcome(S) Assessed

Year : 2024-2025	
1. *Which PLO(s) to assess*	PLO 1
1. *Is it aligned to an ILO?*	Yes
1. *If yes, list ILO.*	Thinking and Reasoning
1. *Course name and number*	STAT 692 – Comprehensive Exam
1. *SLO from course*	Apply statistical methodologies, including a) descriptive statistics and graphical displays, b) probability models for uncertainty, stochastic processes, and distribution theory, c) hypothesis testing and confidence intervals, d) ANOVA and regression models (including linear, and multiple linear) and analysis of residuals from models and trends
1. *Assessment activity*	Written Comprehensive Exam

1. *Assessment Instrument*	Grades from exam
1. *How data will be reported*	Quantitative, proportions of students in each category from 1-5 (5 mastered)
1. *Responsible person(s)*	STAT 692 instructor, Assessment Rep
1. *Time (which semester(s))*	Fall and Spring
1. *Ways of closing the loop*	Included in end-of year report and internal assessment of PLOs.

Summary of Assessment Process

. **Instrument(s):**

We implemented quantitative assessment of the results of our Comprehensive Examination by mapping all but one of the PLO's (#1) to specific course problems on the MS comprehensive exam. Rubrics were established for the outcomes and implemented.

Sampling Procedure: We sample by gathering data from all students attempting to complete the comprehensive exam.

Sample Characteristics: All MS Statistics students at, or near, to the end of their program were identified.

Data Collection: The comprehensive exam is given twice a year, Fall and Spring. All tenure/tenure track faculty participate in the evaluation of student performances on this exam that are then used to evaluate the PLO's.

Data Analysis: We currently utilize Google Sheets to incorporate the rubrics that were established for the outcomes, to analyze the data.

Summary of Assessment Results

Main Findings: **Main Findings:**

Frequencies of Rubric-Scores for Statistics MS 2023-2024

Rubric Score	**PLO 1 Fall 2024**	**PLO 1 Spring 2025**	**TOTAL**
1	1	3	4 (7%)
2	2	11	13 (23%)
3	6	6	12 (21%)
4	7	9	16 (29%)
5	1	10	11 (20%)
Total	17	39	56

Recommendations for Program Improvement:

The scores for this year were worse than previous years. Only about 50% of the students were exceeding standards (4 and above). This has led to a discussion in the department to understand where the missing pieces of knowledge are and better align the comprehensive exam with the PLOs.

Next Step(s) for Closing the Loop:
We will continue to monitor the evaluation of our PLO's to determine if additional advising or curricular changes need to be addressed.

Other Reflections: We have no additional reflections on assessment at this time.

C. Assessment Plans for Next Year

Most PLOs are the same and assessment will be for comparable courses.

Year : 2025-2026	
1. Which PLO(s) to assess	PLO 5
2. Is it aligned to an ILO?	Yes
3. If yes, list ILO.	Communication
4. Course name and number	STAT 632 – Linear and Logistics Regression
5. SLO from course	Communicate statistical concepts clearly and appropriately to others.
6. Assessment activity	Written project report
7. Assessment Instrument	Departmental Rubric for written communication
8. How data will be reported	Quantitatively, proportions of students in each category from 1-5 (5 mastered)
9. Responsible person(s)	STAT 632 Instructor, Assessment Rep
10. Time (which semester(s))	Spring 2019
11. Ways of closing the loop	Included in end-of year report and internal assessment