



**Northern Illinois
University**

Assessment Plan

College of Liberal Arts and Sciences
Department of Statistics and Actuarial Science

Bachelor of Science in Statistics

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1. Introduction

This is a new degree program, which stems from the Bachelor of Science in Mathematics with emphasis in Statistics. The goal of this program is to prepare students for careers in Statistics and Data Analysis.

2. Student Learning Outcomes (SLOs)

1. Formulation of statistical problems: Students should be able to formulate real-world applications within the proper statistical framework. This includes designing studies and experiments that will provide the proper type of evidence to prove or disprove a hypothesis, along with the proper theoretical statistical framework for providing reliable and logical conclusions based on the observed data from the experiment.
2. Essential skills for statistical analysis: Students should be able to use data obtained from real world experiments to obtain the proper calculations and conclusions based on sound statistical practice and theory.
3. Knowledge of data analysis: Students breadth of knowledge of statistical methodology should be broad enough so that they will be able to address a wide variety of statistical problems often encountered in real-world applications.
4. Effective oral and written communication skills: Students should be able to effectively communicate their results to those within the field of statistics, as well as to those who may only have very basic statistical training. Students should be able to effectively address how experiments are designed as well as how the results of a statistical analysis should be interpreted. In particular, students should be able to communicate what types of logical conclusions are permissible based on a statistical analysis.
5. Working knowledge of popular statistical software: Students should be proficient in the most common types of statistical software used in industry and academics.

3. Program-by-Baccalaureate Student Learning Outcomes Matrix

Program Student Learning Outcome	Baccalaureate Student Learning Outcomes							
	A. Global inter-connections and inter-dependencies	B. Intercultural competencies	C. Analyze human life and natural world inter-connections	D. Critical, creative, and independent thought	E. Communicate clearly and effectively	F. Collaborate with others	G. Quantitative and qualitative reasoning	H. Apply knowledge/skills creatively
1. Formulation of statistical problems	M			S	M	M	S	S
2. Essential skills for statistical analysis				S			S	S
3. Knowledge of data analysis				S		S	S	S
4. Effective oral and written communication skills	S	S			S	S		
5. Working knowledge of popular statistical software						M	M	M
Overall	S	M		S	S	S	S	S
<i>Note.</i> Gauge whether each program outcome strongly supports (S), moderately supports (M), or doesn't support (leave blank) each baccalaureate learning outcome								

4. Curriculum Map

Course	Program Student Learning Outcomes				
	1. Formulation of statistical problems	2. Essential skills for statistical analysis	3. Knowledge of data analysis	4. Effective oral and written communication skills	5. Working knowledge of popular statistical software
STAT 300	B	B	B	B	B
STAT 400				B	
STAT 410	D	D	D	D	
STAT 415		D	D	D	P
STAT 435	P	P	P	P	P
STAT 437	P	P	P	P	P
MATH 229	D	D			

Course	Program Student Learning Outcomes				
	1. Formulation of statistical problems	2. Essential skills for statistical analysis	3. Knowledge of data analysis	4. Effective oral and written communication skills	5. Working knowledge of popular statistical software
MATH 230	D	D			
MATH 232	D	D			
MATH 240	D	D			
CSCI 240					D
<i>Note.</i> Course supports the outcome at the B=beginning, D=developing, or P=proficient level.					

5. Assessment Methods

EXPLANATION OF ASSESSMENT METHODS TABLE

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs
STAT 300 assessment question	Students are assigned a question on the final exam in which they are to: (1) formulate a given real-world application within the proper statistical framework; (2) use data given to obtain the proper calculations and conclusions; (3) write the conclusions appropriately.	A student will receive a score of Meets (3) or better on each of the three performance criteria on the rubric.	75% of all students will meet the student-level target (i.e., receive a score of Meets (3) or better on each of the three performance criteria on the rubric).	During the final exam for STAT 300	Course instructor	1, 2, 4

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs
STAT 435 assessment question	Students are assigned a question on the final exam in which they are to: (1) formulate a given real-world application within the proper statistical framework; (2) choose the appropriate methodology for the particular problem; (3) use data given to obtain the proper calculations and conclusions; (4) use statistical software to perform any necessary calculations, and/or interpret statistical software output; (5) write the conclusions appropriately.	A student will receive a score of Meets (3) or better on each of the five performance criteria on the rubric.	85% of all students will meet the student-level target (i.e., receive a score of Meets (3) or better on each of the five performance criteria on the rubric).	During the final exam for STAT 435	Course instructor	1, 2, 3, 4, 5
Entry into graduate programs/statistical employment	Percentage of students obtaining admission into graduate programs or obtaining a statistics related job	A student will receive a score of Meets (3) or better if they obtain admission into a graduate program or obtain a statistics related job in the next six months following graduation	90% of all graduating students	Six months following the student's graduation	Office Manager	1, 2, 3, 4, 5

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs
Graduation survey	Each student is encouraged to fill out an online survey on their experiences in the program. The survey specifically addresses the exposure of students to different topics in the program as well as their self-scored proficiency in each.	Each student will provide a self-evaluated proficiency score for each area in the survey.	75% of students surveyed will assign themselves a proficient score in each of the areas addressed by the survey.	The last week of Spring semester	Office Manager	1, 2, 3, 4, 5

ASSESSMENT METHODS-BY-OUTCOMES MATRIX

Assessment Method	Program Student Learning Outcome				
	1. Formulation of statistical problems	2. Essential skills for statistical analysis	3. Knowledge of data analysis	4. Effective oral and written communication skills	5. Working knowledge of popular statistical software
STAT 300 assessment question	F, D	F, D		F, D	
STAT 435 assessment question	S, D	S, D	S, D	S, D	S, D
Entry into graduate programs/ statistical employment	S, I	S, I	S, I	S, I	S, I
Graduation survey	S, I	S, I	S, I	S, I	S, I
<i>Note.</i> F=formative assessment, S=summative assessment, D=direct assessment, and I=indirect assessment.					