Year	2022-23
Course number and Name:	Math 1342: Statistics
Component area:	2: Mathematics
Number of sections offered:	6 sections
Number of students enrolled:	397 students
Contact Person (include email & Phone#)	Jacqueline Jensen-Vallin, jjensenvalli@lamar.edu, x7859

Summary of Continuous Improvement Efforts since Last Report

Provide a brief description of how assessment results have been used for core course improvement. Point to a specific example of how an assessment provided the department with data it could use for improvement and what that improvement was, if possible, also show evidence of the improvement. You may look at data from the two previous academic years to support this case.

Respond here: In Fall 2017, the state of TX passed HB 2223, which required corequisite education for underprepared students. The department of mathematics at LU took advantage of this change to reevaluate and redesign all of our first-year courses. For Math 1342 (introductory statistics), we redesigned the curriculum for the course to be entirely based in Excel, so that students have an opportunity to work with large data sets, and to focus more on interpretation than on formulas. Additionally, we piloted a project in this course, starting in Spring 2018, where students were given a real data set and asked to develop their own questions and do their own analysis of the data. The project asks students to work in pairs to complete data analysis in Excel, to interpret this analysis, and then to write a memo summarizing their findings. This project was expanded to all face-to-face sections in Fall 2018, and to all sections starting in Spring 2019. Since that time, the project data set, description, and rubric have all been revised based on feedback from faculty in those courses.

In Spring 2022, we measured critical thinking (Student (a) demonstrates an explanation of issues, (b) influence of context and assumptions, and (c) gives conclusions and outcomes demonstrating a synthesis of information), communication (Student demonstrates (a) control of syntax and mechanics, (b) content and purpose, and (c) develops the content and provides an interpretation), and quantitative skills (Student can (a) represent mathematical ideas symbolically, (b) can calculate and analyze information, and (c) can finalize their analysis). The following table indicates the percentage of students acceptable or proficient in each of these categories:

Communication	
(a) Control of syntax and mechanics	64%
(b) Content and purpose	51%

(c) Develops the content and provides an interpretation	51%
Critical Thinking	
(a) Demonstrates an explanation of issues	41%
(b) Influence of context and assumptions	57%
(c) Gives conclusions and outcomes demonstrating a synthesis of information	54%
Quantitative Skills	
(a) Represent mathematical ideas symbolically	28%
(b) Calculate and analyze information	42%
(c) Finalize analysis	45%

Course highlights Since Last Report

Identify and briefly discuss any changes made to the course since the last report.

Respond here:

We realized that our project had been posted on Chegg and so completing the course project was not encouraging growth in critical thinking, communication, and quantitative skills. So, for Fall 2022 we redesigned the project. While the general framework of the project remains the same, each section of the course assigns students to a subset of the data originally used, thereby giving each section of the course a unique (but related) project, making the use of Chegg less helpful. Scores increased slightly in communication, and in certain areas of critical thinking, as well as significantly in quantitative skills in 2023. We also updated the core assessment problem in Fall 2022, so the core assessment problem assigned in spring 2023 more accurately reflected the current content and focus of the course. In particular, since the course has evolved to rely heavily on computations in Excel, the updated core assessment problem does not require hand calculation or the use of formulas not otherwise used in the course.

Table 1. Assessment Results and Analysis for Current Cycle

Stage 1: PLAN			**STAGE 2: DO**		**Stage 3: STUDY**	
General Education Competencies Addressed in this Course:	**Assessment Method(s)** – e.g. pre/post tests, embedded questions, portfolio evaluation, rubric-scored essay; list only activities for which you are reporting assessment data	**Proficiency** – e.g. the proficient student will correctly answer 5 out of the 6 embedded questions on the final exam	**Benchmark** – e.g. 80% of students taking the final exam will correctly answer 5 of the 6 embedded questions on the final exam	**Results of course assessment(s)**	**Analysis of results** – e.g. strengths and weaknesses What does this data tell you? How will you use this data? How were data from the last cycle used to make changes during this cycle, and what were the results of those changes?	**Recommendations for Course based on assessment**
Communication (required)	Required core assessment problem	Student demonstrates (a) control of syntax and mechanics, (b) content and purpose, and (c) develops the content and provides an interpretation	70% of students are acceptable or proficient based on departmental rubric in each area.	For goal (a), 65% of students are acceptable or proficient. For goal (b), 45% of students are acceptable or proficient. For goal (c), 40% of students are acceptable or proficient.	We have not reached our goal of 70% of students being acceptable or proficient in this area, but have shown improvement since the last assessment.	We will continue to emphasize communication, and shall use the course project to assess this course. This gives the students more support in this process and can increase their growth, as they are given feedback over the course of the semester as

						the project progresses.
Critical Thinking (required)	Required core assessment problem	Student (a) demonstrates an explanation of issues, (b) influence of context and assumptions, and (c) gives conclusions and outcomes demonstrating a synthesis of information	70% of students are acceptable or proficient based on departmental rubric in each area.	For goal (a), 55% of students are acceptable or proficient. For goal (b), 40% of students are acceptable or proficient. For goal (c), 45% of students are acceptable or proficient.	We have not reached our goal of 70% of students being acceptable or proficient in this area, but have shown improvement since the last assessment.	We will continue to emphasize communication, and shall use the course project to assess this course. This gives the students more support in this process and can increase their growth, as they are given feedback over the course of the semester as the project progresses.
Select One: _x__Empirical & Quantitative Skills ___Teamwork ___Social responsibility ___Personal Responsibility	Required core assessment problem	Student can (a) represent mathematical ideas symbolically, (b) can calculate and analyze information, and (c) can finalize their analysis	70% of students are acceptable or proficient based on departmental rubric in each area.	For goal (a), 65% of students are acceptable or proficient. For goal (b), 65% of students are acceptable or proficient. For goal (c), 55% of students are acceptable or proficient.	We have not reached our goal of 70% of students being acceptable or proficient in this area, but have shown improvement since the last assessment.	We will continue to emphasize communication, and shall use the course project to assess this course. This gives the students more support in this process and can increase their growth, as they are given feedback over the course of the semester as

						the project progresses.
Select One: ___Empirical & Quantitative Skills ___Teamwork ___Social responsibility ___Personal Responsibility						

Table 2. Continuous Improvement Results Since Last Report

STAGE 4: ACT		
Actions/Goals based on data results **copy last cycles actions/goals and report on progress toward continuous improvement on those here*	**Status** *C=Complete* *P=Progressing* *N=No action taken*	**Discussion of status** *If C, describe efforts that led to accomplishment of actions/goals* *If P, provide update on progress made toward accomplishing actions/goals and what tasks remain* *If N, discuss why action toward accomplishing actions/goals has been delayed and what work will be initiated toward accomplishment.*
Update the course project to avoid the use of Chegg in completion of this project. This should improve communication, critical thinking, and quantitative skills as we make encourage to complete the work without outside resources.	P	The first revision of the project happened in 2022-2023, but instructor feedback is being used to revise again for Fall 2023 implementations.
Update the assessment problem to better reflect the current goals and standards of the course.	C	The previous version of the core assessment problem asked students to do calculations by hand, which was no longer a requirement of the course and may have led to overly low assessment data in 2022. The updated problem relies on Excel, and more accurately reflects the goals of the current curriculum.