**General Education Mathematics Outcome: FORM A: faculty report**

LSSU graduates will be able to analyze situations symbolically and quantitatively in order to make decisions and solve problems.

This assessment maps to LSSU’s Institutional Learning Outcomes by addressing ILO 2: Use of Evidence.

**Target Outcome, Quantitative:**80% of students will achieve or exceed Level 2 competency.

**Target Outcome, Symbolic:**80% of students will achieve or exceed Level 2 competency.

**Bloom’s Taxonomy Level for Assessment:** *Apply and/or Analyze*

**EXPECTED**

**OUTCOME:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **3 - Masters** | **2 – Meets** | **1 – Progressing** | **0 – Does Not Meet** |
| 1. **Question that is quantitative in nature and asks students to draw a conclusion or make a decision.** | Student completed the problem correctly and drew the appropriate conclusion. | Student set up the problem correctly and made minor mathematical errors, but drew an appropriate conclusion based on their answer **OR** student derived the correct answer mathematically, but drew an inappropriate conclusion. | Student set up the problem correctly but made minor mathematical errors **AND** an inappropriate conclusion was drawn based on their answer. | Student's work was incorrect and no progress was made toward drawing a conclusion. |
| 1. **Question that is symbolic in nature and asks students to draw a conclusion or make a decision.** | Student completed the problem correctly and drew the appropriate conclusion. | Student set up the problem correctly and made minor mathematical errors, but drew an appropriate conclusion based on their answer **OR** student derived the correct answer mathematically, but drew an inappropriate conclusion. | Student set up the problem correctly but made minor mathematical errors **AND** an inappropriate conclusion was drawn based on their answer. | Student's work was incorrect and no progress was made toward drawing a conclusion. |

**Assessment Results**

**Course: Semester:**

**Number of Course Sections: Instructor:**

**Total number of students completing the assessment**:

**Assessment Method** (*i.e., exam questions, presentation, research paper, etc*.): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Indicate the number of students who met or exceeded the expected outcome on each of the criteria:**

(*Note:* Recording data for those who scored below the expected outcome may also be useful for assessment).

**EXPECTED**

**OUTCOME:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **3** | **2** | **1** | **0** |
| 1. **Quantitative** | |  |  |  |  |
| 1. **Symbolic** | |  |  |  |  |

**Summarize the students’ strengths related to the outcome as evidenced in their course work.**

**Summarize the students’ weaknesses related to the outcome as evidenced in their course work.**

**Summarize the strengths and weaknesses of how your assessment method measured this General Education outcome.**

(*Examples of Mathematics Outcome assessment reporting follow*)

**Mathematics Examples**

*OUTCOME:* LSSU graduates will be able to analyze situations symbolically and quantitatively in order to make decisions and solve problems.

**Summarize the students’ strengths related to the outcome as evidenced in their work.**

|  |  |
| --- | --- |
| **Assessment Method** | **Example Summary** |
| Homework/Exams | Most students were able to calculate a regression model and use that to find further information. For the quantitative reasoning, 83.3% were successful with the outcome. While only 78.1% were successful with the symbolic question, most of those who did not achieve the expected outcome were still close to achieving it. |
| Exam questions | Students were able to draw a correct conclusion based on their work.  The students were able to show they understood not only reading a graph (symbolic) but also being able to draw conclusions about larger populations from their graph (quantitative). |
| Homework/Exams | Most students were able to perform the quantitative calculations required for developing their model.  They understood how to take the information given & apply a known formula to devise their model.  They also understood what the dependent variable was as well as to solve for it for the symbolic portion of this assessment. |

**Summarize the students’ weaknesses related to the outcome as evidenced in their work.**

|  |  |
| --- | --- |
| **Assessment Method** | **Example Summary** |
| Homework/Exams | Frequently absent students struggled with both the computation and the application of their findings.  This was a struggle for many courses this semester, not just in general education math classes. |
| Exam questions | Students’ weakest performance was on the symbolic question. The students had a hard time interpreting some of the graphical part of the question. |
| Homework/Exams | Misunderstanding questions, or process mistakes were the two weak areas. Students who misunderstood the symbolic question did not realize what variable they were trying to solve for or what it actually meant to solve for a variable.  In the quantitative portion, students made minor mistakes on calculations resulting in wrong answers. Missed assignments impacted Level 0 outcome scores. |

**Summarize the strengths and weaknesses of how your assessment method measured this General Education outcome.**

|  |  |
| --- | --- |
| **Assessment Method** | **Example Summary** |
| Exam questions | The quantitative problem had a good link to a tangible real world problem, which seems to have made it easier for students to accomplish. The symbolic question should be tied to a real world problem the next time the assessment is done. |
| Exam questions | The strength of the assessment is that both questions asked students to make a decision about different data/scenario based on the calculations they performed which is the main purpose of a statistics course. Since the scenarios presented in the questions are somewhat contrived to fit into a single problem, it is hard to determine how well this outcome measure would carry over for a student working with data from the real world that is not as “nicely contrived.” |
| Homework/Exams | Overall, students were able to show that they could develop and use models.  Students had solved the same types of questions multiple times throughout the semester, which gave them a chance to process the material through different lenses.  The misunderstanding in the symbolic question suggests that students may need help understanding the meaning of instructions. |