2018 – 19 Departmental Executive Summary

Department: Natural & Computer Sciences **Date:** 5/8/19

Members involved with analysis of artifacts: Robert Hermann, John Jurchen, Kristy Jurchen, Marcus Gubanyi, Dennis Brink, Kregg Einspahr, Kyle Johnson, Connie Callahan, Jen Fruend.

See #1 Undergraduate Program Assessment Plan: Student Outcomes for: *a) Student Outcome; b) Background; c) Question(s); d) Methodology*

Analysis of artifacts:

*1). **PERFORMANCE CRITERIA*** - How was data analyzed? (attach rubrics/scoring tools if used).* Artifacts were analyzed according to the attached rubric. Rubrics were sent to the faculty beforehand for review, and the departmental faculty met together and scored the artifacts through discussion and consensus.

Summary of RESULTS*:

1). Restate the assessment question(s) (from the Assessment plan):

Are students able to use appropriate methods to verify the accuracy and robustness of their results?

2). Summarize the assessment results. (A narrative summary is required. Charts, tables or graphs are encouraged but optional.)

A total of 20 artifacts were analyzed from the following courses: Chem 325, CS 392, Phys 382.

Course	Scores					
	1	2	3	4	5	Comments
Chem 325	1	0	3	3	0	Generally good use of statistics, but not explaining.
CS 392	0	0	1	2	2	Generally well done.
Phys 382	0	3	1	2	2	Wide range of results.
Total	1	3	5	7	4	
Total %	5%	15%	25%	35%	20%	

Overall, 16 of the 20 artifacts met the 3 or above criteria, 80%.

*3). **INTERPRETATION*** - Discuss how the results answer the assessment question(s).*

Overall we met the goal of 80% meeting the criterion for success, which was our goal. However, we were unable to assess a Biology artifact due to packing and the move out of Science, and we were unable to get the artifact we were hping for from CS for the same reason.

Generally, students are better able to apply the statistical methods than to explain what they did or to interpret the results.

4). Observations made that were not directly related to the question(s).

Sharing of Results: *When were results shared? Date:* 5/10/29 *How were the results shared? (i.e. met as a department)* We met as a department *Who were results shared with? (List names):* Kent Einspahr, Kregg Einspahr, Kyle Johnson, Jen Fruend, Connie Callahan, Kristy Jurchen, John Jurchen, Marcus Gubanyi, Tim Huntington, Dennis Brink, Brent Royuk, Rob Hermann

Discussion of Results –Summarize your conclusions including:

*1. **ACTION*-** How will what the department learned from the assessment impact:*

a. Teaching: We intentionally added more instruction into statistical tools in the past year, and the results of the assessment showed improvement. We will continue to add more instruction to the courses (many of which are offered only every other year) in order to make sure that students are able to use statistics.

b. *Assignment/course*: The CS program will probably use a different assignment next year, one that better matches the question. Physics will continue to emphasize statistics in Phys 382, probably adding another assignment for practice.

c. *Program:* The department is in the process of developing a course - Math 222 Statistics for Science - to give intentional, in-depth instruction into statistics and particularly their application to scientific data. We are hoping to offer the course in the Spring of 2020.

d. *Assessment:* None for now; the assessment was meaningful as it was.

*2. **IMPACT*-** What is the anticipated impact of the **ACTION*** on student achievement of the learning outcome in the next academic year?* It is hoped that the continued instruction in statistics in science classes, combined with the addition of the Statistics for Science class will help our students be well-prepared for the proper use and interpretation of scientific data.

3. **BUDGET IMPLICATIONS** *– Indicate budget requirements necessary for the successful implementation of the* **ACTION*** We will hire an adjunct faculty member to teach the statistics course in the spring, costing about $2400.
If action is taken – it is recommended that the same learning outcome and assessment plan be used for a second assessment cycle.
What assessment questions related to the learning outcome would the program like to investigate in the future? We will assess the same question for another year, in order to see the results of actions taken over the past few years.
Submitted by: Rob Herman **Reviewed by the Assessment Committee (date):** 5/10/19
Department Chair notified/additional action needed: na **BUDGET IMPLICATIONS – Assessment Committee Chair notified appropriate Dean:** yes **Approved & Posted to Assessment site:** 5/10/19