

#2. 2017 – 2018 Executive Summary: Undergraduate Program Assessment:

Student Outcomes – Gen Ed

Department: Department of Natural & Computer Sciences **Date:** 5/11/18

Members involved with analysis of artifacts: Kent Einspahr, Kregg Einspahr, Kyle Johnson, Jen Freund, Connie Callahan, Kristy Jurchen, John Jurchen, Marcus Gubanyi, Tim Huntington, Rob Hermann

See Undergraduate Program Outcome Assessment Plan: Student Outcomes – Gen Eds for: a) Learning 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):*

Can students use effective communication techniques to accurately explain scientific ideas?

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

A total of 40 artifacts were scored from three general education courses: Bio 110, Sci 331, and Sci 365.

The results are in the table below:

| Course | 1 | 2 | 3 | 4 | 5 |
|---------|----|-----|-------|-----|-------|
| Bio 110 | 0 | 1 | 2 | 5 | 2 |
| Sci 331 | 0 | 4 | 2 | 8 | 6 |
| Sci 365 | 0 | 3 | 3 | 3 | 1 |
| Total | 0 | 8 | 7 | 16 | 9 |
| Total % | 0% | 20% | 17.5% | 40% | 22.5% |

Overall, 80% scored a 3 or above, meaning we met our standard of success.

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

Overall we were pleased with our students' ability to explain scientific results clearly and correctly. While we just met our standard of 80% (and were lower than last year's 85%), we were pleased that over 60% of students scored a 4 or above, meaning that their answers were quite good, and anecdotally we noticed significant improvement from beginning to the end of some courses in our students' ability to write clearly. The most noticeable issue students showed was an inability to use citation styles appropriate to the discipline. Despite instruction on proper in-line citation styles and bibliographic styles, students often revert to a style appropriate to other disciplines (like using footnotes for in-line citations!) or invent some hybrid style of their own.

4). *Observations made that were not directly related to the question(s). (i.e. interrater reliability of the scoring tool was low)* Click or tap here to enter text.

Sharing of Results:

When were results shared? Date: 5/11/18 and 5/15/18

How were the results shared? (i.e. met as a department) Met as department to score and then analyze the results; the completed form was then shared electronically.

Who were results shared with? (List names): Kent Einspahr, Kregg Einspahr, Kyle Johnson, Jen Freund, Connie Callahan, Kristy Jurchen, John Jurchen, Marcus Gubanyi, Tim Huntington, 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:* Because the assessment showed that students can already explain scientific ideas correctly, we are not going to make significant changes. We are going to emphasize correct citation style for in-text citations, as this was the most widely-noticed problem in the artifacts.

b. *Assignment/course*: We plan to give students more examples of good writing style, references, and clear answers. We will continue to use SafeAssign (where appropriate), which has been a useful tool. And when possible we plan to give students more complete and clear display of their improvement in their assignments, so they can know what they are doing right and what they need to work on.

c. *Program*: We will focus on being consistent and insistent on proper in-text and bibliographic citation styles in all our science classes.

d. *Assessment*: While the Sci 365 assignment is great, we will probably use a different assignment next year, a shorter one.

2. **IMPACT***- *What is the anticipated impact of the ACTION* on student achievement of the learning outcome in the next academic year?* Students will continue to be able to explain scientific ideas correctly, and they will improve in their ability to cite references.

3. **BUDGET IMPLICATIONS** – *Indicate budget requirements necessary for the successful implementation of the ACTION** (i.e. an additional staff person, new equipment, additional sections of a course). None

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? The General Education Committee has chosen the area of Analysis for assessing next year. Our assessment question will be: “Are students able to use appropriate scientific techniques to correctly analyze a meaningful situation”.

Submitted by:Rob Hermann **Assessment Committee Reviewed:** 6/18/18

Department Chair notified/additional action needed:na

BUDGET IMPLICATIONS – Assessment Committee Chair notified appropriate Dean: na**Approved & Posted to**

Assessment site: 7/1/18