2020 – 21 Departmental Executive Summary

Department: Natural & Computer Sciences **Date:** May 20, 2021

Members involved with analysis of artifacts: Robert Hermann, John Jurchen, Kristy Jurchen, Marcus Gubanyi, Kent Einspahr, Dennis Brink, Kregg Einspahr, 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):
Can students demonstrate an appropriate level of knowledge of important facts, concepts, or processes in the scientific area. Specifically, do students know important facts, concepts, and processes of the discipline at a sufficient level to correctly describe them?
2). Summarize the assessment results. (A narrative summary is required. Charts, tables or graphs are encouraged but optional.)
A total of 57 artifacts were analyzed from the floolwing courses: Ag 210, Bio 344, Bio 345, Chem 325, CS 331, Phys 383.

Course	# Above 3	# Artifacts	% Meeting Criteria
Agri 210	4	7	57
Bio 344	10	12	83
Bio 345	10	14	71
Chem 325	7	10	70
CS 331	4	6	68
Phys 383	8	8	100

Overall, 43 of the 57 artifacts met the criteria of 3 or above, 75%.
*3). **INTERPRETATION** - Discuss how the results answer the assessment question(s).*
Overall we failed to meet the goal of 80% meeting the criteria of scoring a 3 or above, so we are unable to say that our students know important facts, concepts, and processes of the discipline at a sufficient level. This may be due to a number of factors: (1) Students are so used to having most factual information at their fingertips on their phone, so they are not memorizing information for tests; (2) Tests and other assessments in Science typically emphasize problem solving, analysis, and similar skills more than knowledge of facts, so students are not prioritizing memorizing factual information; (3) Our application of the assessment rubric to the artifacts in our disicpline may have been overly strict, since we so badly want our students to know our materiai, which may have lowered scores overall.
4). Observations made that were not directly related to the question(s).
The department faculty had difficulty coming to a consensus on the reasons for student difficulty in this area.

Sharing of Results: *When were results shared? Date:* May 20, 2021
How were the results shared? (i.e. met as a department) Met as a department and shared via email.
Who were results shared with? (List names): Robert Hermann, Brent Royuk, Kristy Jurchen, John Jurchen, Kregg Einspahr, Tim Huntington, Connie Callahan, Kyle Johnson, Jen Fruend, Kent Einspahr, Marcus Gubanyi, Dennis Brink.

Discussion of Results –Summarize your conclusions including:
*1. **ACTION**- How will what the department learned from the assessment impact:*
a. Teaching: Instructors will emphasize in their classes the need for students to learn (and memorize) important facts and knowledge as a part of their education.
b. *Assignment/course*: Instructors will practice assessing factual material more on in-class tests and quizzes, and give students opportunity to practice through more questions about facts in in-class discussion.
c. *Program:* We will consider the extent to which we emphasize and value knowledge versus other areas like analysis and problem-solving.
d. *Assessment:* We will plan to do a better job ensuring that all courses that expect to submit artifacts actually do so. We will also make sure that we collect artifacts that assess knowledge that was actually central to the course and emphasized that it will be asked.

2. **IMPACT*-** *What is the anticipated impact of the* **ACTION*** *on student achievement of the learning outcome in the next academic year?* We hope that these actions will improve students' ability to correctly present knowledge important to the area, and that we will assess artifacts that reflect knowledge central to the course.
3. **BUDGET IMPLICATIONS** – *Indicate budget requirements necessary for the successful implementation of the* **ACTION*** 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? Same as this year

Submitted by: Robert Hermann **Reviewed by the Assessment Committee (date):** 7/6/2021

Department Chair notified approved/additional action needed: Approved 7/6/2021
BUDGET IMPLICATIONS – Assessment Committee Chair notified appropriate Dean: na