

#4. Executive Summary: Undergraduate Program Assessment: Alternative Delivery

Submit to the Assessment Committee Chair via email.

Department: Bio **Date: 8/16/18** **Course(s): Bio 110**
Alternative Format(s) – select as many as are applicable: Dual Credit

Members (must include more than course instructor only) **involved with analysis of artifacts:**
Jennifer Freund, Rob Hermann,

See #3 Assessment Plan: Alternative Delivery: Student Outcomes for: a) *Course requirement evaluation; b) Student Outcome; c) Question(s); e) Methodology*

Analysis of artifacts:

1). Student Outcome: **PERFORMANCE CRITERIA*** - *How was data analyzed? (attach rubrics/scoring tools if used).* Given a classic biological scenario of Henrietta Lacks, students will relate multiple concepts of general biology to address issues of cancer, viral and organismal genetic diversity, environmental influences over life processes, and social implications of biological information. These outcomes are split into individual questions with a rubric to score each item. Both are attached.

2). **COMPARABILITY** – *How did you determine if the outcomes of the traditional and alternative deliver modes were comparable? (note “na” if delivery modes were not compared).* The response items were to be written independently by each participating student. The dual credit liason scored each item for each student in both dual credit and typical delivery sections. The total score was also calculated per participating student. A one-tailed t-test determined the significant mean differences or lack thereof per test item and total score for students enrolled in dual credit versus typical delivery sections.

Summary of RESULTS*:

1). *Restate the assessment question(s) (from the Assessment plan):* As a result of this class and activities within this class, the student shall be able to use basic biological principles and apply it to an everyday living senario. Specifically, I want to know if students can (a) recall biological principles, (b) select related principles for a given scenario, (c) apply the principle logically to solve a problem or explain a phenomenon, and (d) relate biological concepts to global or social contexts.

2). *Summarize the assessment results. A narrative summary is required. Charts, tables or graphs are encouraged but optional.* The results of the t-test for comparison of means were calculated for each test item and for the total score. For individual test items and the Total, the dual credit enrolled students scored significantly higher ($p < 0.05$) than the students enrolled in the on campus, typical delivery class. Therefore, it is safe to confirm that students enrolled in dual credit courses perform at least as well or better than the on campus, typical delivery students.

3). **INTERPRETATION*** - *Discuss how the results answer the assessment question(s).* Considering the content of the questions, students in both courses were knowledgeable about genetic variation across populations, particularly for humans but less so for viruses. In general, the dual credit students used more formal biological vocabulary and related expression of the disease more specifically to protein synthesis, whereas that detail was almost exclusively absent from the on campus, typical delivery course student responses. This provides a goal for on-campus delivery improvement, thus fueling a High Impact Learning Grant for this coming fall. Students in both sections were able to discuss some social implications of vaccination decisions and inequities of health care. Students in one off-campus dual credit class was quite detailed in social inequity, even providing examples from other countries.

4). *Observations made that were not directly related to the question(s). (i.e. interrater reliability of the scoring tool was low)* The dual credit liason scored each student response, so there was only one rater. This year, the delivery of the assessment was equitable through all courses--an improvement from last year, when I was unsure that the assessment was given in the same way in the dual credit location.

5). **How did the outcomes of the traditional and alternative format analysis compare?**

The alternative delivery students (dual credit) performed better or as well as on campus students.

Sharing of Results:

When were results shared? Date: 8/16/18

How were the results shared? (i.e. met as a department) emailed

Who were results shared with? (List names): Rob Hermann, Kyle Johnson, Jennifer Freund, Kristy Jurchen

Discussion of Results –Summarize your conclusions including:

1. **ACTION***- How will what was learned from the assessment impact the alternative format teaching of this course starting the next academic year? I will recommend to the alternative delivery instructors some specific resources for both vaccination issues, sexual assault and disease statistics, and social justice/global status of women information used in classes on campus. Additionally, I will share my adjustments to my class to improve biological concept application across contexts (aquaponics system and system-based thinking.) Otherwise, the actual biological concepts were very strong as conveyed by the student artifacts.

2. **IMPACT***- What is the anticipated impact of the **ACTION*** on student achievement of the learning outcome in the next academic year? I anticipate observing greater application of biological concepts (genetic variation, vaccine science, and protein synthesis) to personal, real-life scenarios--meaning, they will not merely report the science but attribute them to decision-making they will need to consider with regards to vaccines, sexuality, parenting, and environmental exposures. I will do this through the Aquaponics/Tilapia system and case studies/mainstream news articles.

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). n/a--my aquaponics system was funded through the High Impact Learning Grant and will have minimal or no on-going budgetary costs outside of electricity through the building.

Submitted via email to Assessment Committee Chair by: Jenn Freund

Reviewed by the Assessment Committee (date): 8/16/18

Submitter notified/additional action needed: na

BUDGET IMPLICATIONS – Assessment Committee Chair notified appropriate Dean: na

Approved & Posted to Assessment site: 8/16/18