2022– 23 Alternative Delivery Executive Summary

Submit to the BlackBoard Assessment Site.

Department: Math and Computer Science **Date:** 6/14/2024 **Course(s):** CS 131
Alternative Format(s) – select as many as are applicable: Dual Credit **Select** **Select**

Members (must include more than course instructor only) **involved with analysis of artifacts:** Marcus Gubanyi and Kent Einspahr

See Alternative Delivery Assessment Plan 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).* Each question on a common assessment portion of the final exam was assessed as correct (full points) or incorrect (no points). Questions are either 2 points or 3 points each. A students score will be on the common assessment will be the sum of their questions. For the purposes of dual credit assessment, a sample of questions was used from the final exam of the traditional section of CS 131 to compare with questions from each dual credit section.
2). **COMPARABILITY** – *How did you determine if the outcomes of the traditional and alternative delivery modes were comparable?* (note "na" if delivery modes were not compared). Determine statistically significant difference based on a t-test for independent samples and compare mean scores of sections.

Each section of dual credit score was compared against the baseline final exam score data from the traditional section.

Summary of RESULTS*:
1). Restate the assessment question(s) (from the Assessment plan): At the end of the course, are students enrolled in dual credit sections of CS 131 able to explain computer science concepts, interpret programs, and develop programs as well as traditional students?
2). Summarize the assessment results. A narrative summary is required. Charts, tables or graphs are encouraged but optional. Artifacts from 4 sections of CS 131 were collected, two of which were dual credit. We combined two dual credit sections taught by the same instructor. The dual credit sections used different common assessment questions from the final exam. The scores of the artifacts are as follows:

Comparison 1: 15 question common assessment with 35 points maximum
CS 131 Traditional Section: Average = 26.52
One CS 131 Dual Credit Section: Average = 27.36

Comparison 2: 5 question common assessment with 15 points maximum.
CS 131 Traditional Section: Average = 9.47
Two CS 131 Dual Credit Sections with same instructor: Average = 10.15

Performing two-tailed T-tests on each of the dual credit sections with the traditional section resulted in P-values of 0.63 for Comparison 1 and 0.61 for Comparison 2. Thus, we conclude there is not a statistically significant difference between the dual credit sections and the baseline traditional section.

*3). **INTERPRETATION*** *- Discuss how the results answer the assessment question(s).* Based on the result, students enrolled in dual credit sections of CS 131 are able to explain computer science concepts, interpret programs, and develop programs as well as traditional students.
4). Observations made that were not directly related to the question(s). (*i.e. interrater reliability of the scoring tool was low*) One DC section them performed signifcantly worse than the other. One section had 7 students with a mean score of 7.3. The other section had 6 students with a mean score of 13.5. The p-value for a t-test of these small samples is <0.001. The same instructor taught both classes, but the classes used different programming languages. The dual credit liaison will check in with the instructor to inquire about this difference .
5). ***How did the outcomes of the traditional and alternative format analysis compare*?** The outcomes were not significantly different, and the dual credit sections did have slightly higher average scores.

Sharing of Results: *When were results shared? Date:* 6/14/2023 *How were the results shared? (i.e. met as a department)* Communicated via email. *Who were results shared with? (List names):* Marcus Gubanyi, Kent Einspahr

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?* N/A *2.* **IMPACT*-** *What is the anticipated impact of the* **ACTION*** *on student achievement of the learning outcome in the next academic year?* N/A *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
Submitted by: Marcus Gubanyi **Assessment Committee Reviewed (date):** 8/13/24
Submitter notified approval/additional action needed: Approved **BUDGET IMPLICATIONS – Assessment Committee Chair notified appropriate Dean:** na