

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

Course: Math 122, Intro to Stats    Alternative Format: Other    Explain "Other" if selected: Dual Credit

Department:    Math    Date: Fall 2016 - Spring 2017

Members (must include more than course instructor only) involved with analysis of artifacts: Brian Albright, Ed Reinke

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). Each dual credit teacher submitted responses to a T-test hypothesis testing problem given on a test or quiz. These problems were graded using a rubric. The same problem from face-to-face students were also graded using the rubric. Scores for each category were averaged on a Likert-type scale. Scores from the dual credit students were compared to those from face-to-face students using a 2-sample T-test.

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). Scores were compared using a 2-sample T-test

#### Summary of **RESULTS**\*:

1). Restate the assessment question(s) (from the Assessment plan): Can students properly perform a T-test?

2). Summarize the assessment results. A narrative summary is required. Charts, tables or graphs are encouraged but optional. Detailed scores are shown in the attached Excel workbook. The scores are summarized below

#### Face-to-Face Students

| Category             | n  | Mean | StDev |
|----------------------|----|------|-------|
| States Hypotheses    | 34 | 2.64 | 0.849 |
| Calculates Test Stat | 34 | 2.65 | 0.774 |
| Conclusion           | 34 | 2.44 | 0.860 |

#### Dual Credit Students

| Category             | n  | Mean | StDev |
|----------------------|----|------|-------|
| States Hypotheses    | 32 | 2.19 | 0.535 |
| Calculates Test Stat | 32 | 2.63 | 0.751 |
| Conclusion           | 32 | 2.28 | 0.813 |

The results of the 2-sample T-tests are shown below (we tested the hypotheses that means are equal vs means are not equal)

| Category             | P-value |
|----------------------|---------|
| States Hypotheses    | 0.011   |
| Calculates Test Stat | 0.907   |
| Conclusion           | 0.440   |

3). **INTERPRETATION\*** - Discuss how the results answer the assessment question(s). We conclude that there is a statistically significant difference between scores in the category of States Hypotheses. There is not a statistically significant difference between scores in the categories of Calculates Test Statistic or Conclusion.

4). *Observations made that were not directly related to the question(s). (i.e. interrater reliability of the scoring tool was low)* Students in the dual credit classes often failed to define the parameter, resulting in lower scores in the category of States Hypotheses.

5). **How did the outcomes of the traditional and alternative format analysis compare?** (note "na" if delivery modes were not compared). **Similar in all categories except States Hypotheses**

**Sharing of Results:**

*When were results shared? Date:* 5/10/2017

*How were the results shared? (i.e. met as a department)* Met as a team

*Who were results shared with? (List names):* Brian Albright, Ed Reinke

**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?* Dual credit teachers will be reminded via email prior to the start of the 2017-2018 academic year that students should first define the parameter when doing a hypothesis test.

2. **IMPACT\***- *What is the anticipated impact of the ACTION\* on student achievement of the learning outcome in the next academic year?* Scores in the category of States Hypotheses for dual credit students will improve.

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

**Submitted via email to Assessment Committee Chair by:** 5/10/2017

**Reviewed by the Assessment Committee (date):** 5/10/17

**Submitter notified/additional action needed:** na

**BUDGET IMPLICATIONS – Assessment Committee Chair notified appropriate Dean:** na

**Approved & Posted to Assessment site:** 5/10/17