**Student Outcome Observation Report for Term 24-2**

**items 1-4 can be completed prior to the assessment event**

1. **Outcome Details.**
   * 1. Outcome: Student Outcome 1 – Develop and conduct experiments or test hypotheses, analyze and interpret data, and use scientific judgment to draw conclusions.
     2. Performance Indicators:
        + Design a study, employ statistical inference, and draw conclusions using formal modeling.
2. **Observation Details.** 
   * 1. Course Directors’ name: COL Nick Clark
     2. Number of Applied Statistics and Data Science majors assessed, by graduating class:

Class of 2024: 10

Class of 2025: 3

* + 1. Course: MA478 – Generalized Linear Models
    2. Name of observed event(s)*:* Final Project
    3. Was this an individual or team event? Individual
    4. Description of observed event.

The final project is a written report analyzing burglary data in Chicago. The general question the students must address is, what are the factors that contribute to burglaries in the city.

* + 1. Data evaluated and how it was gathered:

Students submitted a report that was to be no longer than 15 pages. The report was evaluated by the instructor. Each report was evaluated on its abstract, introduction, literature review, methodology, results, and discussion/conclusions. Employing statistical inference and drawing conclusions was evaluated by looking at the score the students received on results and discussion/conclusions.

1. **Rubric.**

Students were scored on their ability to interpret model parameters, including both practical and statistical significance, and to communicate the results to an audience who may have some statistical background but may be unfamiliar with the particular models used by the students. The scores were out of 90 points (55 for inference, 35 for conclusion/discussion)

**All scores were converted to a percentage for evaluations below**.

* 1. Green: Met standard – Score on methodology section > 85% (77/90)
  2. Amber: Met standard with concerns – Score on methodology section between 65% and 85% (59/90 – 76/90)
  3. Red: Failed to meet standard – Score on methodology section < 65%. (< 58/90)

1. **Pre-observation identification of the overall Acceptable standard.** At least 80% must meet the standard (score of 1 or 2).

**must be completed after gathering the assessment data**

1. **Course Directors’ Assessment.** 
   * 1. Overall assessment. Based on the overall ***Acceptable*** standard specified in item 4 above, the overall performance of ASDS majors on this observed event was: *(Circle one:)*

* *Green: Acceptable performance*
* *Amber: Acceptable performance, but weak performance or weak evaluation event/conditions for the SO*
* *Red: Unacceptable performance, note when Unacceptable performance, but weak evaluation event/conditions for the SO Unacceptable performance*
  + 1. Justification for overall assessment.

Score Total %

1 10 77%

2 3 23%

3 0 0

* + 1. If the overall assessment is Unacceptable or weak, give your best educated guess as to why this performance occurred.

NA

* + 1. If the overall assessment is Exceptional or otherwise strong, give your best educated guess as to what we are (or the Academy is) doing to develop the knowledge, skills, and/or behaviors demonstrated by the students.

N/A

* + 1. Notable observations. Include any other strengths, weaknesses, or trends discovered when observing student work.

Students struggled interpreting parameters for complex models. In general, they performed well in tying back to the original statistical question and conducting a thorough summary/conclusion, but their inference was a bit weak.

* + 1. Recommendations for improvement.

We need to figure out a better way to assess ‘designing a study’ In MA478 the data are already given to the student and we don’t focus much on experimental or study design We either need to modify MA478 to explicitly include this, or we need to look elsewhere to assess that part of the PI.

Currently the course objective that this project assesses is “When faced with a real-world problem, be able to select and ethically execute appropriate statistical modeling techniques to gain insight into the problem to help solve it.” Which does not address designing a study. However, the project does serve as a good chance to assess employing statistical inference and drawing conclusions.

* + 1. Data summary and archive. Attach a summary of individual performance and if feasible archive with the OMT the actual data. Explicitly state here the location of the archived data.

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| |  |  | | --- | --- | | Asuncion | 89 | | Blackmon | 84 | | Chrisman | 80 | | Hild | 84 | | Hyatt | 75 | | Kim | 75 | | Klein | 80 | | Palchak | 79 | | Parcell | 78 | | Rohan | 80 | | Villanti | 83 | | Watson | 65 | | Wong | 85 | |  |

Archived data are stored in the archived AY 25-1 MA478 course folder on the D/Math SharePoint under Graded Events -> Report Feedback