**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 3 – Formulate or design a system, process, procedure, or program to meet desired needs.
     2. Performance Indicators:
        + Leverage existing packages and tools to solve computational problems.
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)*:* Term End Exam
    3. Was this an individual or team event? Individual
    4. Description of observed event.

The term end exam (final) was a data analysis project where the students were given a dataset and asked to produce (in 3.5 hours) a summarized report using at least 3 different statistical models to address a given research question. The students were also given a ‘kaggle’ style scoreboard so they could examine the predictive performance of their model compared to their classmates, but this was, in a lot of ways, a red herring as the project (as was explicitly told to the students) was to build explainable models.

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

Students submitted a report that was to be no longer than 3 pages. Here we evaluated the students abilities to use R to create three different models.

1. **Rubric.**

The students were scored, in this section, out of 75 points. Scoring was generous and if students were able to successfully generate three distinct models they typically scored 70 points or higher on the section.

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

* 1. Green: Met standard – Score on model section > 92% (70/75)
  2. Amber: Met standard with concerns – Score on models section between 86% and 92% (61/75 – 69/75)
  3. Red: Failed to meet standard – Failed to create and turn in three distinct models using R (<60/75)

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 5 38.5%

2 5 38.5%

3 3 23%

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

The students struggled to create code in a time constrained environment. Even when given code, many did not do a good job using the given code and modifying it to create new models. I attribute this to the fact that I did not do a lot of live coding in class and assumed the students were downloading the code and following along in the classroom. We may need to pivot to some in class labs to allow them more dedicated R training in the classroom. In general, I feel that the students in this cohort are better at Python than they are at R due to the focus in other classes. They aren’t able to read R as well and generate new code (especially again when we are time constrained)

* + 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.

The students had a difficult time reading and understanding code.

* + 1. Recommendations for improvement.

As discussed above, we should focus some more in class time or directed out of class assessments on their ability to code in R. By this time, they have had multiple touchpoints in Python, but generalized linear mixed models are much easier implemented in R. We may want to relook the linear algebra treatment of linear regression we do early in the course and perhaps move to more R coding focused exercises.

* + 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 | 60 | | Blackmon | 60 | | Chrisman | 75 | | Hild | 75 | | Hyatt | 65 | | Kim | 70 | | Klein | 65 | | Palchak | 75 | | Parcell | 65 | | Rohan | 60 | | Villanti | 70 | | Watson | 65 | | Wong | 65 | |  |

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