



**Data Collection:** Comprehensive exams were collected by the department assessment coordinator. The problem was scored by the faculty for readability, validity and fluency using the rubric found in Appendix A.

**Data Analysis:**

Course Assessed:

MATH 692 Graduate Capstone

**Math 692, PLO 3/Masters**

**Problem 5:** Consider the equation  $e^x = 3x^2$  (a) Prove that the equation has exactly three real solutions. (b) Let  $\alpha$  be the largest of the three solutions. Use Newton's Method to find an approximation of  $\alpha$  with an absolute error of less than  $10^{-7}$ .

|                    | <b>Missing</b> | <b>Emerging</b> | <b>Developing</b> | <b>Mastering</b> |
|--------------------|----------------|-----------------|-------------------|------------------|
| <b>Readability</b> | <b>0%</b>      | <b>0%</b>       | <b>20%</b>        | <b>80%</b>       |
| <b>Validity</b>    | <b>0%</b>      | <b>0%</b>       | <b>0%</b>         | <b>100%</b>      |
| <b>Fluency</b>     | <b>0%</b>      | <b>0%</b>       | <b>40%</b>        | <b>60%</b>       |

These scores indicate that 100% of the students have mastered the ability to write a valid solution, 80% mastered writing a readable solution and 60% have mastered writing a fluent solution. Only 40% of the students are still developing writing fluent solutions. The department should consider strategies to increase the percentage of students mastering this communication skill.

**Problem 4: Prove that a series of functions converges to a function that is continuous on  $\mathbb{R}$ .**

**E. Assessment Plans for Next Year**

## Communication RVF Rubric – Readability, Validity, Fluency

|             | Missing (0)   | Emerging (1)   | Developing (2)  | Mastering (3)                                      |
|-------------|---|--|---|--|
| Readability | Informal or non-mathematical language is used. There is misuse of notation/symbols. | Some improper mathematical language or notation is used. | Mostly proper mathematical language and notation is used. | Proper mathematical language and notation is used. |

