

## General Education Student Learning Report (rev. 7/15)

Fall 2022 – Spring 2023

# Department of Mathematics & Physical Sciences

Effectively assessing a degree program should address a number of factors:

- 1) Valid student learning outcomes should be clearly articulated;
- 2) Valid assessment measures should be used, consistent with the standards of professional practice;
- 3) There should be evidence that assessment data are being used by faculty to make necessary instructional or assessment changes; and there should be evidence that instructional or assessment changes are being implemented to improve student learning.

### **Relationship of Degree Program Learning Outcomes to Departmental and University Missions**

| <b>RSU Mission</b>                                                                                                                                                                                                                       | <b>General Education Mission</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Our mission is to ensure students develop the skills and knowledge required to achieve professional and personal goals in dynamic local and global communities                                                                           | General Education at Rogers State University provides a broad foundation of intellectual skills, knowledge, and perspectives to enable students across the University to achieve professional and personal goals in a dynamic local or global society.                                                                                                                                                                                                                                                                         |
| <b>RSU Commitments</b>                                                                                                                                                                                                                   | <b>General Education Outcomes</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| To provide quality associate, baccalaureate, and graduate degree opportunities and educational experiences which foster student excellence in oral and written communications, scientific reasoning, and critical and creative thinking. | <ol style="list-style-type: none"> <li>1) Think critically and creatively.</li> <li>2) Acquire, analyze, and evaluate knowledge of human cultures and the physical and natural world.</li> <li>3) Use written, oral, and visual communication effectively.</li> <li>4) Develop an individual perspective on the human experience, and demonstrate an understanding of diverse perspectives and values.</li> <li>5) Demonstrate civic knowledge and engagement, ethical reasoning, and skills for lifelong learning.</li> </ol> |
| To promote an atmosphere of academic and intellectual freedom and respect for diverse expression in an environment of physical safety that is supportive of teaching and learning.                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| To provide a general liberal arts education that supports specialized academic programs and prepares students for lifelong learning and service in a diverse society.                                                                    | <ol style="list-style-type: none"> <li>1) Think critically and creatively.</li> <li>2) Acquire, analyze, and evaluate knowledge of human cultures and the physical and natural world.</li> <li>3) Use written, oral, and visual communication effectively.</li> <li>4) Develop an individual perspective on the human experience, and demonstrate an understanding of diverse perspectives and values.</li> <li>5) Demonstrate civic knowledge and engagement, ethical reasoning, and skills for lifelong learning.</li> </ol> |
| To provide students with a diverse, innovative faculty dedicated to excellence in teaching, scholarly pursuits, and continuous improvement of programs.                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| To provide university-wide student services, activities, and resources that complement academic programs.                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| To support and strengthen student, faculty, and administrative structures that promote shared governance of the institution.                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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| To promote and encourage student, faculty, staff, and community interaction in a positive academic climate that creates opportunities for cultural, intellectual, and personal enrichment for the university and the communities it serves. |  |
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## PART 1

### Discussion of Instructional Changes Resulting from 2021-2022 General Education Student Learning Report

List and discuss all instructional or assessment changes proposed in Part 4 of last year's General Education Student Learning Report, whether implemented or not. Any other changes or assessment activities from last year, but not mentioned in last year's report, should be discussed here as well. Emphasis should be placed on student learning and considerations such as course improvements, the assessment process, and the budget. If no changes were planned or implemented, simply state "No changes were planned or implemented."

| Instructional or Assessment Changes                                                                                                                                                                                                                              | Changes Implemented (Y/N) | Impact of Changes on General Education Curriculum or Budget                                                                                                                                                                                                                |
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| Remaining general education courses GEOL 1114 Physical Geology, GEOL 2124 Astronomy, PHYS 1014 General Physical Science, CHEM 1315 General Chemistry I, CHEM 1104 Princ. of Chemistry, and PHYS 1114 General Physics I will be assessed starting from Fall 2022. | N                         | Assessment of remaining general education courses will help to improve the overall quality of general education curriculum which will benefit the students. No budget changes. Plan to implement these starting from Fall 2023.                                            |
| A new pathway course 'Functions and Modeling' (MATH 1423) was offered from Spring of 2023 designed for students in agriculture, business, life/health science, or social science majors and started assessing.                                                   | Y                         | Introduction of this new pathway course will help students in agriculture, business, life/health science, or social science majors to complete their Gen. Ed. math requirement and to increase graduation rates according to the math pathways project. No budget changes. |

## PART 2

### Discussion of the University Assessment Committee's 2021-2022 Peer Review Report

[Complete this part only if the general education course(s) was among those that were peer reviewed last year.] The University Assessment Committee in its Degree Program Peer Review Report provided feedback and recommendations for improvement in assessment. List or accurately summarize all feedback and recommendations from the committee, and state whether they were implemented or will be implemented at a future date. If they were not or will not be implemented, please explain why. If no changes were recommended last year, simply state "No changes were recommended."

| Feedback and Recommended Changes from the University Assessment Committee | Suggestions Implemented (Y/N) | Changes that Were or Will Be Implemented, or Rationale for Changes that Were Not Implemented |
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| No changes were recommended.                                              |                               |                                                                                              |

### PART 3

#### Analysis of Evidence of Student Learning Outcomes

The five General Education Outcomes are listed below. For each outcome, indicate the General Education courses being assessed, and provide a brief narrative of the assessment measures and performance standards used, as well as the sampling methods and sample sizes. For each measure, document the results of the activity measured and draw any relevant conclusions related to strengths and weaknesses of their performance. Finally, indicate whether the performance measure was met or not.

#### OUTCOME 1: Think critically and creatively.

| A. Course                   | B. Assessment Measures | C. Performance Standards                                                                          | D. Sampling Methods                         | E. Sample Size (N)                                      | F. Results                                                                                                                                                                           | G. Conclusions                                                                                                                                                | H. Performance Standards Met (Y/N)                                                                                                                              |
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| Math 1513 – College Algebra | 1a. All chapter exams. | 1a. 70% of students will score 70% or better on the average of all college algebra chapter exams. | 1a. All available college algebra students. | 1a. 383<br>On-Ground: 193<br>Blended: 23<br>Online: 167 | 1a. Overall 286/383 (75%) scored 70% or better on the average of all college algebra chapter exams.<br><br>On-Ground: 139/193 (72%)<br>Blended: 19/23 (83%)<br>Online: 128/167 (77%) | 1a. Overall performance in chapter exams was above the expected standard by 5% for this year. It is a 10% increase from 2021/22 (65% to 75%).<br>Chapter exam | 1a.<br>Y (2011-12)<br>Y (2012-13)<br>Y (2013-14)<br>Y (2014-15)<br>Y (2015-16)<br>N (2016-17)<br>N (2017-18)<br>N (2018-19)<br>No data (2019-20)<br>N (2020-21) |

| N (2021-22)<br>Y (2022-23)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |
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| <p>performance of students in all three modalities on-ground, blended, and online sections were meeting the expected standard. One possible reason being the improvement of co-requisite student results compared to last year from 50% to 65%. That may be due to scheduling of co-req sessions right before and after the main class.</p> <p>Note: Overall Co-requisite Model student success 57/88 (65%) compared to other students 229/295 (78%).</p> <p>Out of several reasons, faculty see that although there is a big improvement, the lack of</p> |  |  |

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|                                                                                                                                                                                                                 |                                                                                                                             |                                                                           |                                                                    |                                                                                                           |                                                                                                                                                                                                                                                                                                                                           | student preparation for chapter exams and lack of dedication among some of the co-requisite students as two main reasons for not getting to the expected standards. | 1b. Y |
| 1b. Students were assessed on four different course components using assignments:<br>(1) Function Operations and Composition<br>(2) Zeros of Polynomial Functions<br>(3) Variation<br>(4) Logarithmic Functions | 1b. 70% of all College Algebra students will perform at a 70% level or better in each of the four listed course components. | 1b. All available college algebra students who completed the assignments. | 1b.<br>(1) 383<br><br>On-Ground: 193<br>Blended: 23<br>Online: 167 | 1b.<br>(1) 303/383 (79%)<br><br>On-Ground: 152/193 (79%)<br>Blended: 15/23 (65%)<br>Online: 136/167 (81%) | 1b.<br>(1) Students in On-ground and Online sections did well compared to the students in Blended mode for this course component.<br>Overall students who understand Function Operations are above the standards expected.<br><br>(2) Overall, students who understand concepts related to Zeros of Polynomial Functions met the required |                                                                                                                                                                     |       |

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|  |  |  |  |  |                                                         | standards expected. Students in Blended, sections did not meet the performance standard for this course component.                                                                                                |
|  |  |  |  |  | (3) 383<br>On-Ground: 193<br>Blended: 23<br>Online: 167 | (3) 308/383(80%)<br>On-Ground: 145/193 (75%)<br>Blended: 13/23 (57%)<br>Online: 150/167 (90%)                                                                                                                     |
|  |  |  |  |  | (4) 383<br>On-Ground: 193<br>Blended: 23<br>Online: 167 | (4) 326/383 (85%)<br>On-Ground: 154/193 (80%)<br>Blended: 18/23 (78%)<br>Online: 154/167 (92%)                                                                                                                    |
|  |  |  |  |  |                                                         | (3) Students in On-ground and Online sections did well compared to the students in Blended mode for this course component. Overall, students who understand concepts related to variation met expected standards. |
|  |  |  |  |  |                                                         | (4) Students in all three modalities met the performance standard for this course component and understand the concepts                                                                                           |

|                           |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                        |                            |                                                                                                                           |                                                                                                                                                                                                                |                                                                                                                 |                                                                                                                                                                                                                                                                                                              |  |
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|                           |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                        |                            |                                                                                                                           |                                                                                                                                                                                                                |                                                                                                                 | related to Logarithmic Functions.<br><br>Overall, standards were met for all of the four course components. Students seem to understand what is expected from them related to these important course components that help them increase their critical and creative thinking, and problem-solving abilities. |  |
| GEOL 1014 – Earth Science | 1c. Term Project: Students were expected to acquire and analyze data that is scientifically sound. These data are the initial foundation for a term project that requires the student to: 1. Evaluate the validity of the data | 1c. 70% of the GEOL 1014 students will score at the 70% level or higher on data acquisition and analysis for their term project. Their research data is reviewed and graded for scientific validity as well as their interpretation of | 1c. All GEOL 1014 students | 1c. 115 (2011-12)<br>116 (2012-13)<br>275 (2013-14)<br>217 (2014-15)<br>204 (2015-16)<br>125 (2016-17)<br>179 (2017 – 18) | 1c. 100/115 (87%)<br>2011-12<br>88/116 (75.8%)<br>2012-13<br>238/275 (86.5%)<br>2013-14<br>170/217 (78.3%)<br>2014-15<br>150/204 (73.5%)<br>2015-16<br>81/125 (64.8%)<br>2016-17<br>125/179 (70.1%)<br>2017-18 | 1c. Performance standard was met.<br><br>Performance standard was met for six of the last seven academic years. | 1c.<br>Y (2011-12)<br>Y (2012-13)<br>Y (2013-14)<br>Y (2014-15)<br>Y (2015-16)<br>N (2016-17)<br>Y (2017-18)<br>No data were provided this year.                                                                                                                                                             |  |

|                                       | 2. Analyze the data in the context of what earth science process classification each event datum represents.                                                                                                                                                                                                                                            | the area of earth science impact.                                                                                                                                                                                                                                                                   |                                                       |                                                                                                                           |                                                                                                                                                                                                                                                                                                      |                                                                                                          |                                                                                                                                               |  |
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|                                       | 1d. Term Project: Students were required to analyze data that is scientifically sound. These data are the initial foundation for their term project (discussed in Part 1 above). Once they determine the validity of the data, they then have to analyze the data in the context of what earth science classification type each event datum represents. | 1d. 70 % of all GEOL 1014 Earth Science students will score at the 70% level or higher on the overall data acquisition and analysis for their term project. Their research data is reviewed and graded for scientific validity as well as their interpretation of the area of earth science impact. | 1d. All GEOL 1014 students                            | 1d. 115 (2011-12)<br>116 (2012-13)<br>275 (2013-14)<br>217 (2014-15)<br>204 (2015-16)<br>125 (2016-17)<br>179 (2017 – 18) | 1d. The following data summarizes the students' final scores on the data acquisition for the term project:<br>98/115 (85%) (2011-12)<br>92/116 (79%) (2012-13)<br>238/275 (87%) (2013-14)<br>155/217 (78%) (2014-15)<br>150/204 (74%) (2015-16)<br>81/125 (65%) (2016-17)<br>125/179 (70%) (2017-18) | 1d. Performance standard was met. Performance standard was met for six of the last seven academic years. | 1d. Y (2011-12)<br>Y (2012-13)<br>Y (2013-14)<br>Y (2014-15)<br>Y (2015-16)<br>N (2016-17)<br>Y (2017-18)<br>No data were provided this year. |  |
| MATH 1503- Math for Critical Thinking | 1e. All chapter exams.                                                                                                                                                                                                                                                                                                                                  | 1e. 70% of students will score 70% or better on the average of all Math for Critical Thinking chapter                                                                                                                                                                                               | 1e. All available Math for Critical Thinking students | 1e. 101<br>On-Ground: 82<br>Blended: N/A<br>Online: 19                                                                    | 1e. Overall 61/101 (60%) scored 70% or better on the average of all Math for Critical Thinking chapter exams.                                                                                                                                                                                        | 1e. Overall performance in chapter exams was below the expected standard for this year.                  | 1e. N (2017-18)<br>N (2018-19)<br>No data were provided this year.                                                                            |  |

|                                   |                        |                                                                                                          |                                                            |                                                        |                                                                                                                                                                           |                                                                                                                                                                                                                                                    |                                                                                                                                                               |  |
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|                                   |                        | exams.                                                                                                   |                                                            |                                                        |                                                                                                                                                                           | On-Ground: 54/82<br>(66%)<br>Blended: N/A<br>Online: 7/19<br>(37%)                                                                                                                                                                                 | Faculty will monitor to see if it occurs continuously.<br>Note: Overall Co-requisite Model student success 48/73 (66%) compared to other students 13/28 (46%) |  |
| MATH 1423- Functions and Modeling | 1e. All chapter exams. | 1e. 70% of students will score 70% or better on the average of all Functions and Modeling chapter exams. | 1e. All available Math for Functions and Modeling students | 1e. 22<br>On-Ground: N/A<br>Blended: N/A<br>Online: 22 | 1e. Overall 12/22 (55%) scored 70% or better on the average of all Math for Critical Thinking chapter exams.<br><br>On-Ground: N/A<br>Blended: N/A<br>Online: 12/22 (55%) | 1e. Overall performance in chapter exams was below the expected standard for this year. Faculty will monitor to see if it occurs continuously.<br>Note: Overall Co-requisite Model student success 3/8 (38%) compared to other students 9/14 (64%) | 1e.<br><b>N (2022-23)</b>                                                                                                                                     |  |
| MATH 1613- Trigonometry           | 1f. All chapter exams. | 1f. 70% of students will score 70% or better on the average of all Trigonometry chapter exams.           | 1f. All available Trigonometry students                    | 1f. 103<br>On-Ground: 52<br>Blended: N/A<br>Online: 51 | 1f. Overall 72/103 (70%) scored 70% or better on the average of all Trigonometry chapter exams.<br><br>On-Ground: 42/52 (81%)                                             | 1f. Overall performance in chapter exams was meeting the expected standard. Students seem to understand required Trig                                                                                                                              | 1f.<br>Y (2017-18)<br>N (2018-19)<br>No Data (2019-20)<br>N (2020-21)<br>Y (2021-22)<br><b>Y (2022-23)</b>                                                    |  |

|                                  |                                                                                                                                                                     |                                                                                                                                                |                                                                                      |                                                                                                                                               |                                                                                                                                                                                                                                                                                                                     | Blended: N/A<br>Online: 30/51 (59%) | concepts to the<br>required<br>standards.                                                                                                                         |  |
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| MATH<br>1715-<br>Precalc<br>ulus | 1g. All chapter<br>exams.                                                                                                                                           | 1g. 70% of<br>students will<br>score 70% or<br>better on the<br>average of all<br>precalculus<br>chapter<br>exams.                             | 1g. All<br>available<br>precalculus<br>students.                                     | 1g. N/A<br><br>On-Ground:<br>N/A<br>Blended: N/A<br>Online: N/A                                                                               | 1g. No data were<br>available as the<br>course wasn't taught<br>during this academic<br>year.<br><br>On-Ground: N/A<br>Blended: N/A<br>Online: N/A                                                                                                                                                                  | 1g. N/A                             | 1g.<br>N (2018-19)<br>No Data (2019-<br>20)<br>No Data (2020-<br>21)<br>No Data (2021-<br>22)<br><b>No Data as<br/>course was<br/>not offered<br/>(2022-2023)</b> |  |
|                                  | 1h. Students<br>were assessed<br>on two different<br>course<br>components<br>using<br>assignments:<br>(1) Functions<br>(Non-Trig)<br>(2) Trigonometric<br>Functions | 1h. 70% of all<br>Precalculus<br>students will<br>perform at a<br>70% level or<br>better in each<br>of the two<br>listed course<br>components. | 1h. All<br>available<br>Precalculus<br>students who<br>completed the<br>assignments. | 1h.<br>(1) N/A<br><br>On-Ground:<br>N/A<br>Blended: N/A<br>Online: N/A<br><br>(2) N/A<br><br>On-Ground:<br>N/A<br>Blended: N/A<br>Online: N/A | 1h.<br>(1) No data were<br>available as the<br>course wasn't taught<br>during this academic<br>year.<br><br>On-Ground: N/A<br>Blended: N/A<br>Online: N/A<br><br>(2) No data were<br>available as the<br>course wasn't taught<br>during this academic<br>year.<br><br>On-Ground: N/A<br>Blended: N/A<br>Online: N/A | 1h.<br>(1) N/A<br><br>(2) N/A       | 1h.<br>Y (2018-19)<br>No Data (2019-<br>20)<br>No Data (2020-<br>21)<br>No Data (2021-<br>22)<br><b>No Data as<br/>course was<br/>not offered<br/>(2022-2023)</b> |  |

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| Math 1413 – Introduction to Statistics | 1i. All chapter exams.                                                                | 1i. 70% of students will score 70% or better on the average of all Introduction to Statistics chapter exams.               | 1i. All available Introduction to Statistics students.                               | 1i. 190<br>On-Ground: 86<br>Online: 76<br>Web-based: 28 | 1i. Overall 151/190 (79%) scored 70% or better on the average of all Introduction to Statistics chapter exams.<br><br>On-Ground: 61/86 (71%)<br>Online: 63/76 (83%)<br>Web-based: 27/28 (96%) | 1i. Overall performance in chapter exams was above the expected Performance standard for this year by 9%. Much improved performance from students in the co-req model is evident. Out of several reasons, scheduling of co-req support classes right before or after main class may also have helped for that better performance. | 1i. N (2020-21)<br>N (2021-22)<br><b>Y (2022-23)</b> |
|                                        | 1j. Students were assessed on Hypothesis testing: Testing a claim about a proportion) | 1j. 70% of all Introduction to Statistics students will perform at a 70% level or better on Hypothesis testing assignment. | 1j. All available Introduction to Statistics students who completed the assignments. | 1j. 190<br>On-Ground: 86<br>Online: 76<br>Web-based: 28 | 1j. 123/190 (65%)<br><br>On-Ground: 55/86 (64%)<br>Online: 47/76 (62%)<br>Web-based: 21/28 (75%)                                                                                              | 1j. Performance standard was not met. However, there is a big improvement from last year's 51% to this year's 65%. Overall, out of several reasons, faculty see that lack of                                                                                                                                                      | 1j. N (2020-21)<br>N (2021-22)<br><b>N (2022-23)</b> |

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|                        |                                                                                                                                                   |                                                                                                                |                                                                      |                                                                                                                                 |                                                                                                                                                                     |                                                                                                                                                                                                    | effort to complete this assignment from some students as this is an assignment assigned toward the end of the semester (during the last week or two). |  |
| Math 2264 – Calculus I | 1k. All four hourly chapter exams.                                                                                                                | 1k. 70% of students will score 70% or better on the average of all four hourly chapter exams.                  | 1k. All available Calculus I students.                               | 1k. 12<br>On-Ground: 12<br>Blended: N/A<br>Online: N/A                                                                          | 1k. Overall 12/12 (100%) scored 70% or better on the average of all four hourly chapter exams.<br><br>On-Ground: 12/12 (100%)<br>Blended: N/A<br>Online: N/A        | 1k. Overall, students seem to understand concepts taught in this course that help them increase their critical and creative thinking, and problem-solving abilities.                               | 1k. Y (2021-22)<br>Y (2022-23)                                                                                                                        |  |
|                        | 1l. Students were assessed on three different course components related to concepts:<br>(1) Limit and Asymptotes<br>(2) Rates<br>(3) Optimization | 1l. 70% of all Calculus I students will perform at a 70% level or better on assignments from these components. | 1l. All available Calculus I students who completed the assignments. | 1l.<br>(1) 4<br><br>On-Ground: 4<br>Blended: N/A<br>Online: N/A<br><br>(2) 4<br><br>On-Ground: 4<br>Blended: N/A<br>Online: N/A | 1l.<br>(1) 4/4 (100%)<br><br>On-Ground: 4/4 (100%)<br>Blended: N/A<br>Online: N/A<br><br>(2) 4/4 (100%)<br><br>On-Ground: 4/4 (100%)<br>Blended: N/A<br>Online: N/A | 1l. Students seem to understand well the concepts taught in these course components to the standards expected that help them increase their critical and creative thinking, and solving abilities. | 1l. Y (2021-22)<br>No data were available this year.                                                                                                  |  |

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|  |  |  |  | (3) 4                                       | (3) 3/4 (75%)                                       | problem-solving abilities. |  |
|  |  |  |  | On-Ground: 4<br>Blended: N/A<br>Online: N/A | On-Ground: 3/4 (75%)<br>Blended: N/A<br>Online: N/A |                            |  |

**OUTCOME 2: Acquire, analyze, and evaluate knowledge of human cultures and the physical and natural world.**

| A. Course                 | B. Assessment Measures                                                                                                                                                                                                                                    | C. Performance Standards                                                                                                                        | D. Sampling Methods        | E. Sample Size (N)                                                                                                         | F. Results                                                                                                                                                                                    | G. Conclusions                                                                                                 | H. Performance Standards Met (Y/N)                                                                                                                |
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| GEOL 1014 – Earth Science | 2a. Term Project: Students were required to analyze data from 25 earth events. Based on this data they are to determine all of the earth spheres (lithosphere, atmosphere, hydrosphere, biosphere, and exosphere) that were impacted by each earth event. | 2a. GEOL 1014 Earth Science students will score at the 70% level or higher on the overall data acquisition and analysis for their term project. | 2a. All GEOL 1014 students | 2a.<br>115 (2011-12)<br>116 (2012-13)<br>275 (2013-14)<br>217 (2014-15)<br>204 (2015-16)<br>125 (2016-17)<br>179 (2017-18) | 2a.<br>98/115 (85%) (2011-12)<br>92/116 (79%) (2012-13)<br>238/275 (87%) (2013-14)<br>155/217 (78%) (2014-15)<br>148/204 (72%) (2015-16)<br>77/125 (61%) (2016-17)<br>125/179 (70%) (2017-18) | 2a.<br>Performance standard was met.<br>Performance standard was met for six of the last seven academic years. | 2a.<br>Y (2011-12)<br>Y (2012-13)<br>Y (2013-14)<br>Y (2014-15)<br>Y (2015-16)<br>N (2016-17)<br>Y (2017-18)<br>No data were available this year. |

**OUTCOME 3: Use written, oral, and visual communication effectively.**

| A. Course                 | B. Assessment Measures                                                                                                                                                                                                                                                                                                       | C. Performance Standards                                                                                                                 | D. Sampling Methods        | E. Sample Size (N)                                                                                                      | F. Results                                                                                                                                                        | G. Conclusions                                                                                              | H. Performance Standards Met (Y/N)                                                                                                             |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| GEOL 1014 - Earth Science | 3a. Term Project: Students were required to analyze earth event data for their term project (see discussion in section1). The data are evaluated to determine the impact each event had on humans, both positive and detrimental discussion in section1) is to research and analyze each earth science event and its impact. | 3a. 70% of the GEOL 1014 students will score at the 70% level or higher on their evaluation of the earth events' impact on humans lives. | 3a. All GEOL 1014 students | 3a. 115 (2011-12)<br>116 (2012-13)<br>275 (2013-14)<br>217 (2014-15)<br>204 (2015-16)<br>125 (2016-17)<br>179 (2017-18) | 3a. 98/116 (85%)<br>(2012-13)<br>238/275 (86%)<br>(2013-14)<br>161/217 (74%)<br>(2014-15)<br>155/204 (76%)<br>2015-16<br>77/125 (61%)<br>2016-17<br>125/179 (70%) | 3a. Performance standard was met.<br>Performance standard was met for six of the last seven academic years. | 3a. Y (2011-12)<br>Y (2012-13)<br>Y (2013-14)<br>Y (2014-15)<br>Y (2015-16)<br>N (2016-17)<br>Y (2017-18)<br>No data were available this year. |

**OUTCOME 4: Develop an individual perspective on the human experience, and demonstrate an understanding of diverse perspectives and values.**

| A. Course                 | B. Assessment Measures                                                                                                                                                                                                                                                                                                       | C. Performance Standards                                                                                                                                                                                    | D. Sampling Methods                         | E. Sample Size (N) | F. Results                                                                                        | G. Conclusions                    | H. Performance Standards Met (Y/N)                   |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------|
| GEOL 1014 – Earth Science | 4a. Term Project: Students were required to analyze earth event data for their term project (see discussion in section1). The data are evaluated to determine the impact each event had on humans, both positive and detrimental discussion in section1) is to research and analyze each earth science event and its impact. | 4a.70% of Earth Science (GEOL 1014) students will score the 70% level or higher on their recognition and evaluation of the aftermath of various natural disasters and the impact of these events on humans. | 4a. All GEOL 1014 – Earth Science students. | 4a. 179 (2017-18)  | 4a. 131/179 students were able to recognize the impact and recovery methods necessary for humans. | 4a. Performance standard was met. | 4a. Y (2017-18)<br>No data were available this year. |

**OUTCOME 5: Demonstrate civic knowledge and engagement, ethical reasoning, and skills for lifelong learning.**

| A. Course | B. Assessment Measures | C. Performance Standards | D. Sampling Methods | E. Sample Size (N) | F. Results | G. Conclusions | H. Performance Standards Met (Y/N) |
|-----------|------------------------|--------------------------|---------------------|--------------------|------------|----------------|------------------------------------|
|           |                        |                          |                     |                    |            |                |                                    |

#### PART 4

#### Proposed Instructional Changes Based on Conclusions Drawn from Evidence Presented Above

State any proposed instructional or assessment changes to be implemented for the next academic year. They should be based on conclusions reported in Part 3 (above) or on informal activities, such as faculty meetings and discussions, conferences, pilot projects, textbook adoption, new course proposals, curriculum modifications, etc. Explain the rationale for these changes and how they will impact student learning and other considerations, such as curriculum, degree plan, assessment process, or budget. If no changes are planned, simply state "No changes are planned."

| General Education Outcomes | Instructional or Assessment Changes                                                                                                                                                                                                                              | Rationale for Changes          | Impact of Planned Changes on Student Learning and Other Considerations.                                                                                                       |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| To be determined           | Remaining general education courses GEOL 1114 Physical Geology, GEOL 2124 Astronomy, PHYS 1014 General Physical Science, CHEM 1315 General Chemistry I, CHEM 1104 Princ. of Chemistry, and PHYS 1114 General Physics I will be assessed starting from Fall 2023. | To improve Gen. Ed. Curriculum | Assessment of remaining general education courses will help to improve the overall quality of general education curriculum which will benefit the students. No budget change. |

## PART 5

### Shared Pedagogical Insight that Improves Student Learning or Classroom Engagement

(OPTIONAL) If your department or a faculty member has developed a method or technique of teaching that seems especially effective in improving student learning or student engagement in the classroom, please provide a brief description below. More detail can be communicated during the face to face peer review session.

| Description |
|-------------|
|             |

## PART 6 (A & B)

### Documentation of Faculty Participation and Review

**A.** Provide the names and signatures of all faculty members who contributed to this report and indicate their respective roles.

| Faculty Members         | Roles in the Assessment Process<br>(e.g., collect data, analyze data, prepare report, review report, etc.) | Signatures                 |
|-------------------------|------------------------------------------------------------------------------------------------------------|----------------------------|
| Mr. Larry Elzo          | Collected and Analyzed MATH 1513 and MATH 1413 data.                                                       | <i>Larry E Elzo</i>        |
| Dr. Ram Adhikari        | Collected and Analyzed MATH 1413, MATH 1423, MATH 1513, and MATH 1613 data.                                |                            |
| Dr. Min Soe             | Collected and analyzed MATH 1513 and MATH 1613 data.                                                       | <i>Min Soe</i>             |
| Dr. Sukhitha Vidurupola | Collected and Analyzed MATH 1513 and MATH 1413 data; prepared and reviewed report.                         | <i>Sukhitha Vidurupola</i> |

B. Reviewed by:

| Titles          | Names               | Signatures             | Date    |
|-----------------|---------------------|------------------------|---------|
| Department Head | NA                  |                        |         |
| Dean            | Dr. Keith W. Martin | <i>Keith W. Martin</i> | 5/31/23 |

## RUBRIC FOR GENERAL EDUCATION STUDENT LEARNING REPORT

- 1) How well did the department incorporate instructional or assessment changes based on results and conclusions from last year's General Education Student Learning Report or from other assessment activities?

| Exemplary                                                                                                                                         | Established                                                                                                 | Developing                                                                                                              | Undeveloped                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| All planned changes were listed, whether they were implemented or not, and their impact on curriculum or program budget was discussed thoroughly. | Most planned changes were listed, and their status or impact on curriculum or program budget was discussed. | Some planned changes were listed, and their status or impact on curriculum or program budget was not clearly discussed. | No planned changes were listed, and their status or impact on curriculum or program budget was not discussed. |

- 2) Did the department include peer review feedback and provide rationale for implementing or not implementing suggestions?

| Exemplary                                                                                                               | Established                                                                                                           | Developing                                                                                                            | Undeveloped                               |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| All reviewer feedback was listed, and for each suggestion a clear rationale was given for its being implemented or not. | Most reviewer feedback was listed, and for most suggestions a rationale was given for their being implemented or not. | Some reviewer feedback was listed, and for some suggestions a rationale was given for their being implemented or not. | Feedback from reviewers was not included. |

- 3) A. Are the course titles and numbers listed?

| Exemplary                                                                     | Established                                                                    | Developing                                                                      | Undeveloped                                                                    |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| All of the courses (titles and numbers) offered by the department are listed. | Most of the courses (titles and numbers) offered by the department are listed. | Some of the courses (titles and numbers) offered by the department are listed.. | None of the courses (titles and numbers) offered by the department are listed. |

- B. Are the assessment measures appropriate for the General Education outcomes?

| <b>Exemplary</b>                                                           | <b>Established</b>                                                          | <b>Developing</b>                                                           | <b>Undeveloped</b>                                                                 |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| All assessment measures are appropriate to the General Education outcomes. | Most assessment measures are appropriate to the General Education outcomes. | Some assessment measures are appropriate to the General Education outcomes. | None of the assessment measures are appropriate to the General Education outcomes. |

**C. Do the performance standards provide a clearly defined threshold at an acceptable level of student performance?**

| <b>Exemplary</b>                                                                                             | <b>Established</b>                                                                                            | <b>Developing</b>                                                                                                    | <b>Undeveloped</b>                                                                                          |
|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| All performance standards provide a clearly defined threshold at an acceptable level of student performance. | Most performance standards provide a clearly defined threshold at an acceptable level of student performance. | Some of the performance standards provide a clearly defined threshold at an acceptable level of student performance. | No performance standards provide a clearly defined threshold at an acceptable level of student performance. |

**D. Is the sampling method appropriate for all assessment measures?**

| <b>Exemplary</b>                                                     | <b>Established</b>                                                    | <b>Developing</b>                                                     | <b>Undeveloped</b>                                                           |
|----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------------|
| The sampling methodology is appropriate for all assessment measures. | The sampling methodology is appropriate for most assessment measures. | The sampling methodology is appropriate for some assessment measures. | The sampling methodology is appropriate for none of the assessment measures. |

**E. Is the sample size listed for each assessment measure?**

| <b>Exemplary</b>                                    | <b>Established</b>                                   | <b>Developing</b>                                    | <b>Undeveloped</b>                                      |
|-----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------|
| Sample size was listed for all assessment measures. | Sample size was listed for most assessment measures. | Sample size was listed for some assessment measures. | Sample size was not listed for any assessment measures. |

**F. How well do the data provide a clear and meaningful overview of the results?**

| <b>Exemplary</b>                                                                                                                                              | <b>Established</b>                                                                                                                                             | <b>Developing</b>                                                                                                                                              | <b>Undeveloped</b>                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| For all General Education outcomes the results were clear, more than a single year's results were included, and meaningful information was given that reveals | For most General Education outcomes the results were clear, more than a single year's results were included, and meaningful information was given that reveals | For some General Education outcomes the results were clear, more than a single year's results were included, and meaningful information was given that reveals | For none of the General Education outcomes were the results clear, was more than a single year's results included, or was meaningful information given that reveals an overview of student performance. |