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

Fall 2016 – Spring 2017

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

RSU Mission	General Education Mission
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.
RSU Commitments	**General Education Outcomes**
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.	1) Think critically and creatively. 2) Acquire, analyze, and evaluate knowledge of human cultures and the physical and natural world. 3) Use written, oral, and visual communication effectively. 4) Develop an individual perspective on the human experience, and demonstrate an understanding of diverse perspectives and values. 5) Demonstrate civic knowledge and engagement, ethical reasoning, and skills for lifelong learning.
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.	1) Think critically and creatively. 2) Acquire, analyze, and evaluate knowledge of human cultures and the physical and natural world. 3) Use written, oral, and visual communication effectively. 4) Develop an individual perspective on the human experience, and demonstrate an understanding of diverse perspectives and values. 5) Demonstrate civic knowledge and engagement, ethical reasoning, and skills for lifelong learning.
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.	
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.	

PART 1

Discussion of Instructional Changes Resulting from 2015-2016 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
It was proposed to start assessing other general education courses that have not been assessed in the	Y	Assessment of remaining general education courses will help to improve the overall quality of general education curriculum which will

past, from Fall 2017. In connection, assessment data will be collected, analyzed and reported for MATH 1503 Math for Critical Thinking, MATH 1715 Precalculus, MATH 1613 Trigonometry, GEOL 1114 Physical Geology, GEOL 2124 Astronomy, and GEOL 1124 Physical Geography. Remaining general education courses MATH 2264 Calculus I and PHYS 1014 General Physical Science will be assessed starting from Fall 2018.		benefit the students. No budget change.

PART 2

Discussion of the University Assessment Committee's 2015-2016 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
No changes were recommended; was not peer-reviewed during 2015-2016 academic year.		

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)
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 college algebra students.	1a. 610 On-Ground: 434 Blended: 50 Online: 126	1a. Overall 420/610 (69%) scored 70% or better on the average of all college algebra chapter exams. On-Ground: 309/434 (71%) Blended: 28/50 (56%) Online: 83/126 (66%)	1a. Overall performance in chapter exams was close to the expected standard. Chapter exam performance of students in blended and online sections was below the expected standard. Faculty will monitor to see if it occurs continuously	**Y (2011-12)** **Y (2012-13)** **Y (2013-14)** **Y (2014-15)** **Y (2015-16)** **N (2016-17)**

	1b. Students were assessed on five different course components using assignments: (1) Function Operations and Composition (2) Zeros of Polynomial Functions (3) Variation (4) Logarithmic Functions (5) Sequences and Series	1b. 70% of all College Algebra students will perform at a 70% level or better in each of the five listed course components.	1b. All college algebra students who completed the assignments.	1b. (1) 632 On-Ground: 456 Blended: 50 Online: 126 (2) 577 On-Ground: 401 Blended: 50 Online: 126 (3) 519 On-Ground: 377 Blended: 16 Online: 126	1b. (1) 435/632 (69%) On-Ground: 300/456 (66%) Blended: 37/50 (74%) Online: 98/126 (78%) (2) 425/577 (74%) On-Ground: 294/401 (73%) Blended: 37/50 (74%) Online: 94/126 (75%) (3) 417/519 (80%) On-Ground: 302/377 (80%) Blended: 14/16 (88%) Online: 101/126 (80%)	1b. (1) Performance standard was nearly met. Students in on-ground sections alone did not meet the standard for this course component. (2) Students in all modalities met the performance standard for this course component. (3) Students in all modalities met the performance standard for this course component.	Y/N

				(4) 629 On-Ground: 453 Blended: 50 Online: 126	(4) 517/629 (82%) On-Ground: 368/453 (81%) Blended: 41/50 (82%) Online: 108/126 (86%)	(4) Students in all modalities met the performance standard for this course component.	
				(5) 517 On-Ground: 391 Blended: 0 Online: 126	(5) 381/517 (74%) On-Ground: 292/391 (75%) Blended: - Online: 89/126 (71%)	(5) Students in on-ground and online sections met the performance standard for this course component. Note that blended students (two sections) were not given assignment from this course component during this year. Students met the performance	

						standards for four out of the five course components.	
GEOL 1014 – Earth Scienc e	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 2. Analyze the data in the context of what earth science process classification each event datum represents.	1c. 70% of the GEOL 1014 students will score at the70% 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 the area of earth science impact.	1c. All GEOL 1014 students	1c. 115 (**2011-12)** 116 **(2012-13)** 275 (**2013-14)** 217 **(2014-15)** 204 **(2015-16)** 125 **(2016-17)**	1c. 100/115 (87%) **2011-12** 88/116 (75.8%) **2012-13** 238/275 (86.5%) **2013-14** 170/217 (78.3%) **2014-15** 150/204 (73.5%) **2015-16** 81/125 (64.8%) **2016-17**	1c. Performance standard was not met for the first time in last six academic years.	1c. **Y (2011-12)** **Y (2012-13)** **Y (2013-14)** **Y (2014-15)** **Y (2015-16)** **N (2016-17)**
	1d. Term Project: Students were	1d. 70 % of all GEOL 1014 Earth Science	1d. All GEOL 1014 students	1d. 115 (**2011-12)**	1d. The following data summarizes the students' final	1d. Performance standard was	1d. **Y (2011-12)** **Y (2012-13)**

	required to acquire and 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.	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.		116 **(2012-13)** 275 **(2013-14)** 217 **(2014-15)** 204 **(2015-16)** 125 **(2016-17)**	scores on the data acquisition for the term project: 98/115 (85%) **(2011-12)** 92/116 (79%) **(2012-13)** 238/275 (87%) **(2013-14)** 155/217 (78%) **(2014-15)** 150/204 (74%) **(2015-16)** 81/125 (65%) **(2016-17)**	not met for the first time in last six academic years.	**Y (2013-14)** **Y (2014-15)** **Y (2015-16)** **N (2016-17)**

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)
GEOL 1014 – Earth Science	2a. Term Project: Students	2a. GEOL 1014 Earth Science	2a. All GEOL 1014 students	2a. 115 **(2011-12)** 116 **(2012-13)**	2a. 98/115 (85%) **(2011-**	2a. Performance standard was	2a. **Y (2011-12)** **Y (2012-13)**

	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.	students will score at the 70% level or higher on the overall data acquisition and analysis for their term project.		275 (**2013-14**) 217 (**2014-15**) 204 (**2015-16**) 125 (**2016-17**)	**12)** 92/116 (79%) (**2012-13**) 238/275 (87%) **(2013-14)** 155/217 (78%) **(2014-15)** 148/204 (72%) **(2015-16)** 77/125 (61%) **(2016-17)**	not met for the first time in last six academic years.	**Y (2013-14)** **Y (2014-15)** **Y (2015-16)** **N (2016-17)**

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)
3a. GEOL 1014 - Earth Science	3a. Term Project: Students were required to analyze earth event data for their term project	3a. 70% of the GEOL 1014 students will score at the70% level or higher on their evaluation of	3a. All GEOL 1014 students	3a. 115 (**2011-12**) 116 (**2012-13**) 275 (**2013-14**) 217 (**2014-15**) 204 (**2015-16**) 125 (**2016-17**)	3a. 98/116 (85%) **(2012-13)** 238/275 (86%) **(2013-14)** 161/217	3a. Performance standard was not met for the first time in last six academic years.	3a. **Y (2011-12)** **Y (2012-13)** **Y (2013-14)** **Y (2014-15)** **Y (2015-16)** **N (2016-17)**

	(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.	the earth events' impact on humans lives.			(74%) **(2014-15)** 155/204 (76%) **2015-16** 77/125 (61%) **2016-17**		

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)

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.
No new instructional or assessment changes in Geological/Earth Sciences or Mathematics are proposed at this point.			

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 (e.g., collect data, analyze data, prepare report, review report, etc.)	Signatures
Mr. Larry Elzo	Collected and Analyzed MATH 1513 Data	
Mr. Sam Richardson	Collected and Analyzed MATH 1513 Data	
Mr. Richard Walcott	Collected and Analyzed MATH 1513 Data	
Ms. Andrea Smith	Collected and Analyzed MATH 1513 Data	
Dr. Doug Grenier	Collected and Analyzed MATH 1513 Data	
Dr. Min Soe	Collected and Analyzed MATH 1513 Data	
Dr. Ram Adhikari	Collected and Analyzed MATH 1513 Data	
Dr. Sukhitha Vidurupola	Collected and Analyzed MATH 1513 Data, prepared report.	
Dr. Jamie M. Graham	Collected and Analyzed GEOL 1014 Data, prepared report.	

B. Reviewed by:

Titles	Names	Signatures	Date
Department Head	Dr. Jamie Graham		9/28/17
Dean	Dr. Keith Martin		10/3/17

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?

Exemplary	Established	Developing	Undeveloped
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?

Exemplary	Established	Developing	Undeveloped
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?

Exemplary	Established	Developing	Undeveloped
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?

Exemplary	Established	Developing	Undeveloped
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?

Exemplary	Established	Developing	Undeveloped
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 an overview of student performance.	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 an overview of student performance.	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 an overview of student performance.	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.

G. Are the conclusions reasonably drawn and significantly related to General Education outcomes?

Exemplary	Established	Developing	Undeveloped
All conclusions are reasonably drawn and significantly based on the results and related to the strengths and weaknesses in student performance.	Most conclusions are reasonably drawn and significantly based on the results and related to the strengths and weaknesses in student performance.	Some conclusions are reasonably drawn and significantly based on the results and related to the strengths and weaknesses in student performance.	No conclusions are reasonably drawn and significantly based on the results or related to the strengths and weaknesses in student performance.

H. Does the report indicate whether the performance standards were met?

Exemplary	Established	Developing	Undeveloped
Stated for all performance standards.	Stated for most performance standards.	Stated for some performance standards.	Not stated for any performance standard.

4) How well supported is the rationale for making assessment or instructional changes? The justification can be based on conclusions reported in Section 3 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 whether they will impact student learning and other considerations, such as the department's curriculum, General Education Student Learning Report, or budget.

Exemplary	Established	Developing	Undeveloped
All planned changes are specifically focused on student learning and based on the conclusions. The rationale for planned changes is well grounded and convincingly explained.	Most planned changes are specifically focused on student learning and based on the conclusions. The rationale for planned changes is mostly well grounded and convincingly explained.	Some planned changes are specifically focused on student learning and based on the conclusions. The rationale for planned changes is lacking or is not convincingly explained.	No planned changes are specifically focused on student learning and based on the conclusions. There is no rationale.

5) Is one or more teaching technique listed?

The Peer Review Report will make note whether any techniques were included in the General Education Student Learning Report.

6) Does the list of faculty participants indicate how many full time faculty who teach in the program participated, their signatures, and their contributions to the report?

Exemplary	Established	Developing	Undeveloped
The faculty role is clearly identified and it is apparent that the majority of the faculty participated in the process. The roles are varied.	The faculty role is identified and it is apparent that the majority of the faculty participated in the process. The roles are not varied.	The faculty roles are not identified. Few faculty participated.	The faculty roles are not identified. Faculty participation is not sufficiently described to make a determination about who participated.

EXPLANATION & EXAMPLES OF DIRECT AND INDIRECT EVIDENCE

DIRECT EVIDENCE of student learning is tangible, visible, self-explanatory evidence of exactly what students have and haven't learned. Examples include:

1) Ratings of student skills by their field experience supervisors.
2) Scores and pass rates on licensure/certification exams or other published tests (e.g. Major Field Tests) that assess key learning outcomes.
3) Capstone experiences such as research projects, presentations, oral defenses, exhibitions, or performances that are scored using a rubric.
4) Written work or performances scored using a rubric.
5) Portfolios of student work.
6) Scores on locally-designed tests such as final examinations in key courses, qualifying examinations, and comprehensive examinations that are accompanied by test blueprints describing what the tests assess.
7) Score gains between entry and exit on published or local tests or writing samples.
8) Employer ratings of the skills of recent graduates.
9) Summaries and analyses of electronic class discussion threads.
10) Student reflections on their values, attitudes, and beliefs, if developing those are intended outcomes of the program.

INDIRECT EVIDENCE provides signs that students are probably learning, but the evidence of exactly what they are leaning is less clear and less convincing. Examples include:

1) Course grades.
2) Assignment grades, if not accompanied by a rubric or scoring guide.
3) For four year programs, admission rates into graduate programs and graduation rates from those programs.
4) For two year programs, admission rates into four-year institutions and graduation rates from those programs.
5) Placement rates of graduates into appropriate career positions and starting salaries.
6) Alumni perceptions of their career responsibilities and satisfaction.
7) Student ratings of their knowledge and skills and reflections on what they have learning over the course of the program.
8) Those questions on end-of-course student evaluations forms that ask about the course rather than the instructor.
9) Student/alumni satisfaction with their learning, collected through surveys, exit interviews, or focus groups
10) Honors, awards, and scholarships earned by students and alumni.

Suskie, L. (2004). *Assessing Student Learning: A Common Sense Guide.* Anker Publishing Company: Bolton, MA