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

Fall 2014 – Spring 2015

Department of Biology

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.

RSU Mission	General Education Mission
	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 2013-2014 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 Degree Program Curriculum or Budget
Biol 1114: General Biology Explore possible changes to curriculum to deemphasize cell-related process with a greater emphasis on: 1) plant and animal biology, and 2) ecology.	N	Much of the concepts covered in this course are very similar to those covered in Biol 1144, but at a non-majors level of difficulty. There is a desire among course faculty to revamp the curriculum for this course to shift away from chemistry/cell biology and emphasize more organismal/ecological concepts. This will be a major undertaking and is still on the drawing board.
Biol 1114: General Biology Inform student advisors about General Environmental Biology being available as an alternative for the biology science requirement for general education.	Y	This issue was discussed with Colleen Wilson [advisor and retention specialist for the School of Math, Science, and Health Sciences], who indicated she would communicate the option to the advisors with the other two schools. Some sort of course flyer might be useful to inform faculty, students, and advisors of this option.
Biol 1114: General Cell Biology Encourage more instructors to adopt the MasteringBiology online learning system.	Y	Last year, Dr. Seo adopted the MasteringBiology system as a formal part of his Biol 1144 course curriculum. It should be noted that all cell biology instructors are aware of the learning tools available through the MasteringBiology system. Some instructors are reluctant to make these exercises a required component of their course, however, as purchasing access to the system puts an additional financial burden on students that purchase a used textbook. Such instructors do make students aware of these tools and encourage them to use them to improve their understanding of concepts taught in lecture.
Biol 1114: General Cell Biology Encourage more instructors to incorporate student homework assignments.	Y	Dr. Seo adopted the learning exercises in MasteringBiology system as a source of homework points.
Biol 1114: General Cell Biology	Y	Dr. Seo adopted this approach for his Fall 2014 sections, but did not

Dr. Jin Seo is going to try to incorporate peer-learning into his Cell Biology course for the Spring 2015 term.		teach this course in the Spring semester. He reported that students that participated in his approach had a measurably positive effect on lecture exam scores and he will consider using this method in the future.
Biol 1134: General Environmental Biology Dr. Zimmermann incorporated the MindTap learning system into his Biol 1134 course..	Y	MindTap is an online learning system designed by Cengage Learning to accompany some of their textbooks. Dr. Zimmermann added Mind-Tap activities as homework activities for his Spring 2015 section. Feedback from students was positive. These activities are useful for reinforcing concepts covered in lecture, as well as covering extra material not covered in the classroom.

PART 2

Discussion of the University Assessment Committee's 2013-2014 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
Encourage more instructors to adopt the Mastering Biology online learning system so potentially improve student progress.	Y	Dr. Seo adopted the learning exercises in MasteringBiology system as a source of homework points in his Biol 1144 classes.

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)
BIOL 1114: General Biology	Science Literacy Quiz Comprises a 15-question multiple choice assessment on the principles of science and the scientific method.	70% of test takers will score 70% or above.	Given to all students in both Fall and Spring terms. Administered in course lab sections.	Fall + Spring 179 11 of 13 sections reported data.	This table summarizes for student scores for Fall & Spring terms. **Score Distribution** 0-49% 8 50-59% 8 60-69% 29 70-79% 24 80-89% 78 90-100% 32 **Average:** 77.7	The average test score for the full year was 78%. 75% (134 of 179) scored ≥70%. This is the second consecutive year that students have met the standard for this measure. This shows that students are improving their proficiency in critical thinking skills. Below are assessment data for the last five cycles. Shown are the average score for the quiz and percentage of students that met the standard for the full year.	Y

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)
						2014-15 77.7 75% 2013-14 78.2 75% 2012-13 70.8 55% 2011-12 69.5 56%	
BIOL 1144: General Cell Biology	Science Literacy Quiz Comprises a 15-question multiple choice assessment on the principles of science and the scientific method.	70% of students will score 70% or above.	Given to all students in both Fall and Spring terms. Administered as part of the lab final.	Fall + Spring 194 14 of 22 sections reported data.	This table summarizes student scores for Fall & Spring terms. **Score Distribution** 0-49% 6 50-59% 11 60-69% 41 70-79% 23 80-89% 75 90-100% 38 **Average:** 77.1	The average test score for the full year was 77%. 70% (136 of 194) scored ≥70%. Students met the desired standard for this measure. We have seen steady improvement in student achievement on this quiz over the last five cycles. This shows that students are demonstrating a proficiency in critical thinking skills. Below are assessment data for the last five cycles. Shown are the average score for the quiz and percentage of students that met the standard for the full year. 2014-15 77.1 70% 2013-14 82.0 73% 2012-13 76.0 70% 2011-12 74.0 65% 2010-11 69.0 40%	Y

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)
BIOL 1114: General Biology	Comprehensive Pre-Post Exam Comprises a 40 multiple-choice question exam on basic concepts covered in the course. This exam was administered with the pre-test given on first class and the post-test given at time of final exam.as a pre-post test We consider two results: 1) post test scores, and 2) the difference in pre-post test scores. Here, we discuss the post-test score	70% of students will score 70% or above.	Given to all students in both Fall & Spring terms.	Fall 121 Spring 76 6 of 8 sections reported data	These tables summarize student scores for the Fall and Spring terms. **Fall Score Distribution** 0-49% 24 50-59% 17 60-69% 29 70-79% 22 80-89% 23 90-100% 6 **Average:** 65.0 **Spring Score Distribution** 0-49% 6 50-59% 10 60-69% 17 70-79% 21 80-89% 13 90-100% 9 **Average:** 71.6	Mean scores were 65% and 72% for Fall & Spring terms. The overall mean score for the both terms was a 68%. Only 48% of students met that standard of 70%. The average of 68% for the overall year is the highest for the last four years of data. The 48% of students making the established standard is also the highest over this same time period. While we are still falling short of our goal, this does indicate a continuing trend of improvement in student learning. Below are data from the last four assessment cycles. These data show the average post-test score and the percentage of students that met the standard for the full year. 2014-15 67.6 48% 2013-14 63.3 37%	N

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)
	results. Change in pre-post scores is discussed in next section.					2012-13 66.0 44% 2011-12 60.0 29%	
BIOL 1114: General Biology	Comprehensive Pre-Post Exam Comprises a 40 multiple-choice question exam on basic concepts covered in the course. This exam was administered with the pre-test given on first class and the post-test given at time of final exam as a pre-post test We consider two results: 1) post test scores, and 2) the difference in pre-post test scores Here, we	70% of students will improve on the post-test by 20% or greater over the pre-test.	Given to all students in Fall & Spring terms.	Fall 120 Spring 76 6 of 8 sections reported data .	These tables summarize the difference in student scores for the pre & post **Fall Score Distribution** (Post Test Improvement) 0-10% 13 10-20% 29 20-30% 39 30-40% 23 40-50% 14 50-60% 0 60-70% 2 70-80% 0 80-90% 0 90-100% 0 **Average gain:** 24.0 test scores for each term.	Student improved by an average of 24 & 29 percentage points for Fall & Spring terms. Mean improvement was 26 percentage points when both terms are combined. 65% (78 of 120) improved their score by ≥20% for the Fall term. 84% (64 of 79 improved their score by ≥20% for the Spring term. 72% (142 of 196) of students scored ≥70% for both terms combined. This is the first time in the last four years, that students have met the standard for this measure. This result combined with those for the post-test scores described above indicated a positive trend in student learning for this course. Below are data from the	Y

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)
	discuss the change between pre and pre-post test scores.				**Spring Score Distribution** (Post Test Improvement) 0-10%: 2 10-20%: 10 20-30%: 27 30-40%: 25 40-50%: 11 50-60%: 0 60-70%: 1 70-80%: 0 80-90%: 0 90-100%: 0 **Average gain:** 28.8	last four assessment cycles. These show the average improvement on the score and the percentage of students met the standard. 2014-15 26.0 72% 2013-14 23.0 53% 2012-13 23.0 65% 2011-12 21.0 56%	
BIOL 1114: General Biology (Online)	Comprehensive Final Exam The exam is a comprehensive review of topics covered over the entire term. It includes short answer, essay, and multiple-choice questions. The exam is taken online.	70% of students will score 70% or above.	Given to all students in all online sections.	Fall 35 Spring 42 4 of 4 sections reported data.	This table summarizes student scores for both semesters. **Score Distribution** 0-49%: 3 50-59%: 1 60-69%: 7 70-79%: 22 80-89%: 38 90-100%: 6 **Average:** 79.2	The average score was 79.2. 86% (66 of 77) scored ≥70%. Strong improvement in student performance has been evident in the online sections over the last three years. This shows that students are demonstrating an ability to acquire and analyze knowledge of the physical and natural world. Below are data from the last four assessment cycles. Shown are the	Y

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)
						average test score and the percentage of students that met the standard. 2014-15 79.2 86% 2013-14 83.8 95% 2012-13 75.0 79% 2011-12 71.0 50% It is not clear at this time, why student progress in the online General Biology is substantially higher than the on-ground sections. The faculty needs to investigate this situation to insure consistency in course rigor and exam difficulty. The online course may also offer ideas for changing the on-ground sections to improve student learning.	
BIOL 1144: General Cell Biology	Comprehensive Pre-Post Exam Comprises a 40 multiple-choice question exam on basic concepts covered in the course.	70% of students will score 70% or above.	Given to all students in both Fall & Spring terms.	Fall 209 Spring 121 15 of 15 sections reported data.	These tables summarize student scores for the fall and spring terms. **Fall** **Score Distribution** 0-49% 25 50-59% 19 60-69% 50	Average test scores were 69% & 69% for the Fall and Spring terms. The average was 69% for both terms combined. 55% (115 of 209) scored ≥70% for Fall term. 54 (65 of 121) scored	N

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)
	This exam was administered with the pre-test given on first class and the post-test given at time of final exam.as a pre-post test. We consider two results: 1) post test scores, and 2) the difference in pre-post test scores. Here, we discuss the post-test score results. Change in pre-post scores is discussed in next section.				70-79% 53 80-89% 35 90-100% 27 **Average:** 69.1 **Spring Score Distribution** 0-49% 11 50-59% 20 60-69% 25 70-79% 35 80-89% 21 90-100% 9 **Average:** 68.8	≥70% for Spring term. 55% (180 of 330) scored ≥70% when terms are combined Students failed to meet the standard for this measure. These results, however, do show a sharp improvement over last year and are the highest results seen over the last three cycles. We are encouraged by this trend. Below is data from the last three cycles. Shown are the average score on the post test and the percentage of students that met the standard. 2014-15 69.0 55% 2013-14 63.0 40% 2012-13 68.0 48%	
BIOL 1144: General Cell Biology	Comprehensive Pre-Post Exam Comprises a 40 multiple-choice question exam on basic	70% of students will improve on the post-test by 20% or greater over the pre-test.	Given to all students in Fall & Spring terms.	Fall 201 Spring 117 15 of 15	These tables summarize the difference in student scores for the pre & post test scores for each term.	Student scores on the post-test improved by an average of 30% and 27% for the Fall and Spring terms. The average was 29% for both terms combined.	Y

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)
	concepts covered in the course. This exam was administered with the pre-test given on first class and the post-test given at time of final exam.as a pre-post test We consider two results: 1) post test scores, and 2) the difference in pre-post test scores ~~H~~ere, we discuss the change between pre and pre-post test scores.			sections reported data	**Fall** **Score Distribution** (Post Test Improvement) 0-10% 15 10-20% 25 20-30% 49 30-40% 51 40-50% 36 50-60% 16 60-70% 5 70-80% 4 80-90% 0 90-100% 0 **Average gain:** 30.1 **Spring** **Score Distribution** (Post Test Improvement) 0-10% 12 10-20% 19 20-30% 34 30-40% 27 40-50% 19 50-60% 5 60-70% 0 70-80% 0 80-90% 1 90-100% 0 **Average gain:** 27.2	75% (247 of 318) of students improved their score by ≥20% for the both terms combined. Students met the standard for this measure in this cycle. Our results show students rebounded from the sharp drop in performance seen in the last cycle. This year's results are nearly identical to those seen in 2012-13. This is only the second time in the last five cycles that students have successfully met this measure. Below are assessment data for the last five years. They show the average improvement over the pretest score and the percentage of students that met the standard. 2014-15 29.0 75% 2013-14 25.0 59% 2012-13 29.0 75% 2011-12 27.0 68%	

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)
						2010-11 24.0 65%	
BIOL 1134: General Environmental Biology	Comprehensive Final Exam	70% of students will have an average score of 70% or higher.	Given to all students in the Fall & Spring terms	Fall 16 Spring 29 3 of 3 sections reported data.	This table summarizes student scores for the spring term. **Score Distribution** 0-49% 0 50-59% 4 60-69% 10 70-79% 12 80-89% 9 90-100% 10 **Average:** 77.2	The average test score was 77%. 70% (31 of 45) scored ≥70%. Students have met the standard for this measure for the last two years. Below are data from the last three cycles. Shown are the average test score and the percentage of students that met the standard. 2014-15 77.2 70% 2013-14: 76.1 78% 2012-13: 74.5 69% 2011-12: 69.0 39%	Y
BIOL 1134: General Environmental Biology (Online)	Average of three unit exams	70% of students will score 70% or above.	Given to all students in Fall, Spring + Summer online sections	Fall 0 Spring 13 Summer Cancelled 1 of 2 sections	This table summarizes student scores for the spring term.	The average test score was 76%. 85% (11 of 13) scored ≥70%. Students have met the standard for this measure. This shows that students are demonstrating an ability to acquire and	Y

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)
				reported data	**Score Distribution** 0-49% 0 50-59% 0 60-69% 2 70-79% 6 80-89% 5 90-100% 0 **Average:** 76.4	analyze knowledge of the physical and natural world.	

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)
BIOL 3103: Plants and Civilization	Written Paper	70% of students will have an average score of 70% or higher.	Given to all students in the May 2013 Intersession term.	Intersession 10 1 of 1 sections reported data. .	This table summarizes student scores for the spring term. **Score Distribution** 0-49% 0 50-59% 1 60-69% 0 70-79% 0 80-89% 1 90-100% 8 **Average:** 88.5	The average test score was 89%. 90% (10 of 10) of students scored ≥70%. Students met the desired standard for this measure. This shows that students are meeting the goal of effective communication.	Y

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)
BIOL 3103: Plants and Civilization	Comprehensive Final Exam	70% of students will have an average score of 70% or higher.	Given to all students in the May 2013 Intersession term.	Intersession 11 1 of 1 sections reported data..	This table summarizes scores for the term. **Score Distribution** 0-49% 0 50-59% 0 60-69% 0 70-79% 1 80-89% 3 90-100% 7 **Average:** 89.7	The average test score was 90%. 100% (11 of 11) of students scored ≥70%. These results meet our desired standard. This shows that our students are meeting the goal of developing an under-standing of the human experience.	Y

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.
We met 9 of the eleven measures & saw encouraging improvement on the two failed measures. We are not planning any major changes at this time.			

PART 5

Shared Pedagogical Insight that Improves Student Learning or Classroom Engagement

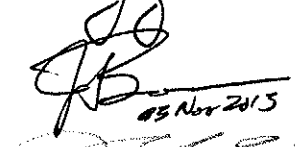
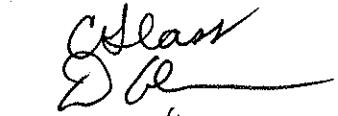
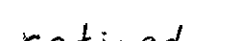
(OPTIONAL) If your department or a faculty member has developed a method or technique of teaching that seems especially effective in improving student learning or student engagement in the classroom, please provide a brief description below. More detail can be communicated during the face to face peer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

Description
None

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
Full-time Faculty		
Craig Zimmermann	Provided data, analyzed data, and prepared report	
Jerry Bowen	Analyzed data and prepared report	
Jin Seo	Provided data and prepared report	
Don Glass	Provided data and reviewed report	
Claudia Glass	Provided data and reviewed report	
Eric Lee	Reviewed report	
Jae-Ho Kim	Reviewed report	
Adele Register	Provided data	retired
Adjuct Faculty		
Emily Shelton	Provided data	
Janette Tuckey	Provided data	
Jesse Whitley	Provided data	
Chandra Carpenter	Provided data	
Gifty Benson	Provided data	
Erica Capps	Provided data	
Richard Hart	Provided data	

B. Reviewed by:

Titles	Names	Signatures	Date
Department Head	Jerry Bowen		04Nov 2015
Dean	Keith Martin		11/20/2015