

# General Education Student Learning Report (rev. 7/14)

Fall 2013 – Spring 2014

## 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 General Education Learning Outcomes to Departmental and University Missions

<b>RSU Mission</b>	<b>General Education Mission</b>
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) Acquire and evaluate information.</li><li>2) Analyze and integrate knowledge.</li><li>3) Develop perspectives and an understanding of the human experience.</li><li>4) Communicate effectively.</li></ol>

<b>RSU Mission</b>	<b>General Education Mission</b>
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) Acquire and evaluate information.</li> <li>2) Analyze and integrate knowledge.</li> <li>3) Develop perspectives and an understanding of the human experience.</li> <li>4) Communicate effectively.</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.	
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 2012-2013 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."

<b>Instructional or Assessment Changes</b>	<b>Changes Implemented (Y/N)</b>	<b>Impact of Changes on General Education Curriculum or Budget</b>
<b>Outcome 1:</b> Acquire and evaluate information.	Y	Both exams were revised with some questions reworded and overall

<p><b>BIOL 1114 &amp; 1144:</b> A new pre/post exam is being written for each of these courses. It will be used starting in the Fall term.</p>		<p>lengthen increased from 40 questions to 50 questions. The longer exam will reduce the penalty for a wrong answer. We hope these changes will result in improved student scores.</p>
<p><b>Outcome 2:</b> Analyze and integrate knowledge.</p> <p><b>BIOL 1114/1144/1134 labs:</b> Faculty will explore means of administering the Science Literacy Quiz in a way that will reflect a more honest measure of student progress.</p>	<p>Y</p>	<p>The Science Literacy Quiz is given in our lab sections which are largely led by adjunct faculty. The large number of adjunct used in these courses does present some difficulty in terms of consistency in the way this quiz is administered. Speaking tone and body language can often inspire students to underperform. Steps were taken to make sure that our adjuncts understood the importance of gaining an honest effort by students. It is noteworthy that we meet our standard in both courses that this quiz is given for the current assessment cycle.</p>

**PART 2**

**Discussion of the University Assessment Committee's 2012-2013 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 General Education 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."

<p><b>Feedback and Recommended Changes from the University Assessment Committee</b></p>	<p><b>Suggestions Implemented (Y/N)</b></p>	<p><b>Changes that Were or Will Be Implemented, or Rationale for Changes that Were Not Implemented</b></p>
<p>Not clear as to what the BIOL 1114: General Cell Biology (Online) comprehensive exam comprises of.</p>	<p>Y</p>	<p>A more detailed description will be included in the next report.</p>
<p>Is BIOL 1114: General Biology performance standard (reads "70% of students will improve the post-test by 20% or greater over the pre-test") sufficient to enable to pass the course?</p>	<p>N</p>	<p>The General Biology assessment is a pre-post comprehensive test on biological concepts covered during the semester. The data collected is used for two measures: 1) the score on the post test, and 2) the change in pre and post scores. The standard for the post test is that 70% of students will score a 70% or higher. The standard for the change in pre and post scores is that 70% of students will improve on their pretest score by 20 percentage points. In other words, going from a 45% to a 65%. This shift is between one and two letter grades, and</p>

		is considered to be appropriate for this measure. A letter grade of “D” is passing in General Biology and very few students fail this course.
<p>Conclusions ought to be tailored to student learning, not just whether the standard is met. For instance,</p> <ul style="list-style-type: none"> <li>• BIOL 1144: General Cell Biology’s Spring 2012 scores did not meet the performance standard yet there was no steps taken to take to improve student performance (Page 10)</li> <li>• BIOL 1114: General Biology fell short of meeting the standard. While it was suggested that “...a time quiz might may not be the best avenue for evaluating critical thinking” no instructional or assessment changes were proposed.</li> <li>• BIOL 1134: General Environmental Biology offered no plans to address failure to meet standard (only 46% scored <math>\geq 70\%</math>).</li> </ul>	N	<ol style="list-style-type: none"> <li>1. All full-time faculty, as well as several adjunct instructors, share the responsibility of teaching the General Cell Biology course. The low performance of our students on the Pre-Post exam in this course is seen across instructors, all who use different styles and pedagogical methods. It is not an issue with the method or quality of instruction at this university. Rather, it is the opinion of the faculty that the poor showing of RSU students reflects the lower overall aptitude of our incoming students and lack of strong science standards at the secondary education level. Students who have gone through all 12 years of their primary and secondary education under the No Child Left Behind program seem to have even lower quantitative and scientific aptitude. Our faculty believes strongly that a sound understanding of science plays a central role to a liberal education and there is no desire to dumb down any of these courses to improve scores. That being said there is a growing interest among more faculty to incorporate the MasteringBiology online activities into their course curriculum. This is discussed in Part 5.</li> <li>2. The Science Literacy Quiz is administered in our lab sections, which are mostly led by adjunct instructors. This quiz is administered to a large number of students each year. In the 2013-24 cycle, we collected data from over 400 students in nearly 20 sections. A timed, objective test is the only realistic means of collecting this volume of information. Notably, student performance on this quiz has met our standard in both Biol 1114 and Biol 1144.</li> <li>3. Student performance in our General Environmental Biology course is typically much higher than the alternatives general education courses. Assessment scores have also been good and we normally make the established standard. No change in this course is necessary. Notably, we met the standard in this current cycle.</li> </ol>
Specify courses which each faculty collected data.	Y	Will be incorporated into the next SLR.

**PART 3**

**Analysis of Evidence of Student Learning Outcomes**

The four 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: Acquire and evaluate information**

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)														
<b>BIOL 1114:</b> 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)	70% of students will score 70% or above.	Given to all students in both Fall & Spring terms.	Fall 128  Spring 118	These tables summarize student scores for the Fall and Spring terms.  <div style="text-align: center;"> <b>Fall</b>  <b>Score Distribution</b> <table style="margin-left: auto; margin-right: auto;"> <tr><td>0-49%</td><td style="text-align: right;">26</td></tr> <tr><td>50-59%</td><td style="text-align: right;">29</td></tr> <tr><td>60-69%</td><td style="text-align: right;">26</td></tr> <tr><td>70-79%</td><td style="text-align: right;">13</td></tr> <tr><td>80-89%</td><td style="text-align: right;">22</td></tr> <tr><td>90-100%</td><td style="text-align: right;">12</td></tr> <tr><td><b>Average:</b></td><td style="text-align: right;"><b>64.9</b></td></tr> </table> </div>	0-49%	26	50-59%	29	60-69%	26	70-79%	13	80-89%	22	90-100%	12	<b>Average:</b>	<b>64.9</b>	Mean scores were 65% and 62% for Fall & Spring terms. The overall mean score for the both terms was a 63%. Only 37% of students met that standard of 70%.  This is a drop from the previous year, but is still an improvement over the 2011-12 cycle.  Below is the average amount of improvement and the percentage of students making a 70% or higher for the last three cycles.  2013-14 63.3 37% 2012-13 66.0 44% 2011-12 60.0 29%	N
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	<p>post test scores, and 2) the difference in pre-post test scores.</p> <p>Here, we discuss the post-test score results. Change in pre-post scores is discussed in next section.</p>				<p style="text-align: center;"><b>Spring Score Distribution</b></p> <table border="0" style="width: 100%;"> <tr><td>0-49%</td><td style="text-align: right;">33</td></tr> <tr><td>50-59%</td><td style="text-align: right;">20</td></tr> <tr><td>60-69%</td><td style="text-align: right;">20</td></tr> <tr><td>70-79%</td><td style="text-align: right;">32</td></tr> <tr><td>80-89%</td><td style="text-align: right;">7</td></tr> <tr><td>90-100%</td><td style="text-align: right;">6</td></tr> <tr><td><b>Average:</b></td><td style="text-align: right;"><b>61.7</b></td></tr> </table>	0-49%	33	50-59%	20	60-69%	20	70-79%	32	80-89%	7	90-100%	6	<b>Average:</b>	<b>61.7</b>	<p>Our General Biology students have routinely performed below expectations on this measure. Our faculty holds this is a reflection of the overall lower aptitude of our incoming students and the lack of strong science standards at the secondary education level. Students perform much closer to our standard in regards to the difference in pre and post scores (see below).</p>	
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	<p>final exam as a pre-post test</p> <p>We consider two results: 1) post test scores, and 2) the difference in pre-post test scores</p> <p>Here, we discuss the change between pre and pre-post test scores.</p>				<p style="text-align: center;"><b>Fall</b></p> <p style="text-align: center;"><b>Score Distribution</b> (Post Test Improvement)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>0-10%</td><td style="text-align: right;">20</td></tr> <tr><td>10-20%</td><td style="text-align: right;">25</td></tr> <tr><td>20-30%</td><td style="text-align: right;">33</td></tr> <tr><td>30-40%</td><td style="text-align: right;">21</td></tr> <tr><td>40-50%</td><td style="text-align: right;">14</td></tr> <tr><td>50-60%</td><td style="text-align: right;">6</td></tr> <tr><td>60-70%</td><td style="text-align: right;">2</td></tr> <tr><td>70-80%</td><td style="text-align: right;">0</td></tr> <tr><td>80-90%</td><td style="text-align: right;">1</td></tr> <tr><td>90-100%</td><td style="text-align: right;">1</td></tr> <tr><td><b>Average gain:</b></td><td style="text-align: right;"><b>26.18</b></td></tr> </table> <p style="text-align: center;"><b>Spring</b></p> <p style="text-align: center;"><b>Score Distribution</b> (Post Test Improvement)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>0-10%</td><td style="text-align: right;">22</td></tr> <tr><td>10-20%</td><td style="text-align: right;">44</td></tr> <tr><td>20-30%</td><td style="text-align: right;">29</td></tr> <tr><td>30-40%</td><td style="text-align: right;">8</td></tr> <tr><td>40-50%</td><td style="text-align: right;">8</td></tr> <tr><td>50-60%</td><td style="text-align: right;">2</td></tr> <tr><td>60-70%</td><td style="text-align: right;">0</td></tr> <tr><td>70-80%</td><td style="text-align: right;">0</td></tr> <tr><td>80-90%</td><td style="text-align: right;">0</td></tr> <tr><td>90-100%</td><td style="text-align: right;">0</td></tr> <tr><td><b>Average gain:</b></td><td style="text-align: right;"><b>18.94</b></td></tr> </table>	0-10%	20	10-20%	25	20-30%	33	30-40%	21	40-50%	14	50-60%	6	60-70%	2	70-80%	0	80-90%	1	90-100%	1	<b>Average gain:</b>	<b>26.18</b>	0-10%	22	10-20%	44	20-30%	29	30-40%	8	40-50%	8	50-60%	2	60-70%	0	70-80%	0	80-90%	0	90-100%	0	<b>Average gain:</b>	<b>18.94</b>	<p>These results are a drop from last year and are more consistent with the 2011-12 results. The mean improvement at that time was 21% with 56% improving their score by <math>\geq 20\%</math>.</p> <p>As discussed above, the students in this course routinely fail to meet the established performance standard. Progress towards this measure, however, is always better than the previous measure in that many students show substantial progress toward improving their understanding of biology over the course of the semester. Roughly 25% of incoming students score below 30% on the pre-test. A total of 60% score below a 40%. The numbers below show the level of improvement students make as related to their pre-test scores. Students that perform the poorest on the pre-test are showing the greatest</p>	
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						<p>improvement. Notably, students that scores &lt;20% on the pre-test are increasing their final score by almost 40 percentage points.</p> <p style="text-align: center;">           &lt;20% 38.3            20-30% 24.9            30-40% 23.5            40-50% 18.8            50-60% 21.4            60-70% 18.0            &gt;70% 8.7         </p> <p>Thus, while our students are not performing at the level desired, there is evidence that students make substantial progress in improving their understanding of biology and of science, in general.</p>	
<b>BIOL 1114:</b> 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-	70% of students will score 70% or above.	Given to all students in all online sections.	Spring 18	This table summarizes student scores for both semesters.	The average score was 84%. 95% (18 of 19) scored ≥70%.  Strong improvement in student performance has been evident in the online sections over the last three years.  Below is the average	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)																							
	<p>choice questions.</p> <p>The exam is taken online.</p>				<p style="text-align: center;"><b>Score Distribution</b></p> <table border="0" style="width: 100%;"> <tr><td>0-49%</td><td style="text-align: right;">0</td></tr> <tr><td>50-59%</td><td style="text-align: right;">0</td></tr> <tr><td>60-69%</td><td style="text-align: right;">1</td></tr> <tr><td>70-79%</td><td style="text-align: right;">6</td></tr> <tr><td>80-89%</td><td style="text-align: right;">7</td></tr> <tr><td>90-100%</td><td style="text-align: right;">5</td></tr> <tr><td><b>Average:</b></td><td style="text-align: right;"><b>83.84</b></td></tr> </table>	0-49%	0	50-59%	0	60-69%	1	70-79%	6	80-89%	7	90-100%	5	<b>Average:</b>	<b>83.84</b>	<p>amount of improvement and the percentage of students making a 70% or higher for the last three cycles.</p> <table border="0" style="width: 100%;"> <tr><td>2013-14</td><td style="text-align: right;">83.8</td><td style="text-align: right;">95%</td></tr> <tr><td>2012-13</td><td style="text-align: right;">75.0</td><td style="text-align: right;">79%</td></tr> <tr><td>2011-12</td><td style="text-align: right;">71.0</td><td style="text-align: right;">50%</td></tr> </table> <p>It is not clear a this time, why student progress in the online General Biology is substantially higher than the onground sections. The results from the 2011-12 cycle are consistent with those seen in our onground sections. There has been substantial improvement, however, in the online course over the last two cycles. 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 onground sections to improve student learning.</p>	2013-14	83.8	95%	2012-13	75.0	79%	2011-12	71.0	50%	
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<b>BIOL 1144:</b> General Cell	Comprehensive Pre-Post Exam	70% of students will	Given to all students in	Fall 169	These tables summarize student scores for the fall	Average test scores were 64% & 63% for the Fall	N																							

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Biology	<p>Comprises a 40 multiple-choice question exam on basic concepts covered in the course.</p> <p>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.</p> <p>We consider two results: 1) post test scores, and 2) the difference in pre-post test scores.</p> <p>Here, we discuss the post-test score results. Change in pre-post scores is discussed in next section.</p>	score 70% or above.	both Fall & Spring terms.	Spring 152	<p>and spring terms.</p> <p style="text-align: center;"><b>Fall</b></p> <p style="text-align: center;"><b>Score Distribution</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>0-49%</td><td>35</td></tr> <tr><td>50-59%</td><td>36</td></tr> <tr><td>60-69%</td><td>29</td></tr> <tr><td>70-79%</td><td>33</td></tr> <tr><td>80-89%</td><td>22</td></tr> <tr><td>90-100%</td><td>14</td></tr> <tr><td><b>Average:</b></td><td><b>64.20</b></td></tr> </table> <p style="text-align: center;"><b>Spring</b></p> <p style="text-align: center;"><b>Score Distribution</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>0-49%</td><td>31</td></tr> <tr><td>50-59%</td><td>30</td></tr> <tr><td>60-69%</td><td>33</td></tr> <tr><td>70-79%</td><td>35</td></tr> <tr><td>80-89%</td><td>14</td></tr> <tr><td>90-100%</td><td>9</td></tr> <tr><td><b>Average:</b></td><td><b>62.70</b></td></tr> </table>	0-49%	35	50-59%	36	60-69%	29	70-79%	33	80-89%	22	90-100%	14	<b>Average:</b>	<b>64.20</b>	0-49%	31	50-59%	30	60-69%	33	70-79%	35	80-89%	14	90-100%	9	<b>Average:</b>	<b>62.70</b>	<p>and Spring terms. The average was 63% for both terms combined.</p> <p>40% (69 of 169) scored <math>\geq 70\%</math> for Fall term.</p> <p>38 (58 of 152) scored <math>\geq 70\%</math> for Spring term.</p> <p>40% (127 of 321) scored <math>\geq 70\%</math> when terms are combined.</p> <p>These results are a sharp drop from the previous cycle when the average was 68% and 48% scored <math>\geq 70\%</math>.</p> <p>Our Cell Biology students traditionally perform below expectations on this measure. Our faculty holds this is a reflection of the overall lower aptitude of our incoming students and the lack of strong science standards at the secondary education level. Students perform much closer to our standard in regards to the difference in pre and post scores (see below).</p>	
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						While there is no magic pill to correct low performance in this class, faculty will be exploring some changes in their curriculum to improve performance including use of MasteringBiology, more homework activities, and peer-learning.	
<b>BIOL 1144:</b> General Cell 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)	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 167  Spring 150	These tables summarize the difference in student scores for the pre & post test scores for each term.  <b>Fall Score Distribution (Post Test Improvement)</b> 0-10% 23 10-20% 37 20-30% 35 30-40% 35 40-50% 19 50-60% 9 60-70% 4 70-80% 0 80-90% 2 90-100% 1 <b>Average gain:</b> 27.11	Student scores on the post-test improved by an average of 27% and 23% for the Fall and Spring terms. The average was 25% for both terms combined.  63% (105 of 167) of students improved their score by $\geq 20\%$ for the Fall term.  55% 83 of 150) of students improved their score by $\geq 20\%$ for the Spring term.  59% (188 of 317) of students improved their score by $\geq 20\%$ for the both terms combined.  Our desired standard was not met in this cycle 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)																																		
	<p>the difference in pre-post test scores</p> <p>Here, we discuss the change between pre and pre-post test scores.</p>				<p style="text-align: center;"><b>Spring Score Distribution</b> (Post Test Improvement)</p> <table border="0" style="width: 100%;"> <tr><td>0-10%</td><td style="text-align: right;">20</td></tr> <tr><td>10-20%</td><td style="text-align: right;">41</td></tr> <tr><td>20-30%</td><td style="text-align: right;">40</td></tr> <tr><td>30-40%</td><td style="text-align: right;">28</td></tr> <tr><td>40-50%</td><td style="text-align: right;">7</td></tr> <tr><td>50-60%</td><td style="text-align: right;">5</td></tr> <tr><td>60-70%</td><td style="text-align: right;">2</td></tr> <tr><td>70-80%</td><td style="text-align: right;">1</td></tr> <tr><td>80-90%</td><td style="text-align: right;">0</td></tr> <tr><td>90-100%</td><td style="text-align: right;">0</td></tr> <tr><td><b>Average gain:</b></td><td style="text-align: right;">22.65</td></tr> </table>	0-10%	20	10-20%	41	20-30%	40	30-40%	28	40-50%	7	50-60%	5	60-70%	2	70-80%	1	80-90%	0	90-100%	0	<b>Average gain:</b>	22.65	<p>showed a sharp drop in the fraction of students scoring 70% or higher. This has reversed of trend of improving numbers seen over the last four years. The reason for this drop is not clear. Below are the average amount of improvement and the percentage of students meeting the standard for the last three cycles.</p> <table border="0" style="width: 100%;"> <tr><td>2013-14</td><td>25%</td><td>59%</td></tr> <tr><td>2012-13</td><td>29%</td><td>75%</td></tr> <tr><td>2011-12</td><td>27%</td><td>68%</td></tr> <tr><td>2010-11</td><td>24%</td><td>65%</td></tr> </table> <p>As discussed above, the students in this course routinely fail to meet the established performance standard. Progress towards this measure, however, is always better than the previous measure in that many students show substantial progress toward improving their understanding of biology over the course of the semester. Roughly 25% of incoming students</p>	2013-14	25%	59%	2012-13	29%	75%	2011-12	27%	68%	2010-11	24%	65%	
0-10%	20																																								
10-20%	41																																								
20-30%	40																																								
30-40%	28																																								
40-50%	7																																								
50-60%	5																																								
60-70%	2																																								
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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)
						<p>score below 30% on the pre-test. A total of 57% score below a 40%. The numbers below show the level of improvement students make as related to their pre-test scores. Students that perform the poorest on the pre-test are showing the greatest improvement. Notably, students scoring &lt; 20% on the pre-test are increasing their final score by almost 30 percentage points.</p> <p style="text-align: right;">           &lt;20% 30.0            20-30% 24.6            30-40% 25.2            40-50% 22.6            50-60% 17.8            60-70% 19.3            &gt;70% 14.0         </p> <p>Thus, while our students are not performing at the level desired, there is evidence that students make substantial progress in improving their understanding of biology and of science, in general.</p>	
<b>BIOL 1134:</b>	Comprehensive	70% of	Given to all	Spring	This table summarizes	The average test score	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)														
General Environmental Biology	Final Exam	students will have an average score of 70% or higher.	students in the Spring 2013 term.	9	<p>student scores for the spring term.</p> <p style="text-align: center;"><b>Score Distribution</b></p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr><td>0-49%</td><td style="text-align: right;">0</td></tr> <tr><td>50-59%</td><td style="text-align: right;">1</td></tr> <tr><td>60-69%</td><td style="text-align: right;">1</td></tr> <tr><td>70-79%</td><td style="text-align: right;">2</td></tr> <tr><td>80-89%</td><td style="text-align: right;">3</td></tr> <tr><td>90-100%</td><td style="text-align: right;">0</td></tr> <tr><td><b>Average:</b></td><td style="text-align: right;"><b>76.15</b></td></tr> </table>	0-49%	0	50-59%	1	60-69%	1	70-79%	2	80-89%	3	90-100%	0	<b>Average:</b>	<b>76.15</b>	<p>was 76%.</p> <p>78% (7 of 9) scored <math>\geq 70\%</math>.</p> <p>This is the first time we have met our standard for this course in the last three year. Last year, we fell just short. This shows that students in these classes are exhibiting proficiency in acquiring and evaluating knowledge.</p> <p>A comparison with the last two academic years shows an encouraging upward trend in the average score and the fraction of students meeting the standard. Below is the average score and percentage of students meeting the minimum standard for the last three cycles.</p> <p>2011-12: 69.0 39%  2012-13: 74.5 69%  2013-14: 76.1 78%</p>	
0-49%	0																				
50-59%	1																				
60-69%	1																				
70-79%	2																				
80-89%	3																				
90-100%	0																				
<b>Average:</b>	<b>76.15</b>																				
<b>BIOL 1134:</b> General Environmental	Average of three unit exams	70% of students will score 70% or	Given to all students in Spring +	0		Course did not make.	N/A														

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)
Biology (Online)		above.	Summer online sections				

**OUTCOME 2: Analyze and integrate knowledge.**

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)														
<b>BIOL 1114:</b> 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 as part of the lab final.	Fall + Spring 206	This table summarizes for student scores for Fall & Spring terms.  <b>Score Distribution</b> <table border="0"> <tr><td>0-49%</td><td>5</td></tr> <tr><td>50-59%</td><td>6</td></tr> <tr><td>60-69%</td><td>40</td></tr> <tr><td>70-79%</td><td>27</td></tr> <tr><td>80-89%</td><td>86</td></tr> <tr><td>90-100%</td><td>42</td></tr> <tr><td><b>Average:</b></td><td>78.24</td></tr> </table>	0-49%	5	50-59%	6	60-69%	40	70-79%	27	80-89%	86	90-100%	42	<b>Average:</b>	78.24	Average test scores were 78%.  75% (155 of 206) scored ≥70%.  This is the first time that this standard has been met. Notably, the average jumped dramatically from 71% to 78% over the last two academic years. This shows that our students are meeting the goal of exhibiting proficiency in analyzing and integrating knowledge.	Y
0-49%	5																				
50-59%	6																				
60-69%	40																				
70-79%	27																				
80-89%	86																				
90-100%	42																				
<b>Average:</b>	78.24																				
<b>BIOL 1144:</b> General Cell Biology	Science Literacy Quiz  Comprises a 15-question	70% of students will score 70% or above.	Given to all students in both Fall and Spring terms.	Fall + Spring 214	This table summarizes student scores for Fall & Spring terms.  <b>Score Distribution</b>	Average test scores were 82%.  73% (156 of 214) scored ≥70%.	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)														
	multiple choice assessment on the principles of science and the scientific method.		Administered as part of the lab final.		<table> <tr> <td>0-49%</td> <td>10</td> </tr> <tr> <td>50-59%</td> <td>10</td> </tr> <tr> <td>60-69%</td> <td>38</td> </tr> <tr> <td>70-79%</td> <td>30</td> </tr> <tr> <td>80-89%</td> <td>71</td> </tr> <tr> <td>90-100%</td> <td>55</td> </tr> <tr> <td><b>Average:</b></td> <td>82.36</td> </tr> </table>	0-49%	10	50-59%	10	60-69%	38	70-79%	30	80-89%	71	90-100%	55	<b>Average:</b>	82.36	<p>These results meet our desired standard. We have seen steady improvement in student achievement on this quiz over the last two cycles. Below is the average score and the percentage of students meeting the standard for the last three cycles. An encouraging trend.</p> <p>2010-11 69% 40%  2011-12 74% 65%  2012-13 76% 70%  2013-14 82% 73%</p> <p>This shows that our students are meeting the goal of exhibiting proficiency in analyzing and integrating knowledge.</p>	
0-49%	10																				
50-59%	10																				
60-69%	38																				
70-79%	30																				
80-89%	71																				
90-100%	55																				
<b>Average:</b>	82.36																				

**OUTCOME 3: Develop perspectives and an understanding of the human experience.**

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:	Comprehensive	70% of	Given to all	22	This table summarizes	The average test score	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)														
Plants and Civilization	Final Exam	students will have an average score of 70% or higher.	students in the May 2013 Intersession term.		<p>student scores for the Spring term.</p> <p><b>Score Distribution</b></p> <table border="1"> <tr><td>0-49%</td><td>0</td></tr> <tr><td>50-59%</td><td>0</td></tr> <tr><td>60-69%</td><td>0</td></tr> <tr><td>70-79%</td><td>0</td></tr> <tr><td>80-89%</td><td>2</td></tr> <tr><td>90-100%</td><td>20</td></tr> <tr><td><b>Average:</b></td><td>94.52</td></tr> </table>	0-49%	0	50-59%	0	60-69%	0	70-79%	0	80-89%	2	90-100%	20	<b>Average:</b>	94.52	<p>was 94%.</p> <p>100% (22 of 22) of students scored <math>\geq 70\%</math>.</p> <p>These results meet our desired standard. This shows that our students are meeting the goal of developing an understanding of the human experience.</p>	
0-49%	0																				
50-59%	0																				
60-69%	0																				
70-79%	0																				
80-89%	2																				
90-100%	20																				
<b>Average:</b>	94.52																				

**OUTCOME 4: Communicate 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.	23	This table summarizes student scores for the spring term.	<p>The average test score was 90%.</p> <p>94% (22 of 23) of students scored <math>\geq 70\%</math>.</p> <p>These results meet our desired standard. This shows that students are meeting the goal of communicating effectively.</p>	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)														
					<p style="text-align: center;"><b>Score Distribution</b></p> <table border="0"> <tr><td>0-49%</td><td style="text-align: right;">0</td></tr> <tr><td>50-59%</td><td style="text-align: right;">1</td></tr> <tr><td>60-69%</td><td style="text-align: right;">0</td></tr> <tr><td>70-79%</td><td style="text-align: right;">0</td></tr> <tr><td>80-89%</td><td style="text-align: right;">6</td></tr> <tr><td>90-100%</td><td style="text-align: right;">16</td></tr> <tr><td><b>Average:</b></td><td style="text-align: right;"><b>90.57</b></td></tr> </table>	0-49%	0	50-59%	1	60-69%	0	70-79%	0	80-89%	6	90-100%	16	<b>Average:</b>	<b>90.57</b>		
0-49%	0																				
50-59%	1																				
60-69%	0																				
70-79%	0																				
80-89%	6																				
90-100%	16																				
<b>Average:</b>	<b>90.57</b>																				

**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 (2014-2015). 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.
Acquire and evaluate information	<b>Biol 1114: General Biology</b> Explore possible changes to curriculum to deemphasize cell-related process with a greater emphasis on: 1) plant and animal biology, and 2) ecology.	The heavy emphasis of this course on chemistry and cell biology tend to make some student disconnected from the material. This course has also been very similar to the material covered in the Cell Biology course. Deemphasizing cellular processes would help to	Such a curriculum change might serve to better engage students and improve their understanding of key biological concepts.

General Education Outcomes	Instructional or Assessment Changes	Rationale for Changes	Impact of Planned Changes on Student Learning and Other Considerations.
		distinguish these two courses.	
Acquire and evaluate information	<b>Biol 1114: General Biology</b> Inform student advisors about General Environmental Biology being available as an alternative for the biology science requirement for general education.	Students typically perform much better in General Environmental Biology (Biol 1134) than in General Biology. Most students find the material more engaging and of more relevance to their personal life. The later course is not well-known among student advisors on campus and so few enroll in this Spring course.	Such a shift might see an improvement in assessment scores.
Acquire and evaluate information	<b>Biol 1114: General Cell Biology</b> Encourage more instructors to adopt the MasteringBiology online learning system.	This platform is an online supplement to the text book used in the course that uses a variety of pedagogical methods for teaching biological concepts. Instructors currently using the system have reported an increase in student understanding.	A greater utilization of this resource might improve student progress toward the established learning outcomes.
Acquire and evaluate information	<b>Biol 1114: General Cell Biology</b> Encourage more instructors to incorporate student homework assignments.	Homework provides student with a valuable learning tool outside the classroom environment. Cell Biology is a difficult class and may benefit from more learning activities.	Better progress toward student learning outcomes is expected.
Acquire and evaluate information Biol 1144: General Cell Biology	<b>Biol 1114: General Cell Biology</b> Dr. Jin Seo is going to try to incorporate peer-learning into his Cell Biology course for the Spring 2015 semester.	Peer-learning has been shown to improve student learning for difficult concepts.	It is hoped that such an approach would improve student progress toward learning outcomes.

**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
Craig Zimmermann	Provided data for Biol 1114, 1134, and 1144 Analyzed data and prepared report	
Jerry Bowen	Provided data for Biol 1114, 1144, and 3103 Prepared report	
Jin Seo	Provided data for Biol 1144 Prepared report	
Don Glass	Provided data for Biol 1144 Reviewed report	

Claudia Glass	Provided data for Biol 1114 and 1144 Reviewed report	<i>Claudia Glass</i>
Adele Register	Provided data for Biol 1114 and 1144 Reviewed report	<i>Adele Register</i>
Emily Shelton	Provided data for Biol 1114 and 1144 Reviewed report	<i>Emily Shelton</i>
Eric Lee	Review report	<i>E. Lee</i>

**B. Reviewed by:**

Titles	Names	Signatures	Date
Department Head	<i>Jerry Bowen</i>	<i>[Signature]</i>	<i>24 Sep 2014</i>
Dean	<i>Keith Martin</i>	<i>Keith W. Martin</i>	<i>9/25/2014</i>