PROGRAM REVIEW – CURRICULUM PACKET

2018-2019

BIOLOGY

This report includes course student learning outcome (cSLO) assessment summaries from 2015-16 to 2017-18.

COURSE OFFERINGS

Table 1. Course offerings per academic year from 2015-16 to 2018-19

Course Name	2015-2016	2016-2017	2017-2018	2018-2019
BIOL G100	x	x	x	x
BIOL G100L	x	x	x	x
BIOL G101	x	x	x	x
BIOL G104	x	x	x	x
BIOL G104L	x	x	x	x
BIOL G110	x	x	x	x
BIOL G120	x	x	x	x
BIOL G160	x	x	x	x
BIOL G180	x	x	x	x
BIOL G180L	x	x	x	x
BIOL G182	x	x	x	x
BIOL G182L	x	x	x	x
BIOL G183	x	x	x	x
BIOL G186		x		x
BIOL G200	x	x	x	x
BIOL G205	x	x	x	x
BIOL G210	x	x	x	x
BIOL G210L	x	x	x	x
BIOL G219		x	x	x
BIOL G220	x	x	x	x
BIOL G220L	x	x	x	x
BIOL G221	x	x	x	x
BIOL G221L	x	x	x	x
BIOL G225	x	x	x	x
BIOL G225L	x	x	x	x
BIOL G260		x	x	x
ECOL G100	x	x	x	x

COURSE ASSESSMENT STATUS

Fully Assessed	Partially Assessed	No Assessment
↑	↔	↓

Table 2. Course Assessment Status between 2015-16 and 2017-18
*No enrollment data between 2013-14 and 2018-19

Course Name	Total cSLOs	No. cSLOs Assessed	Assessment Status		Last Term Offered
BIOL G100	5	5 out of 5	Fully Assessed	↑	Spring 2019
BIOL G100L	5	4 out of 5	Partially Assessed	↔	Spring 2019
BIOL G101	4	4 out of 4	Fully Assessed	↑	Spring 2019
BIOL G104	3	3 out of 3	Fully Assessed	↑	Spring 2019
BIOL G104L	3	3 out of 3	Fully Assessed	↑	Spring 2019
BIOL G110	5	4 out of 5	Partially Assessed	↔	Spring 2019
BIOL G120	5	3 out of 5	Partially Assessed	↔	Spring 2019
BIOL G160	5	4 out of 5	Partially Assessed	↔	Spring 2019
BIOL G180	6	5 out of 6	Partially Assessed	↔	Spring 2019
BIOL G180L	6	5 out of 6	Partially Assessed	↔	Spring 2019
BIOL G182	5	4 out of 5	Partially Assessed	↔	Spring 2019
BIOL G182L	6	0 out of 6	No Assessment	↓	Spring 2019
BIOL G183	5	2 out of 5	Partially Assessed	↔	Spring 2019
BIOL G186	6	0 out of 6	No Assessment	↓	*
BIOL G200	5	5 out of 5	Fully Assessed	↑	Spring 2019
BIOL G205	5	5 out of 5	Fully Assessed	↑	Spring 2019
BIOL G210	4	2 out of 4	Partially Assessed	↔	Spring 2019
BIOL G210L	4	2 out of 4	Partially Assessed	↔	Spring 2019
BIOL G219	5	3 out of 5	Partially Assessed	↔	*
BIOL G220	5	5 out of 5	Fully Assessed	↑	Spring 2019
BIOL G220L	5	5 out of 5	Fully Assessed	↑	Spring 2019
BIOL G221	5	1 out of 5	Partially Assessed	↔	Spring 2019
BIOL G221L	5	1 out of 5	Partially Assessed	↔	Spring 2019
BIOL G225	5	5 out of 5	Fully Assessed	↑	Spring 2019
BIOL G225L	5	5 out of 5	Fully Assessed	↑	Spring 2019
ECOL G100	6	3 out of 6	Partially Assessed	↔	Spring 2017

Table 3. cSLOs that were not assessed between 2015-16 and 2017-18

Course Name	cSLO Name	cSLO to Assessed
BIOL G100L	cSLO 1	Describe core concepts in general biology including cell theory, modern theory of evolution, the scientific method, and basic biochemistry.
BIOL G110	cSLO 2	Apply critical thinking and analytical skills to correctly interpret data.
BIOL G120	cSLO 1	Identify, evaluate, and apply a variety of methods to solve problems.
BIOL G120	cSLO 4	Formulate the major components of the immune system and how they work together to defend the body from pathogens.
BIOL G160	cSLO 3	Recognize the most common disorders and diseases related to each of the major body systems.
BIOL G180	cSLO 4	Prepare a diluted chemical solution by calculating and measuring the required volumes of stock solution and diluents.
BIOL G180L	cSLO 4	Prepare a diluted chemical solution by calculating and measuring the required volumes of stock solution and diluents.

Course Name	cSLO Name	cSLO to Assessed
BIOL G182	cSLO 4	Explain how certain behaviors, such as parenting within the reptilian clade or courtship behaviors among lizards, may have resulted in symplesiomorphy and synaopmorphy among individuals within phylogenetic groups.
BIOL G182L	cSLO 1	Demonstrate an understanding of the core concepts and methods in science.
BIOL G182L	cSLO 2	Apply critical thinking and analytical skills to correctly interpret data.
BIOL G182L	cSLO 3	Explain and identify members of subkingdom Protozoa and kingdom Animalia, including embryological development, anatomical adaptations that different animal lineages have obtained for survival, and the ecological role they play.
BIOL G182L	cSLO 4	Describe the embryology of five different lineages of animals: non-chordates, primitive chordates, amphibians, archosaurs (birds and reptiles) and mammals.
BIOL G182L	cSLO 5	Explain the theory of evolution, relate information about its primary author and describe the various mechanisms by which it occurs.
BIOL G182L	cSLO 6	Analyze the workings of ecosystems, communities and populations.
BIOL G183	cSLO 3	Describe the organization and interactions of organisms within selected populations and communities.
BIOL G183	cSLO 4	Construct and correctly interpret phylogenies.
BIOL G183	cSLO 5	Describe major metabolic processes of botanical organisms such as cellular transport, photosynthesis, biosynthesis, digestion, cellular respiration, reproduction growth and development.
BIOL G186	cSLO 1	Differentiate among organisms of different taxonomic levels (and therefore phylogeny) using specific symplesiomorphies and synapomorphies.
BIOL G186	cSLO 2	Demonstrate comprehension of how environmental pressures spurred evolutionaryadaptations which ultimately gave rise to the apomorphies among major taxa.
BIOL G186	cSLO 3	Explain the major physiological mechanisms of each of the kingdoms.
BIOL G186	cSLO 4	Analyze and understand the link between form and function or anatomical structures asexemplified by members of each of the kingdoms.
BIOL G186	cSLO 5	Create and execute a simple experiment demonstrating thorough understanding of the scientific method.
BIOL G186	cSLO 6	Compose a report that clearly communicates complex ideas using proper scientific formatasis used by the scientific community to publish in science-based peer-reviewed journals.
BIOL G210	cSLO 1	Use aseptic technique in laboratory manipulations using microorganisms.
BIOL G210	cSLO 2	Separate mixed cultures of bacteria through specific techniques.
BIOL G210L	cSLO 1	Use aseptic technique in laboratory manipulations using microorganisms.
BIOL G210L	cSLO 2	Demonstrate the ability to separate mixed cultures of bacteria through specific techniques.
BIOL G219	cSLO 1	Develop and practice skills that will improve student involvement in the classroom, knowledge attainment from lecture and reading material, and overall success in Biology G 220 Human Anatomy
BIOL G219	cSLO 5	Describe and explain major anatomical structures involved in organ system intergrational homeostasis.
BIOL G221	cSLO 1	Demonstrate an understanding of the core concepts and methods in science.
BIOL G221	cSLO 2	Apply critical thinking and analytical skills to correctly interpret data.
BIOL G221	cSLO 3	Demonstrate the ability to relate anatomical structure to function.
BIOL G221	cSLO 4	Demonstrate the ability to recognize and label the anatomical structures of the different organ systems.
BIOL G221L	cSLO 1	Demonstrate an understanding of the core concepts and methods in science.
BIOL G221L	cSLO 2	Apply critical thinking and analytical skills to correctly interpret data.
BIOL G221L	cSLO 3	Demonstrate the ability to relate anatomical structure to function.
BIOL G221L	cSLO 5	Define homeostasis and give two examples of how homeostasis works to maintain balance of the physiological environment.

Course Name	cSLO Name	cSLO to Assessed
ECOL G100	cSLO 3	Demonstrate that they recognize the need to change perspectives and alter personal and societal attitudes if solutions are to be found.
ECOL G100	cSLO 5	Describe and evaluate the growth and distribution of the human population.
ECOL G100	cSLO 6	Evaluate the impact of the human population on air, water, food and energy resources of earth.

DATA EVALUATION

Table 4. cSLOs assessed and corresponding Data Evaluation.
*Denotes historical cSLOs.

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
BIOL G100	cSLO 1	Fall 2015	80% of our students correctly answered the question.
BIOL G100	cSLO 2	Fall 2016	The students performed poorly on this question.We believe the problem is two-fold. First, the question at the end of the scenario was not completely clear as to what information the response should include and many students did not address the question appropriately.Second, X-linked inheritance is a complicated concept for many students.
BIOL G100	cSLO 3	Fall 2017	80% of our students were able to correctly interpret that data and results of an enzyme test that they performed in lab.This is an acceptable level.
BIOL G100	cSLO 3	Summer 2017	75% of the students assessed satisfied the objective.
BIOL G100	cSLO 4	Spring 2016	70% of the students were able to state the significance of the article successfully.
BIOL G100	cSLO 4	Spring 2016	Only 73% of the students were able to successfully describe the significance of the article.
BIOL G100	cSLO 4	Spring 2016	The majority of the students were able to satisfactorily describe the significance of the article.
BIOL G100	cSLO 4	Spring 2016	Since 8% (19/23) students were able to describe the relevance of this article to society today (especially those who live in California) I feel this concept is well understood by the students in this section.
BIOL G100	cSLO 4	Spring 2016	78% of students met the SLO.
BIOL G100	cSLO 4	Spring 2016	Nineteen of twenty of my lab students answered the questions correctly.Answers were clear and written in complete sentences.
BIOL G100	cSLO 4	Spring 2016	72% of the students answered the survey satisfactory. The average score of the students with satisfactory SLO was 71% and the average score of the students with unsatisfactory SLO was 63.3%.
BIOL G100	cSLO 4	Spring 2016	80% of students satisfactorily describe the significance of the article.
BIOL G100	cSLO 4	Spring 2016	70% of the class was able to successfully describe the significance of the research reported in the article.I felt this was not a high enough success rate.
BIOL G100	cSLO 4	Spring 2016	This assignment was worked on by students at home and in lab. Students were allowed to discuss the article with one another in groups in lab.
BIOL G100	cSLO 4	Spring 2016	78% of students satisfactorily describe the significance of the article.
BIOL G100	cSLO 4	Fall 2016	76% of our students were able to accurately summarize the significance of the news article. For such an important skill, this number seems a bit low.
BIOL G100	cSLO 4	Spring 2018	We had poor participation in this SLO assessment and only 70% success.We find students still struggling to summarized the significance of a current news article, particularly when it provides information contrary to their long-held beliefs.
BIOL G100	cSLO 5	Spring 2017	Only 67% of students were able to satisfactorily describe the significance of the article.There was a lot of variation in success between instructors.Instructors were given the option of when and how to ask the question.For some it was a

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
			graded assignment and others it was not which could contribute to the variation in success.Our student have historically done poorly on this type of assessment.
BIOL G100L	cSLO 2	Summer 2015	I think the results demonstrate that the students are achieving at an acceptable level the skills listed in the SLO when it comes to understanding the differentiating characteristics between plant phyla (72%). However, students had a much lower success rate with questions that related to differentiating between plant and animal characteristics (66%).I think that one of the factors influencing the results of this analysis is the lack of focus shown by a number of students each semester. Those students who fail to achieve an acceptable level of skill are often those students who also show a lack of interest in the class as a whole since they are typically the students with the lowest overall score and with the largest number of absences.Additionally, presentation methods may not be conducive to maximal learning, leading to misunderstanding and lack of success.
BIOL G100L	cSLO 2	Fall 2016	The students performed poorly on this question.We believe the problem is two-fold. First, the question at the end of the scenario was not completely clear as to what information the response should include and many students did not address the question appropriately.Second, X-linked inheritance is a complicated concept for many students.
BIOL G100L	cSLO 3	Fall 2017	80% of students successfully interpreted their data.This was seen as a success.
BIOL G100L	cSLO 4	Spring 2016	76% of our students were able to accurately summarize the significance of the news article. For such an important skill, this number seems a bit low.
BIOL G100L	cSLO 4	Spring 2018	We had poor participation in this SLO assessment and only 70% success.We find students still struggling to summarized the significance of a current news article, particularly when it provides information contrary to their long-held beliefs
BIOL G100L	cSLO 5	Spring 2017	Only 67% of students were able to satisfactorily describe the significance of the article.There was a lot of variation in success between instructors.Instructors were given the option of when and how to ask the question.For some it was a graded assignment and others it was not which could contribute to the variation in success.Our student have historically done poorly on this type of assessment.
BIOL G101	cSLO 1	Fall 2016	75% of the students were able to describe an essential amino acid.This is considered successful.
BIOL G101	cSLO 2	Spring 2017	After completing a previous assignment to learn about the structure of the scientific method, 100% of the students were able to successfully design an experiment following the Scientific Method.
BIOL G101	cSLO 3	Fall 2015	70% students satisfactorily answered the question regarding osmosis and tonicity.
BIOL G101	cSLO 3	Spring 2018	63% of the class were able to come to the correct conclusion.This is an unacceptable level.
BIOL G101	cSLO 4	Spring 2016	11 of 13 students answered this question correctly, and that is considered a strong success.
BIOL G104	cSLO 1	Fall 2015	44 students were assessed through practical examination throughout the semester.Of the 44 students, 41(93%) were successful in using the scientific method to determine laboratory exercise outcomes and calculations.This indicates that students are able to use mathematical skills and critical thinking to determine the outcome of a scientific problem. • Are the students achieving/demonstrating the skills of the SLO listed in Step #1 at an acceptable level? YES • Is this an acceptable percentage? Why/why not?YES What are the

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
			possible factors that influence the students' results ? Basic skills that have been assessed prior to enrolling in the Biological Sciences courses. (math, chemistry,)
BIOL G104	cSLO 1	Spring 2016	The data acquired in the above SLO assessment showed that a high percentage (84%) of the students demonstrated an understanding of the ocean physical and chemical aspects of the ocean and how it relates to the marine organism's viability • Are the students achieving/demonstrating the skills of the SLO listed in Step #1 at an acceptable level? YES • Is this an acceptable percentage? Why/why not? YES, but could be improved What are the possible factors that influence the students' results (results listed in Step #3)? Early assessment in the semester.
BIOL G104	cSLO 1	Fall 2017	The numbers (65/75=86%) indicate an acceptable level of understanding of the effects of the physical (wave action, tides, pressure, etc.) and chemical (salinity, oxygen, nitrogen, etc.) properties on the marine organisms in the ocean. The students who are enrolled in this course are usually non-majors, so the results this semester indicate a highly motivated group of students.
BIOL G104	cSLO 1	Spring 2018	Students performed successfully in completing this cSLO for this semester.Method of presentation by instructor was expanded and class participation in lecture to explain each concept improved performance on examination.This was a higher percentage (92%) through a new methodology in lecture
BIOL G104	cSLO 2	Summer 2015	Questions were evaluated on an individual basis (review of student performance) and also in data collection on the class as a whole. The student understanding of the concept assessed indicates that approximately 93% of the students demonstrated the skills of the cSLO after completing the course. *Are the students achieving the skills in Step#1 at an acceptable level? YES. This is a non-majors course. . *Is this an acceptable percentage? YES *What are the possible factors that influence the students' results? The students were able to understand the divisions of the ocean realm and the location of a myriad of organisms found in specific regions (adaptations to these regions being of particular importance.. The cSLO assessment indicated that there was satisfactory understanding of the concept presented.
BIOL G104	cSLO 2	Fall 2016	55/70 students were successful in the essay/short answer exam-80%.These numbers reflect an understanding of the cSLO; since this is a format that the students did not use on other examinations.The students have demonstrated the skills in cSLO #2 at an acceptable level for this exam format (essay/short answer).The factors that influence 80% vs a higher percentage are the format (some students have not developed the writing skills or critical thinking skills).Since this is a non-majors course in science, many students have a learning curve with respect to the amount of information/scientific terns that are necessary to the understanding of the Marine Life course.This cSLO maps to pSLO 2 and 5.
BIOL G104	cSLO 2	Summer 2017	13 of the 15 students who were assessed successfully answered the essay question on the exam.A factor in this summer course was the size of the class which allowed for more time to engage in interactive activities which enhanced the learning process.The students demonstrated an 86% success rate which is most acceptable for an accelerated summer session.In summary, two factors were critical to the student success rate:the caliber of student (motivation level was high-50% of the class were from other 4 year universities) and the size of the class mentioned above.

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
BIOL G104	cSLO 3	Fall 2015	Questions were evaluated on an individual basis (review of student performance) and also in data collection on the class as a whole. The student understanding of the concept assessed indicates that approximately68/83 or 82 %of the students demonstrated the skills of the cSLO after completing the course. *Are the students achieving the skills in Step#1 at an acceptable level? YES. This is a non-majors course.. *Is this an acceptable percentage? YES *What are the possible factors that influence the students' results? The students were able to understand the divisions of the ocean realm and the location of a myriad of organisms found in specific regions (adaptations to these regions being of particular importance...The cSLO assessment indicated that there was satisfactory understanding of the concept presented.
BIOL G104	cSLO 3	Spring 2017	The numbers indicate that a majority of the students (non-majors) understood the cSLO and retained the information regarding marine organisms and their specific ocean environments.
BIOL G104	cSLO 3	Summer 2016	23/24 students completed the criteria successfully.The percentage of 95% is acceptable.The students in the summer session formed study groups and were highly motivated for college success.
BIOL G104L	cSLO 1	Fall 2015	44 students were assessed through practical examination throughout the semester.Of the 44 students, 41(93%) were successful in using the scientific method to determine laboratory exercise outcomes and calculations.This indicates that students are able to use mathematical skills and critical thinking to determine the outcome of a scientific problem. • Are the students achieving/demonstrating the skills of the SLO listed in Step #1 at an acceptable level? YES • Is this an acceptable percentage? Why/why not?YES What are the possible factors that influence the students' results ? Basic skills that have been assessed prior to enrolling in the Biological Sciences courses. (math, chemistry,)
BIOL G104L	cSLO 1	Summer 2015	21 students were assessed through 2 practical examination throughout the semester. Of the 21 students, the 1st exam yielded an 80% satisfactory completion. The 2nd examination a higher percentage of students (95%) were successful in using the scientific method to determine laboratory exercise outcomes and calculations. This indicates that students are able to use mathematical skills and criticalthinking to determine the outcome of a scientific problem. Are the students achieving/demonstrating the skills of the SLO listed in Step #1 at an acceptable level? YES Is this an acceptable percentage? Why/why not?YES What are the possible factors that influence the students' results ? Basic skills that have been assessed prior to enrolling in the Biological Sciences courses. (math, chemistry)
BIOL G104L	cSLO 1	Fall 2016	Of the 42 students, only 21 were correct in their calculations in the pretest (50%).In the post-test, 36/42 were successful (85%).The students after many exercises/labwork, etc. were able to successfully calculate and evaluate data with critical thinking.The students are achieving and demonstrating the skills assessed at an acceptable level.
BIOL G104L	cSLO 1	Spring 2017	Laboratory reports were graded with a rubric for each question.The criteria was understanding how a hypothesis is determined, evaluated through a practical investigation, and interpretation of results.The majority of the students interpreted the data successfully.
BIOL G104L	cSLO 1	Spring 2017	Laboratory reports were graded with a rubric for each question.The criteria was understanding how a hypothesis is determined, evaluated through a practical investigation, and interpretation of results.The majority of the students interpreted the data successfully.

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
BIOL G104L	cSLO 1	Fall 2017	58/60 students in the laboratories successfully interpreted data that was presented to them in a written assignment.This percentage (96%) indicated that the students understood the process and were able to correctly interpret scientific problems in marine sciences.There was also group discussions for further investigations.
BIOL G104L	cSLO 1	Spring 2018	The students (47/55) were successful at an 85% correct evaluation through class discussion which encouraged interactive learning.The results indicate that group discussions enhance the learning process as students applycritical thinking to a problem presented in the biological sciences and the correctuse of the scientific method.
BIOL G104L	cSLO 2	Spring 2016	• Of those students assessed on the final practical exam approximately 81% met the criteria for a satisfactory score • These numbers show that a good portion of the class met the SLOa. • Are the students achieving/demonstrating the skills of the SLO listed in Step #1 at an acceptable level? YES • Is this an acceptable percentage? Why/why not? This percentage should be higher; however, this is a non-majors course that covers a large amount of material and requires attention to detail as well as retention of material presented.For some of these students, this is the first time enrolled in a laboratory course.
BIOL G104L	cSLO 2	Summer 2015	Questions were evaluated on an individual basis (review of student performance) and also in data collection on the class as a whole. The student understanding of the concept assessed indicates that approximately 93% of the students demonstrated the skills of the cSLO after completing the course. *Are the students achieving the skills in Step#1 at an acceptable level? YES. This is a non-majors course. . *Is this an acceptable percentage? YES *What are the possible factors that influence the students' results? The students were able to understand the divisions of the ocean realm and the location of a myriad of organisms found in specific regions (adaptations to these regions being of particular importance.. The cSLO assessment indicated that there was satisfactory understanding of the concept presented.
BIOL G104L	cSLO 2	Fall 2016	There were 46 students total in both laboratory sections (50050, 50841). Of the 46 students/ 40 successfully completed the cSLO.This was an 87% success rate.This semester, there were several students who required additional campus resources (DSPS services) in the laboratory, but with that kept in mind, were also successful in learning the cSLO.Since these are non-major students, there was a satisfactory success rate in their performance on the practical examination
BIOL G104L	cSLO 2*	Summer 2017	Students were assessed through a laboratory exercise.Of the small number of students (7), 95 % were successful in the completion of this SLO.The small student/faculty ratio allowed for more hands on and personal time with the instructor. This student population was a very cohesive, interactive group which I believe enhanced the success rate.
BIOL G104L	cSLO 3	Fall 2015	Questions were evaluated on an individual basis (review of student performance) and also in data collection on the class as a whole. The student understanding of the concept assessed indicates that approximately68/83 or 82 %of the students demonstrated the skills of the cSLO after completing the course. *Are the students achieving the skills in Step#1 at an acceptable level? YES. This is a non-majors course.. *Is this an acceptable percentage? YES *What are the possible factors that influence the students' results? The students were able to understand the divisions of the ocean realm and the location of a myriad of organisms found in specific regions (adaptations to

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
			these regions being of particular importance...The cSLO assessment indicated that there was satisfactory understanding of the concept presented.
BIOL G110	cSLO 1	Spring 2016	I think the results (15/24 62.5% achieving an acceptable score) demonstrate that the students are not achieving the skills listed in the SLO at a level that I would deem acceptable for the level of instruction presented.My essay question:Define sustainable agriculture and list three changes that would need to be incorporated into industrialized agriculture to make it more sustainable was related to the SLO in #2 above because sustainable agriculture is dependent upon the ideas of the scientific method; fostering interspecific relationships, enhancing the action of naturally-occurring microbial populations, and making decisions based on the best-practices of science. I think the reason that the 19 students did not score at an acceptable level is due to my inability to help them make rational connections between the class material and the world around themselves.
BIOL G110	cSLO 1	Fall 2017	During the first few weeks of the semester, we discussed these core concepts and methods in science to provide them with a background understanding prior to introducing ecological concepts. 19 of the 27 evaluated students (70%)were successful on the exam questions, thus demonstrating an acceptable level of understanding andachieving the SLO skill.
BIOL G110	cSLO 3	Fall 2016	For the unit 2 exam (ocean life zones), 18 of 22 students were successful and the average was 80%. For the unit 3 final exam (terrestrial biomes), 17 of 21 students were successful and the average was 80%. The students are meeting the SLO skills at an acceptable level. The fieldtrips were instrumental in helping students understand these concepts. To increase student success, it would be beneficial to incorporate additional review, such as class discussion and more review assignments.
BIOL G110	cSLO 3	Spring 2018	For the ocean life zones assessment, 16 of 26 students were successful and the average was 63%. For the terrestrial biomes assessment, 18 of 26 students were successful and the average was 71%. Overall, 17 students were successful with an average of 67%. The students are not meeting the SLO skills at an acceptable level. To increase student success, it would be beneficial to incorporate additional review, such as class discussion and more review assignments.
BIOL G110	cSLO 4	Spring 2017	29 out of 29 students were successful and the average was 87%. The students are meeting the SLO skill at an acceptable level.
BIOL G110	cSLO 5	Fall 2015	I think the results (22/28 or 78% achieving a passing score) demonstrate that the students are achieving at only an acceptable level the skills listed in the SLO.I think that one of the factors influencing the results of the project in #3 is the lack of focus shown by a small number of students each semester. Those students who fail to achieve an acceptable level of skill are those students who also show a lack of interest in the class as a whole since they are typically the students with the largest number of absences and with the lowest overall score.
BIOL G120	cSLO 2	Spring 2018	According to the data collected ~81% of the students enrolled in the course managed to successfully apply critical thinking and analytical skills to correctly interpret data. Students had strong graphing skills, and were able to correctly determine probable correlations that present in the data set provided.
BIOL G120	cSLO 3	Spring 2017	Since only 8 of 18 students earned 7 or more out of the 10 possible points, this means there is much room for improvement.The information on the quiz was covered rather early on in the semester, weeks before the SLO assessment so that may be an issue.On the other hand, the questions focused on basic

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
			information that should be mastered and retained by a person earning a passing grade in the course.
BIOL G120	cSLO 5	Spring 2016	100 % of students successful completed this SLOa. Twenty-five students were assessed and twenty-five received full credit for their presentations. In addition, for each of the three exams given during the semester, five multiple-choice questions were included to assess student ability to recall information from the disease presentations.
BIOL G160	cSLO 1	Spring 2017	Students demonstrated comprehension of the cSLO.
BIOL G160	cSLO 2	Fall 2016	86% of the students assessed satisfied the assessment.The students are performed at an acceptable level for this SLO.
BIOL G160	cSLO 2	Spring 2017	The students successfully completed the assignment.
BIOL G160	cSLO 4	Fall 2015	A case study was given to 43 students.17/43 students provided an excellent analysis of the case and the 25 students provided a satisfactory analysis of the case.1 student provided an unsatisfactory case analysis in this course. The assessment of this SLO demonstrated a high level of student understanding of this topic.
BIOL G160	cSLO 4	Spring 2016	I am pleased with the results of this assessment.86% of the students were able to apply their knowledge to a analyze complex case .
BIOL G160	cSLO 5	Spring 2018	61.54% of students correctly answered the question used to assess this SLO. The results are less than satisfactory.I will have to spend more time on this concept next semester and re-assess this SLO.
BIOL G180	cSLO 1	Fall 2016	Eukaryotic cell division is a very important concept for majors biology, and is one that is required to successfully complete upper division courses in this major. 45 out of 55 students (81%) were successful in demonstrating the skills required for success of the SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the cell cycle, we feel that an 81% success rate for this SLOA is an excellent result, and demonstrates a substantial level of student learning.
BIOL G180	cSLO 1	Spring 2017	One of the more important concepts that must be mastered in majors biology is the cell cycle and eukaryotic cell division. This semester, 49 out of 60 students (82%) were successful in demonstrating the skills required for success of this particular SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the cell cycle, we feel that an 82% success rate for this SLOA is an excellent result, and demonstrates a substantial level of student learning.
BIOL G180	cSLO 2	Spring 2016	45 out of 53 students (85%) were successful in demonstrating the skills required for success of the SLO. An 85% success rate is an excellent result for this course SLO, and demonstrates that a substantial level of student learning has occurred.
BIOL G180	cSLO 3	Fall 2015	71 out of 92 students (77%) were successful in demonstrating the skills required for success of the SLO. A 77% success rate is a rather satisfactory result for this course SLO, and demonstrates that a substantial level of student learning has occurred.
BIOL G180	cSLO 5	Fall 2015	74 out of 95 students (78%) were successful in demonstrating the skills required for success of the SLO. A 78% success rate is a rather satisfactory result for this course SLO, and demonstrates that a substantial level of student learning has occurred.Restriction mapping is quite a difficult concept to understand, and the fact that so many students were able to achieve the basic concept is encouraging. This semester we made the mapping question a little more complex by including additional restriction sites, and asked the students not to simply guess at the answer.

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
BIOL G180	cSLO 6	Fall 2017	Successful biology students should be able to understand and interpret scientific research articles and critically analyze their content. This semester, 56 out of 77 students (73%) were successful in demonstrating the skills required for success of this particular SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the research article, we feel that a 73% success rate for this SLOA is an acceptable result, and demonstrates afairly good level of student learning.
BIOL G180	cSLO 6	Spring 2018	Successful biology students should be able to understand and interpret scientific research articles and critically analyze their content. This semester, 44 out of 56 students (79%) were successful in demonstrating the skills required for success of this particular SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the research article, we feel that a 79% success rate for this SLOA is an acceptable result, and demonstrates a good level of student learning.
BIOL G180L	cSLO 1	Fall 2016	Eukaryotic cell division is a very important concept for majors biology, and is one that is required to successfully complete upper division courses in this major. 45 out of 55 students (81%) were successful in demonstrating the skills required for success of the SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the cell cycle, we feel that an 81% success rate for this SLOA is an excellent result, and demonstrates a substantial level of student learning.This SLO was tested in lecture.
BIOL G180L	cSLO 1	Spring 2017	One of the more important concepts that must be mastered in majors biology is the cell cycle and eukaryotic cell division. This semester, 49 out of 60 students (82%) were successful in demonstrating the skills required for success of this particular SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the cell cycle, we feel that an 82% success rate for this SLOA is an excellent result, and demonstrates a substantial level of student learning.
BIOL G180L	cSLO 2	Spring 2016	45 out of 53 students (85%) were successful in demonstrating the skills required for success of the SLO. An 85% success rate is an excellent result for this course SLO, and demonstrates that a substantial level of student learning has occurred.
BIOL G180L	cSLO 3	Fall 2015	71 out of 92 students (77%) were successful in demonstrating the skills required for success of the SLO. A 77% success rate is a rather satisfactory result for this course SLO, and demonstrates that a substantial level of student learning has occurred.
BIOL G180L	cSLO 5	Fall 2015	74 out of 95 students (78%) were successful in demonstrating the skills required for success of the SLO. A 78% success rate is a rather satisfactory result for this course SLO, and demonstrates that a substantial level of student learning has occurred.Restriction mapping is quite a difficult concept to understand, and the fact that so many students were able to achieve the basic concept is encouraging. This semester we made the mapping question a little more complex by including additional restriction sites, and asked the students not to simply guess at the answer.
BIOL G180L	cSLO 6	Fall 2017	This SLO was assessed during lecture. Successful biology students should be able to understand and interpret scientific research articles and critically analyze their content. This semester, 56 out of 77 students (73%) were successful in demonstrating the skills required for success of this particular SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the research article, we feel that a 73%

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
			success rate for this SLOA is an acceptable result, and demonstrates afairly good level of student learning.
BIOL G180L	cSLO 6	Spring 2018	This SLO was assessed during the lecture portion of the entire lecture/lab course. Successful biology students should be able to understand and interpret scientific research articles and critically analyze their content. This semester, 44 out of 56 students (79%) were successful in demonstrating the skills required for success of this particular SLO.Given that the questions asked were mostly critical thinking questions requiring a true understanding of the research article, we feel that a 79% success rate for this SLOA is an acceptable result, and demonstrates a good level of student learning.
BIOL G182	cSLO 1	Fall 2015	Assessment of this SLO was completed as students were presented with their typical, but first, lecture examination.From the results of specific questions, it can be concluded that only ~70% of the students attained this objective.
BIOL G182	cSLO 2	Spring 2017	Only 11 of the 16 students assessed scored satisfactorily (above 60% or higher) on the assessment.However, I believe that this assessment of student success is skewed for the fact that many students taking the exam were statistically eliminated from passing the course or were "locked in" to their final grade such that any failure that was not abysmal and any stupendous success would not affect their final grades.
BIOL G182	cSLO 3	Spring 2018	100% of the students evaluated demonstrated competence regarding cSLO3
BIOL G182	cSLO 5	Spring 2016	39 out of 42 students demonstrated success (above 80% effectiveness) in their comprehension of their article.
BIOL G182	cSLO 5	Fall 2017	43 students demonstrated proficiencies outlined by cSLO5.3 of the students that did not do so, turned in their assignments late and were subjected to a late penalty that lowered their score.The final student utterly misinterpreted the results of the analysis that was summarized.
BIOL G183	cSLO 1	Spring 2018	Of the 24 students assessed (2 no-showed on the day of the final), only 2 students in the class did not display competence relative to the SLO standard.This is an acceptable level due to the fact that these two students consistently showed poor study habits.
BIOL G183	cSLO 2	Spring 2016	20 of 24 students received at least 5 of 7 points filling out the phylogenetic tree of plant lineages and classifications.This means that 83% of students got at least 70% correct.
BIOL G183	cSLO 5*	Fall 2015	96% of the students completed the assessment at a satisfactory level. Instructor feels that the wording of the multiple choice question was a level 3 on Bloom's Taxonomic scale (Application).
BIOL G200	cSLO 1	Summer 2016	The students performed well on this assessment showing mastery of this SLO.
BIOL G200	cSLO 2	Spring 2017	The students demonstrated comprehension of this SLO with 90% of students answering the assessed question correctly.
BIOL G200	cSLO 3	Fall 2015	A multiple choice exam question was selected and 87% of the students answered the question correctly demonstrating an acceptable level of understanding of this concept.
BIOL G200	cSLO 3	Spring 2016	78% of the students satisfactorily answered this question assessing comprehension of course SLO3.I am surprised by these results, I expected a higher percentage.
BIOL G200	cSLO 3	Fall 2016	I am pleased with the results of this SLOa.It is clear that the students are grasping and retaining this concept. This topic is one that is challenging and is presented early in the semester.81% of the students answered this question correctly.

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
BIOL G200	cSLO 3	Fall 2017	97% of the students answered this question correctly.The results of this assessment demonstrate that the students are meeting this student learning objective at an acceptable level.
BIOL G200	cSLO 4	Summer 2017	88% of students assessed successfully answered the question that pertains to cSLO4.I am satisfied with the results and will proceed to assessing a different SLO in the fall.
BIOL G200	cSLO 5	Spring 2018	97% of students correctly answered the question used to assess this course SLO.I am very satisfied with these results, they show a high level of comprehension for this SLO.
BIOL G205	cSLO 1	Spring 2018	The instructors are satisfied with the success rate of 100%.
BIOL G205	cSLO 2	Spring 2016	7/7 (100%) students successfully completed this SLO.We will continue the same teaching assignments to ensure this success rate is maintained.
BIOL G205	cSLO 2	Spring 2016	Since 2 of 2 students were able to interpret several types of data sets regarding their group of G210L microbiology students I feel this cSLO is being properly presented and understood by these G205 students.
BIOL G205	cSLO 2	Spring 2016	100% of students meet the SLO.
BIOL G205	cSLO 2	Spring 2016	The data shows that all students were successful in interpreting data
BIOL G205	cSLO 2	Spring 2016	Both G205 students were able to successfully interpret the data of a yeast fermentation experiment.
BIOL G205	cSLO 2	Spring 2016	100% of students met the SLO.
BIOL G205	cSLO 2	Spring 2017	Students have successfully demonstrated this skill.
BIOL G205	cSLO 3	Fall 2016	100% of the students adhered to lab safety rules regularly.
BIOL G205	cSLO 3	Summer 2016	Of the 6 students assessed, 5 earned a perfect score of 3 and one earned a 2 (they failed to adequately explain/demonstrate one safety rule in anatomy).We feel this SLO is adequately presented and mastered by our G205 students in summer school.
BIOL G205	cSLO 4	Fall 2015	37/37 (100%) of students satisfactorily explained a scientific technique to the members of the lab class.
BIOL G205	cSLO 5	Fall 2017	100% of the students successfully completed the skill check.
BIOL G210	cSLO 3	Fall 2016	The skills that were assessed (Gram staining and bacterial morphology) are not taught in general biology courses and thus serve as a good indicator of “new skills” gained in our microbiology courses. 90.7% of the students assessed met our criteria for success. We consider that a success.
BIOL G210	cSLO 3	Summer 2016	Since all 49 students achieved the objective (earning at least 75% of the possible 60 points on their Unknown project) we feel that this SLO is being adequately presented and mastered by our students.This was true of both lab sections, with each section having 100% student success for this SLO.
BIOL G210	cSLO 4	Spring 2016	We are hoping for more than 68% success rates for this cSLO.70% is our goal and we will try some new approaches next semester.
BIOL G210	cSLO 4	Summer 2015	The results indicate that 80% of the students assessed showed competency.Group exams are new to me and to the course and are based on new teaching strategies learned at On Course seminars. This test utilized “scratcher” Scantrons where students can earn partial credit depending on how many “guesses” are required to get the right answer.For the 3 Q. assessed, I only included groups that answered the Q correctly the first time, for the maximum # of points. This shows that 80% of students mastered the material presented.
BIOL G210	cSLO 4	Spring 2017	The fact that only 58% of student responses were correct reveals a glaring lack of understanding overall.Part of the problem we feel is the wording of the questions.Darla will assess the summer sections of micro (there are three total) and re-evaluate when this data is in.One factor which we must take into

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
			consideration is that summer students are generally more well-prepared for microbiology and many of them have already completed their BS degrees.So using summer data may not be a fair representation of how the program is doing.For fall we could either repeat the same assessment with the normal student population or switch to another type of assessment of this material.
BIOL G210	cSLO 4	Fall 2017	We were extremely pleased with the results of this fall assessment.80% of the answers were correct, representing a dramatic improvement over the summer school results.We did test material that had been recently presented in lecture so the increased retention of facts can possibly be attributed to that factor.We also tested immunology which has always been a more "user-friendly" topic for General Microbiology students in my experience, than virology (which was assessed in Summer 2017).Students in the day sections do a written paper and diagram of the immune response which may also lead to better understanding and retention.
BIOL G210	cSLO 4	Spring 2018	The results were much lower than expected. The questions were comprehensive rather than from recently covered material. These results so me that are current methods are only producing "short term" and not "long term" memory of specific details of the course.
BIOL G210	cSLO 4	Spring 2018	The number of correct responses was only 64%. This is deemed an unsatisfactory result. I attribute the low percentage to be the result of asking comprehensive questions on our assessment rather than questions on recently covered material. The results indicate that we are only producing short term memory of the material, not long-term memory.A possible solution which, I hope to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams.
BIOL G210	cSLO 4	Summer 2017	Overall, we were not pleased with the result of our cSLO's.Only 18 students showed a success rate of 75% by answering 3 out of 4 questions correctly.The overall success rate of correct answers for the 4 questions was 52%.Factors that may play a role:there were two lecture sections, one day and one night.The night class was taught by an Adjunct who does not teach here during the regular school year and the emphasis and order of lecture topics is different from the day instructor.We have found that having the cSLO assessed close to the presentation of the material in lecture does affect the success rates and this was not the case for the night students.We also feel that limiting our assessment to only 4 questions out of the immense amount of information covered in the course is too focused on just one topic.
BIOL G210L	cSLO 3	Fall 2016	The skills that were assessed (Gram staining and bacterial morphology) are not taught in general biology courses and thus serve as a good indicator of “new skills” gained in our microbiology courses. 90.7% of the students assessed met our criteria for success. We consider that a success.
BIOL G210L	cSLO 4	Spring 2016	124 out of 182 students (68%) successfully answered responses to the 4 multiple choice questions regarding viral structure, replication and disease.We are hoping to improve this number to at least 70% by emphasizing these processes in lecture and also by trying a different assessment tool - perhaps an essay question where students could be given credit for partial understanding.A major downside to MC questions is there is no way to determine if a student was close or completely lost since there is only one response possible.Trying an essay in the future will give instructors more precise feedback as to student success.
BIOL G210L	cSLO 4	Summer 2015	The results indicate that 80% of the students assessed showed competency.Group exams are new to me and to the course and are based on

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			new teaching strategies learned at On Course seminars. This test utilized “scratcher” Scantrons where students can earn partial credit depending on how many “guesses” are required to get the right answer.For the 3 Q. assessed, I only included groups that answered the Q correctly the first time, for the maximum # of points. This shows that 80% of students mastered the material presented.
BIOL G210L	cSLO 4	Spring 2017	Since only 58% of students earned proficiency we need to change the way we teach this concept or take a closer look at how the questions are presented.The assessment was completed in the attached lectures for these lab sections.
BIOL G210L	cSLO 4	Spring 2018	The number of correct responses was only 64%. This is deemed an unsatisfactory result. I attribute the low percentage to be the result of asking comprehensive questions on our assessment rather than questions on recently covered material. The results indicate that we are only producing short term memory of the material, not long-term memory.A possible solution which, I hope to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams.
BIOL G210L	cSLO 4	Spring 2018	The number of correct responses was only 64%. This is deemed an unsatisfactory result. I attribute the low percentage to be the result of asking comprehensive questions on our assessment rather than questions on recently covered material. The results indicate that we are only producing short term memory of the material, not long-term memory.A possible solution which, I hope to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams.
BIOL G210L	cSLO 4	Spring 2018	The number of correct responses was only 64%. This is deemed an unsatisfactory result. I attribute the low percentage to be the result of asking comprehensive questions on our assessment rather than questions on recently covered material. The results indicate that we are only producing short term memory of the material, not long-term memory.A possible solution which, I hope to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams.
BIOL G219	cSLO 2	Fall 2017	Overall success rate was a 97.5%.
BIOL G219	cSLO 3	Spring 2018	111/147 (75.5%) students scored 70% of higher on this assessment. The order of success for identifying the stomach as an organ and it's structures is as follows: Stomach (97%), Rugae (90%), Fundus (83.5%), Body (79%). Pyloris (72%), Cardia (66%)
BIOL G219	cSLO 4	Fall 2017	85% OF STUDENTS SUCCESSFULLY COMPLETED THIS SLOA
BIOL G220	cSLO 1	Fall 2016	230/234 (98%) or students were successful in obtaining this SLO. Reasons varied as to why4 students were unsuccessful in achievingthis SLO. This reasons include: not identifying the correct anatomical plane, not identifying the correct structure to be dissected, not utilizing the appropriate tool, or wearing the appropriate attire for dissections (safety hazard). of the 230 students who did successfully complete the SLO about 8%, scored lower than a 10/ 10 but higher than or equal to a 7/10. The most common mistake these students made was identifying the correct structure to dissect.
BIOL G220	cSLO 2	Spring 2017	The data shows that 89.8% of the students assessed were successful.This is awesome! Some of the reasoning behind this may be the fact that this semester, we recently added Biol G219 Human Anatomy Discussion course.This discussion course allows instructors to spend more time with the students on specific topics that are historically challenging.Some instructors were able to use online interactive media during the blood typing section so

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
			students could test "virtual" blood while learning about blood typing and transfusions.
BIOL G220	cSLO 2	Summer 2016	56/72 (78%) of students were able to correctly complete at least 70% of a short answer essay regarding blood typing. Part of the essay question involved students filling out a chart that asked for the genotype, antigens, and antibodies of each blood type, including Rh. Some students reported that this chart was confusing and may have contributed to the lower, but still acceptable, success rate. What is concerning is that most students struggled with understanding/recalling genotypes. This concerning because General Biology is a per-requisite for this course andgenotypes/phenotypes are reviewed extensively in that course. It is assumed by the time students enter anatomy they will have a firm grasp on this concept but our result indicate that many do not.
BIOL G220	cSLO 3	Fall 2015	195/215 (90.5%) of students completed the assessment at a satisfactory level. Students were awarded full credit for correctly identifying and correctly spelling the name a structure labeled on their lab exam. If a student did not correctly identify the labeled structure, no points were awarded.
BIOL G220	cSLO 3	Spring 2018	145/210(69%) students successfully completed this SLOa.
BIOL G220	cSLO 4	Summer 2015	96% completed the assessment at a satisfactory level. Instructors felt that the wording of the multiple choice question was a level 2 on Blooms Taxonomic scale yet students were able to correctly organize anatomical structures for normal body function.
BIOL G220	cSLO 4	Fall 2017	81% of students successfully completed this SLO.
BIOL G220	cSLO 5	Spring 2016	159/202 (78%) of students successfully completed this SLO. Students were asked to identify functions of the lymphatic system, many of which contribute to functions of other systems such as the digestive system and circulatory system. Students who correctly identified all functions were awarded full credit, those who did not were awarded no credit.
BIOL G220	cSLO 5	Summer 2017	87% of the students answered the SLO question successfully, which in my opinion is acceptable. The data shows that majority of the students have a good understanding of how different anatomical structures play a role in maintaining intergrational homeostasis. In future, the success rate could be further improved by adding additional home work/ flow chart assignments, which will help the visual students to better understand the process of homeostasis.
BIOL G220L	cSLO 1	Fall 2016	230/234 (98%) or students were successful in obtaining this SLO. Reasons varied as to why4 students were unsuccessful in achievingthis SLO. This reasons include: not identifying the correct anatomical plane, not identifying the correct structure to be dissected, not utilizing the appropriate tool, or wearing the appropriate attire for dissections (safety hazard). of the 230 students who did successfully complete the SLO about 8%, scored lower than a 10/ 10 but higher than or equal to a 7/10. The most common mistake these students made was identifying the correct structure to dissect.
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BIOL G220L	cSLO 3	Spring 2018	145/210(69%) students successfully completed this SLOa.
BIOL G220L	cSLO 4	Summer 2015	96% completed the assessment at a satisfactory level. Instructors felt that the wording of the multiple choice question was a level 2 on Blooms Taxonomic scale yet students were able to correctly organize anatomical structures for normal body function.
BIOL G220L	cSLO 4	Fall 2017	81% of students successfully completed this SLO
BIOL G220L	cSLO 5	Spring 2016	159/202 (78%) of students successfully completed this SLO. Students were asked to identify functions of the lymphatic system, many of which contribute to functions of other systems such as the digestive system and circulatory system. Students who correctly identified all functions were awarded full credit, those who did not were awarded no credit.
BIOL G221	cSLO 5	Fall 2015	Students were asked to describe the relationship between lung pressure and thoracic cavity volume during ventilation.Of the 42 submissions, 28/42 submissions (67%) were satisfactory.This percentage is rather low and I feel that it indicates more time should be spent on ventilation.
BIOL G221L	cSLO 4	Spring 2018	With all students identifying the six terms correctly, it appears students are demonstrating the skills of this SLO at an acceptable level for the urinary and reproductive systems.
BIOL G225	cSLO 1	Fall 2015	The results indicate that roughly 83% of the students assessed showed competency.This indicated that though the majority of the students achieved competency, which is great compared to previous semesters.This assessment is different from previous semesters as we used a multiple choice question with a fill in the blank component.This almost correlates with a fill in the blank question with a word bank.In Summer of 2015 a short answer question was assessed.There is a drastic increase in competency when student are given a choice/options on how to explain a physiological process vs.have to recall it open-endedly
BIOL G225	cSLO 2	Spring 2018	The results here show that about 84.4 % of the students were successful in correctly interpreting the correct blood typing data.This is an excellent percentage! There are several factors that may have contributed to such a high percentage.First, prior to the assessment, students were able to conduct the blood typing experiment for themselves using real blood samples.This allowed them to have a hands-on experience and tie in data interpretation based on the results.In addition, several examples were provided in the lab introductions, which gave students practice in interpreting such data.This most likely helped to build their confidence in reading the correct result.

Course Name	cSLO	Semester Assessed	cSLO Data Evaluation
BIOL G225	cSLO 3	Spring 2017	The results indicate that 94.16% of students being assessed are successfully completing the assessment.This is great news! We had previously assessed this SLO in the summer 2016 (small sample size) and thus wanted to reassess during a regular semester.This resulted in an over 5% increase in success rate, indicating the methods for conveying this concept work on both a summer session population as well as a regular 16 week semester population.We continue to feel the reasoning for great success rate is the hands on approach to this activity.Since students are collecting their own data, they are more invested in what the significance is versus interpreting giving numbers from a textbook.By bringing the information to life, we feel students can connect to the material more and thus effectively approach the assessment.
BIOL G225	cSLO 3	Summer 2016	The results indicate that roughly 87.8% of the students are showing competency in this SLO.This is awesome! Upon discussion, we realize there are several factors that may contribute to this success.Fluid flow is a concept that is introduced in lab with a very "hands-on" approach.Students tend to be very engaged with the activity since they are actively measuring water, changing tubes, adjusting pressure and ultimately having fun.This hands-on learning approach not only makes students more engaged, but allows them to visually see the volume differences and effects of changing factors in fluid flow.Seeing these changes helps students translate the information to paper more accurately and essentially help them grasp the major concepts.
BIOL G225	cSLO 3	Fall 2017	The results of this assessment show a 88% success rate, which is stellar!This is definitely considered to be an acceptable percentage.After discussing possible reasons for the success rate, there seem to be quite a few.The first reason is chemical control of respiration is a topic that is first introduced during the pH section (early on in the course).When covering respiration, we re-visit these topics and try to link previously knowledge to more complex new knowledge.We feel that scaffolding the material and linking previously taught material definitely helps to solidify the concepts for students.Another possible reason for the success rate, is that this particular SLO is linked to a lab report and experiment.When students have a hands on experience with the material , it often becomes more applicable and less abstract.Lastly, the students are working and collaborating in groups during the lab experiments.This means they can bounce idea and concepts off of each other and discuss how to approach difference scenarios and questions.This collaborative working environment may have also helped students become successful in the SLO.
BIOL G225	cSLO 4	Spring 2016	The results indicate that 88.3% of the students were able to successfully complete this outcome.This is great! It indicates students are able to learn the normal physiological values of blood and thus identify anomalies when encountered with them.This is probably attributed to the fact the blood is concepts discussed very early on in the course (pH values) then gradually built upon as the course progresses (WBC and Blood typing labs, clotting pathways etc.).This gradual and repeated exposure is likely to make students comfortable with the topic and truly grasp the physiological concepts.
BIOL G225	cSLO 5	Fall 2016	The data show that 175/211 or about 83% of students that were assessed were successful in choosing the correct answer.This is overall great.Though there is still room for improvement, we feel that the major concepts of the complicated system and how it works have been accurately and efficiently conveyed to the students.
BIOL G225L	cSLO 1	Fall 2015	The results indicate that roughly 83% of the students assessed showed competency.This indicated that though the majority of the students achieved

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BIOL G225L	cSLO 2	Spring 2018	The results here show that about 84.4 % of the students were successful in correctly interpreting the correct blood typing data.This is an excellent percentage! There are several factors that may have contributed to such a high percentage.First, prior to the assessment, students were able to conduct the blood typing experiment for themselves using real blood samples.This allowed them to have a hands-on experience and tie in data interpretation based on the results.In addition, several examples were provided in the lab introductions, which gave students practice in interpreting such data.This most likely helped to build their confidence in reading the correct result.
BIOL G225L	cSLO 3	Spring 2017	The results indicate that 94.16% of students being assessed are successfully completing the assessment.This is great news! We had previously assessed this SLO in the summer 2016 (small sample size) and thus wanted to reassess during a regular semester.This resulted in an over 5% increase in success rate, indicating the methods for conveying this concept work on both a summer session population as well as a regular 16 week semester population.We continue to feel the reasoning for great success rate is the hands on approach to this activity.Since students are collecting their own data, they are more invested in what the significance is versus interpreting giving numbers from a textbook.By bringing the information to life, we feel students can connect to the material more and thus effectively approach the assessment.
BIOL G225L	cSLO 3	Summer 2016	The results indicate that roughly 87.8% of the students are showing competency in this SLO.This is awesome! Upon discussion, we realize there are several factors that may contribute to this success.Fluid flow is a concept that is introduced in lab with a very "hands-on" approach.Students tend to be very engaged with the activity since they are actively measuring water, changing tubes, adjusting pressure and ultimately having fun.This hands-on learning approach not only makes students more engaged, but allows them to visually see the volume differences and effects of changing factors in fluid flow.Seeing these changes helps students translate the information to paper more accurately and essentially help them grasp the major concepts.
BIOL G225L	cSLO 3	Fall 2017	The results of this assessment show a 88% success rate, which is stellar!This is definitely considered to be an acceptable percentage.After discussing possible reasons for the success rate, there seem to be quite a few.The first reason is chemical control of respiration is a topic that is first introduced during the pH section (early on in the course).When covering respiration, we re-visit these topics and try to link previously knowledge to more complex new knowledge.We feel that scaffolding the material and linking previously taught material definitely helps to solidify the concepts for students.Another possible reason for the success rate, is that this particular SLO is linked to a lab report and experiment.When students have a hands on experience with the material , it often becomes more applicable and less abstract.Lastly, the students are working and collaborating in groups during the lab experiments.This means they can bounce idea and concepts off of each other and discuss how to

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BIOL G225L	cSLO 5	Fall 2016	The data show that 175/211 or about 83% of students that were assessed were successful in choosing the correct answer.This is overall great.Though there is still room for improvement, we feel that the major concepts of the complicated system and how it works have been accurately and efficiently conveyed to the students.
ECOL G100	cSLO 1	Fall 2015	69% of the students completed the assessment at a satisfactory level. Instructor feels that the wording of the multiple choice question was a level 4 on Bloom's Taxonomic scale (Analysis).
ECOL G100	cSLO 2	Spring 2016	We feel this result (87.5% of students receiving at least 70% for this question) indicates a strong level of understanding and ability to apply knowledge to a complex ecological problem.
ECOL G100	cSLO 4	Spring 2017	9 out 9 students were successful and the average was 78%. The students are meeting the SLO skill at an acceptable level. The lecture material, in-class discussions, and their personal research was instrumental in helping students gain an understanding of their topic. However, a portion of the paper grade was for general grammar and writing skills. All students did poorly in this area; thus the overall grade may not accurately reflect their depth of understanding.

DATA PLANNING

Table 5. cSLOs assessed and corresponding Data Planning.
*Denotes historical cSLOs.

Course Name	cSLO	Semester Assessed	cSLO Data Planning
BIOL G100	cSLO 1	Fall 2015	Students performed well on this question. No special changes are planned regarding this topic.
BIOL G100	cSLO 2	Fall 2016	Instructors will incorporate more opportunities for problem solving in our genetics unit.
BIOL G100	cSLO 3	Fall 2017	The SLO assessment ws at higher enough success rate that we will proceed with assessing a different SLO in the next semester.
BIOL G100	cSLO 3	Summer 2017	The students achieved at at an acceptable rate, therefore we can assess an alternate SLO in the fall.
BIOL G100	cSLO 4	Spring 2016	More time in class will be spent teaching students how to distill information out of news articles.
BIOL G100	cSLO 4	Spring 2016	The results of this assessment has shown me that I need to incorporate more activities like this in future classes and work to teach the students how to critically read and analyze science articles.
BIOL G100	cSLO 4	Spring 2016	It is important that students learn to read articles critically. I will continue to discuss this topic in my class and use more assignments like this in future courses.
BIOL G100	cSLO 4	Spring 2016	I feel this approach to presenting this cSLO was successful for this group of students so I plan the same method for the next Bio. G100L I teach. During my lab introductions I spend quite a bit of time during appropriate exercises in discussion

Course Name	cSLO	Semester Assessed	cSLO Data Planning
			of what makes a scientific article or website "scientific" and also warn them of the vagaries of the internet. I feel the point was well taken by this group as seen by the data.
BIOL G100	cSLO 4	Spring 2016	If I were teaching this class next semester I would make a point to integrate news articles pertaining to relevant topics as homework. I find that many community college students do not read enough peer-reviewed scientific journal articles; improving their scientific literacy and developing scientific writing skills would benefit our students throughout the semester in lecture and lab. This could also help students improve their skills in interpreting data tables as well as data presented in charts/graphs. I have found that this is an area of potential growth as well. In my assessment I found that some of the students were too brief in their answer to the question to earn a satisfactory score. I suspect that some of the students that provided brief one-sentence answers because they forgot about the assignment and rushed through the process of answering the questions despite the fact that they had ten days notice of the deadline as well as two reminders to do the assignment. I collected it in lab and students that missed lab were allowed to turn it in during lecture. I provided points for completing it as part of our ecology unit in both lecture and lab as an incentive. In order to ensure that students take the assessment seriously and do their best/avoid procrastinating etc... I would try to integrate the SLO questions into a formal assessment - perhaps a quiz. Students would be instructed to provide a detailed answer to the question. I would do this more than once using different articles. I know that students are often misled by research that falls under the category of "pseudoscience" and think that this topic could also be discussed in the very beginning of the semester when we discuss the scientific method. Many students incorrectly answer questions about correlation and causation as well. For example, in a past semester at another school we discussed an article pertaining to an increase in diagnosis of prostate cancer in men that previously had vasectomies; I asked students if vasectomies cause prostrate cancer. As students discussed the article in groups of four or five many of the students quickly agreed that there was indeed between a correlation between the two - a student suggested it was because use of surgical means to control reproduction is wrong and cancer is the "punishment"...another student suggested it was simply a correlation between the diagnosed patient having medical insurance, ready access to a urologist and perhaps even advance knowledge of warning signs related to prostate cancer as the result of patient education during discussions with their physicians. Other students then agreed that they thought that there was a correlation but it was related to diagnosis of the cancer rather than the cause of the cancer. This was an interesting assessment exercise and I realized how little exposure to peer reviewed scientific journal articles most students have and found myself wishing we could integrate a research project into our courses. I liked the article and plan to use it in the future.
BIOL G100	cSLO 4	Spring 2016	No future changes are necessary
BIOL G100	cSLO 4	Spring 2016	I plan to use biological reports in my labs. to improve my students skill in understanding and criticizing these reports.
BIOL G100	cSLO 4	Spring 2016	Our faculty collectively feel that we need to incorporate more news articles into our curriculum.
BIOL G100	cSLO 4	Spring 2016	I will be having students read more current news articles in the upcoming semesters to practice skills such as distilling out the significance of scientific reports and analyzing data and credibility of reports.
BIOL G100	cSLO 4	Spring 2016	I will be increasing student success through the incorporation of homework assignments that lead students to analyze science articles from credible sources.

Course Name	cSLO	Semester Assessed	cSLO Data Planning
			This will include articles from Scientific American and other websites that *properly* paraphrase primary literature that students will find interesting and relevant.
BIOL G100	cSLO 4	Spring 2016	Our faculty collectively feel that we need to incorporate more news articles into our curriculum.
BIOL G100	cSLO 4	Fall 2016	Our faculty collectively feel that we need to incorporate more news articles into our curriculum. Instructors will be addressing this in the Fall 2016 semester.
BIOL G100	cSLO 4	Spring 2018	The Bio100 instructors will increase the amount of news articles that we incorporate into our curriculum and work on interpreting current news using evidence-based reasoning.
BIOL G100	cSLO 5	Spring 2017	The results of the assessment highlight the need for the Bio100 instructors to incorporate more regular use of current news articles in class. As lead instructor I will encourage instructors to incorporate more activities to Improve scientific literacy and will make a current news repository in our Canvas website to share articles with instructors.
BIOL G100L	cSLO 2	Summer 2015	In the future, instructors plan to continue to present information about the evolution and natural selection of plants and animals and the differences between plants and animals, including characteristics unique to each. One approach that some instructors will implement is more informal quizzing during lecture and scored quizzes (clicker questions) at the end of each lecture as a way of monitoring student engagement and hopefully improve student learning. Some instrcutros also plan on evaluating presentation methods and experimenting with new techniques to better engage students during this unit.
BIOL G100L	cSLO 2	Fall 2016	Instructors will incorporate more problem solving opportunities in their genetics unit.
BIOL G100L	cSLO 3	Fall 2017	With the success rate we achieved, we feel as though we can focus on a different SLO in the next semester.
BIOL G100L	cSLO 4	Spring 2016	The instructors all feel that we should spend more time addressing this skill in our lectures and labs and plan to incorporate news articles more regularly in our classes.
BIOL G100L	cSLO 4	Spring 2018	The Bio100 instructors will increase the amount of news articles that we incorporate into our curriculum and work on interpreting current news using evidence-based reasoning.
BIOL G100L	cSLO 5	Spring 2017	The results of the assessment highlight the need for the Bio100 instructors to incorporate more regular use of current news articles in class. As lead instructor I will encourage instructors to incorporate more activities to Improve scientific literacy and will make a current news repository in our Canvas website to share articles with instructors.
BIOL G101	cSLO 1	Fall 2016	No changes are necessary.
BIOL G101	cSLO 2	Spring 2017	I will continue assigning this project with smaller introductory write-ups earlier in the semester.
BIOL G101	cSLO 3	Fall 2015	Tonicity and osmosis are difficult for the students to completely comprehend. I plan to introduce the topic earlier in the semester and spend a bit more extra time reviewing it whenever it applies to the day's topic.
BIOL G101	cSLO 3	Spring 2018	Students enter the Bio of Food class with strongly held beliefs about food and health that are incorrect food myths circulated by companies and individuals on media who do not have an appropriate educational background. The prevalence of the incorrect information convinces the students that the information is true. One goal of the class is to teach the students the biology and chemistry of our bodies and of the food we eat so that they can identify incorrect information in the media and use evidence-based reasoning to make good decisions. I will continue

Course Name	cSLO	Semester Assessed	cSLO Data Planning
			identifying issues in popular media and focusing on the core biology and chemistry that helps the students identify incorrect information.
BIOL G101	cSLO 4	Spring 2016	I will continue with my current coverage of GMOs in class as the students are understanding and retaining the information.
BIOL G104	cSLO 1	Fall 2015	The results of this assessment indicate that the course SLO has been satisfactorily completed and maps to the Institutional SLO #3. The development of other supportive laboratory exercises continues to be a goal of this program in order to reach a greater number of students and improve student learning. A note: Additional scientific calculations (including metrics) will be assessed in the Spring 2016 semester.
BIOL G104	cSLO 1	Spring 2016	The results will be used to further assess throughout the semester with either a different method and/or more critical thinking (essay, compare and contrast different organisms in specific physical and chemical ocean conditions, or alternative questions-fill-in, short answer). In addition, although this course is a LCF, more interactive activities could be used to improve the retention of this material.
BIOL G104	cSLO 1	Fall 2017	Spring 2018, as the instructor of record, I will move on to a different SLO so that the course can be evaluated for student understanding of all aspects of the marine life course. An alternative option is to provide students with a different testing modality to ascertain student understanding of the concept in more detail.
BIOL G104	cSLO 1	Spring 2018	Future semester evaluations of cSLOs will include more participatory in-class assignments with group discussions to enhance student learning for this course.
BIOL G104	cSLO 2	Summer 2015	The results of this assessment indicate that the cSLO has been satisfactorily completed and effectively maps to Institutional SLO #1. It is my intention to assess a different SLO in future semesters Students attending the summer session are highly motivated and achieved a higher level of completion of SLO's in this course.
BIOL G104	cSLO 2	Fall 2016	Plan to use more in-class assignments/discussions regarding the concepts presented in the Marine Life course with a follow-up essay/short answer summary by the students after group discussions. This SLO can be assessed in future semesters after using the above mentioned teaching methods.
BIOL G104	cSLO 2	Summer 2017	The results of this assessment indicate that the cSLO has been satisfactorily completed
BIOL G104	cSLO 3	Fall 2015	The results of this assessment indicate that the cSLO has been satisfactorily completed. The same cSLO was assessed in the Spring and Fall to compare student populations and success rates. The comparison indicates that the students in the Spring 2015 semester had a greater understanding of the cSLO. SLO reassessment continues to be a goal of this program in order to reach a greater number of students and improve student learning.
BIOL G104	cSLO 3	Spring 2017	Students will move on to the next cSLO for this course. In addition, the instructor intends to add additional cSLO's to increase the student understanding of concepts presented in the course (Marine Life = Biol G104) lecture.
BIOL G104	cSLO 3	Summer 2016	I will be assessing the same SLO in the Fall 2016 semester with a different method to determine the student retention of this information in a 16 week semester.
BIOL G104L	cSLO 1	Fall 2015	The results of this assessment indicate that the course SLO has been satisfactorily completed and maps to the Institutional SLO #3. The development of other supportive laboratory exercises continues to be a goal of this program in order to reach a greater number of students and improve student learning. A note: Additional scientific calculations (including metrics) will be assessed in the Spring 2016 semester.
BIOL G104L	cSLO 1	Summer 2015	The results of this assessment indicate that the course SLO has been satisfactorily completed and maps to the Institutional SLO #3. The development of other

Course Name	cSLO	Semester Assessed	cSLO Data Planning
			supportive laboratory exercises continues to be a goal of this program in order to reach a greater number of students and improve student learning. A note: Typically summer students are motivated as it is a 6 week accelerated course. This summer session (2015) attests to the motivation/dedication and interactive enthusiasm of this student population.
BIOL G104L	cSLO 1	Fall 2016	This cSLO has been assessed throughout several semesters. The plan is to assess a different cSLO to determine if the students are successfully learning the complete scope of the Marine Life Laboratory course.
BIOL G104L	cSLO 1	Spring 2017	Expansion of laboratory exercises to determine student understanding of scientific method and laboratory data interpretation.
BIOL G104L	cSLO 1	Spring 2017	The action plan is to expand the laboratory exercises to assess student's understanding of basic science and the skills needed to interpret data.
BIOL G104L	cSLO 1	Fall 2017	As instructor of record for this course, I intend to reassess the same SLO presenting a series of marine science problems in the laboratory classroom and assignment of groups to present the steps for each problem and interpretation of data to support and/or negate the hypothesis for each problem.
BIOL G104L	cSLO 1	Spring 2018	As the instructor of record, I plan on using a problem in marine biology for students to evaluate through the steps in the scientific method both in the laboratory (through a hands-on series of experiments) and in the field through collection of data. A different method will determine if students achieve the same or higher success rate for cSLO # 1. (a critical concept in the Biological Sciences Department).
BIOL G104L	cSLO 2	Spring 2016	Potentially, a different assessment method may be used to assess this cSLO in the next year. This particular cSLO is being assessed for the first time and the data needs to be analyzed and re-evaluated for more than one semester.
BIOL G104L	cSLO 2	Summer 2015	The results of this assessment indicate that the cSLO has been satisfactorily completed and effectively maps to Institutional SLO #1. It is my intention to assess a different SLO in future semesters Students attending the summer session are highly motivated and achieved a higher level of completion of SLO's in this course.
BIOL G104L	cSLO 2	Fall 2016	This assessment (cSLO#2) was assessed again to compare data from the summer session (Summer 2016) to the Fall 2016 session. In comparing Summer to Fall semesters, it is apparent that the Summer students are highly motivated in a 6 week session. In the next few semesters, other cSLO's will be assessed to determine the overall success rate of students in the Marine Life laboratory. This cSLO maps to pSLO # 2 and pSLO $5, as the students needed to be able to complete specific calculations with regards to salinity, metrics, etc.
BIOL G104L	cSLO 2*	Summer 2017	Since the cSLO evaluated was at a 95%+ success rate, the instructor of record will assess a different cSLO in future summer sessions. The number of students in 54955 (Summer 2017) was indicative of a more hands-on laboratory experience and the success rate on interpretation of data/laboratory procedures reflected the smaller class size.
BIOL G104L	cSLO 3	Fall 2015	The results of this assessment indicate that the cSLO has been satisfactorily completed. The same cSLO was assessed in the Spring and Fall to compare student populations and success rates. The comparison indicates that the students in the Spring 2015 semester had a greater understanding of the cSLO. SLO reassessment continues to be a goal of this program in order to reach a greater number of students and improve student learning.
BIOL G110	cSLO 1	Spring 2016	To be clear, I establish an "acceptable score" on this question to be 80% or higher for students who were able to go beyond merely regurgitating material directly from the textbook. Students were supplied with potential exam questions with instructions to develop fully explanatory responses, meaning that although there were short, declarative statements about sustainable agriculture in the reading,

Course Name	cSLO	Semester Assessed	cSLO Data Planning
			students were expected to synthesize a complete response from multiple chapters of the textbook and from independent research outside of class. Going forward, I will assist students in being more successful by stressing the value of synthetic reasoning and providing feedback during the semester on questions of similar complexity.
BIOL G110	cSLO 1	Fall 2017	For the next semester, I intend to incorporate more time for in-class discussion of the concepts and included additional and/or more in-depth review assignments (e.g., chapter review questions, lab activities). It may also be beneficial to assess this SLO using a different method (e.g., review questions assignments, exam essay questions) as multiple choice exam questions may not accurately reflect true understanding of concepts.
BIOL G110	cSLO 3	Fall 2016	For the next semester, I intend to incorporate more time for in-class discussion of the concepts and include additional and/or more in-depth review assignments (e.g., LRQs [chapter review questions] and fieldtrip report questions). It may be beneficial to assess this SLO using a different method (e.g., review question assignments or exam essay questions) as multiple choice exam questions may not accurately reflect true understanding of concepts.
BIOL G110	cSLO 3	Spring 2018	For the next semester, I intend to incorporate more time for in-class discussion of the concepts and include additional and/or more in-depth review assignments, in addition to the LRQs [chapter review questions] and fieldtrip report questions. It may be beneficial to assess this SLO using a different method (e.g., review question assignments or exam essay questions) as multiple choice exam questions may not accurately reflect true understanding of concepts.
BIOL G110	cSLO 4	Spring 2017	For the next semester, I intend to incorporate more time for in-class discussion of the concepts and included additional and/or more in-depth review assignments (e.g., chapter review questions, fieldtrip report questions). It may also be beneficial to assess this SLO using a different method (e.g., review questions assignments, exam essay questions) as multiple choice exam questions may not accurately reflect true understanding of concepts (5/26/2017).
BIOL G110	cSLO 5	Fall 2015	In the future, I plan to continue to discuss the importance of evolution and the various interactions that exist between life forms and the results of those interactions. I don't think that this format of assessing the SLO, multiple choice exams, is necessarily the most conducive to testing the ability of students to understand, identify and describe evolution since the results tend to depend largely upon the ability of students to memorize concepts, rather than the percentage of students who can demonstrate understanding of the complexity of evolution. In order to assess more critically, I plan to use written or oral essay testing in the future.
BIOL G120	cSLO 2	Spring 2018	Based on the data collected for the BIOL G120 cSLO 2, it would be beneficial to incorporate more data analysis opportunities for students to complete throughout the entire semester. Critical thinking and analytical skills could be assessed via exam questions, quizzes and laboratory activities.
BIOL G120	cSLO 3	Spring 2017	A few possibilities come to mind: changing the way the material is presented in class so that there is more retention and also to perhaps change the testing modality. It could be more revealing to show actual tissue slides and then ask pertinent questions since there is a lab component to Bio. G120. Students often retain and test better in an active, hands-on testing environment. Since the only section of this course is taught by one instructor, the plan is to meet with him early in the fall to set up a plan to use this data to our advantage. Most likely the same SLO will be assessed in the fall using both different teaching tools and also switching up the quiz question format.

Course Name	cSLO	Semester Assessed	cSLO Data Planning
BIOL G120	cSLO 5	Spring 2016	The students have achieved at an acceptable rate. I will assess another SLO for next semester.
BIOL G160	cSLO 1	Spring 2017	82% of the students were successful when evaluated with the grading rubric. I will assess another SLO next semester.
BIOL G160	cSLO 2	Fall 2016	I will continue to cover the topic that was assessed at the same level considering the student performance was satisfactory. Next semester I will assess a different SLO
BIOL G160	cSLO 2	Spring 2017	Next semester I will assess a different cSLO because the students successfully completed this SLO demonstrating a high level of comprehension.
BIOL G160	cSLO 4	Fall 2015	I am very pleased with the level of understanding demonstrated on the assessment of this SLO. I will continue with this type of assessment in the future.
BIOL G160	cSLO 4	Spring 2016	I have used this method of assessment for the past few semester with similar results. I will assess a different SLO next semester.
BIOL G160	cSLO 5	Spring 2018	I will have to spend more time on this concept next semester and re-assess this SLO.
BIOL G180	cSLO 1	Fall 2016	The Bio180 instructors feel that the understanding of the core concept of cell division was acceptable. We will access this SLO again next semester with slightly different questions, and then plan to develop additional SLOs that assess an understanding of cell and molecular biology.
BIOL G180	cSLO 1	Spring 2017	The Bio180 instructors feel that the understanding of the core concept of cell division was more than acceptable. This was the second time we accessed this SLO, but this time we used slightly different questions. We will develop a new SLO next semester that accesses the ability to critically analyze scientific research.
BIOL G180	cSLO 2	Spring 2016	The results of this SLO assessment suggest that this testing represents an ideal method in which to assess this course SLO. No changes are necessary at this time, and the biology instructors are all satisfied with the results of current student learning. We will move on to the next cSLO.
BIOL G180	cSLO 3	Fall 2015	The results of this SLO assessment suggest that this testing represents a very good method to assess this course SLO. Because students were required to answer questions through both multiple choice and short answer examination, and were asked not to guess at multiple choice questions, we believe the results to be more reliable and accurate than a strictly multiple choice exam. In the future, we will make sure our exams in all sections of this class reflect this type of variety of questions.
BIOL G180	cSLO 5	Fall 2015	The results of this SLO assessment suggest that this testing represents a very good method to assess this course SLO. Because student's work had to be shown in order to receive credit, the number of correct answers to due guessing has been reduced. We will retest this SLO again in the future using the students' own agarose gels, in order to create a more realistic scenario.
BIOL G180	cSLO 6	Fall 2017	While a 73% success rate for this SLO is acceptable, we would like to see an improvement. This semester we were concerned because our prerequisite for Chem 180 was not enforced. We believe this played a role in the fact that student success for Bio 180 was not as high this semester compared with previous semesters where the prerequisite has been enforced. We would therefore like to repeat this SLO next semester to see if there is an improvement with the enforcement of the Chem 180 prerequisite.
BIOL G180	cSLO 6	Spring 2018	Our very good success rate for this SLO demonstrates the ability of our Bio 180 students to think critically and interpret relevant scientific research. This semester our Chem 180 prerequisite was again enforced, and we believe our students were thus better prepared for our course. We will continue to use this SLO assessment in the future, as it is critically important that students are able to read, analyze and

Course Name	cSLO	Semester Assessed	cSLO Data Planning
			interpret published scientific research. We are now in the process of developing new SLO assessments for our students.
BIOL G180L	cSLO 1	Fall 2016	The Bio180 instructors feel that the understanding of the core concept of cell division was acceptable. We will access this SLO again next semester with slightly different questions, and then plan to develop additional SLOs that assess an understanding of cell and molecular biology.
BIOL G180L	cSLO 1	Spring 2017	The Bio180 instructors feel that the understanding of the core concept of cell division was more than acceptable. This was the second time we accessed this SLO, but this time we used slightly different questions. We will develop a new SLO next semester that accesses the ability to critically analyze scientific research.
BIOL G180L	cSLO 2	Spring 2016	The results of this SLO assessment suggest that this testing represents an ideal method in which to assess this course SLO. No changes are necessary at this time, and the biology instructors are all satisfied with the results of current student learning. We will move on to the next cSLO.
BIOL G180L	cSLO 3	Fall 2015	The results of this SLO assessment suggest that this testing represents a very good method to assess this course SLO. Because students were required to answer questions through both multiple choice and short answer examination, and were asked not to guess at multiple choice questions, we believe the results to be more reliable and accurate than a strictly multiple choice exam. In the future, we will make sure our exams in all sections of this class reflect this type of variety of questions.
BIOL G180L	cSLO 5	Fall 2015	The results of this SLO assessment suggest that this testing represents a very good method to assess this course SLO. Because student's work had to be shown in order to receive credit, the number of correct answers to due guessing has been reduced. We will retest this SLO again in the future using the students' own agarose gels, in order to create a more realistic scenario.
BIOL G180L	cSLO 6	Fall 2017	While a 73% success rate for this SLO is acceptable, we would like to see an improvement. This semester we were concerned because our prerequisite for Chem 180 was not enforced. We believe this played a role in the fact that student success for Bio 180 was not as high this semester compared with previous semesters where the prerequisite has been enforced. We would therefore like to repeat this SLO next semester to see if there is an improvement with the enforcement of the Chem 180 prerequisite.
BIOL G180L	cSLO 6	Spring 2018	Our very good success rate for this SLO demonstrates the ability of our Bio 180 students to think critically and interpret relevant scientific research. This semester our Chem 180 prerequisite was again enforced, and we believe our students were thus better prepared for our course. We will continue to use this SLO assessment in the future, as it is critically important that students are able to read, analyze and interpret published scientific research. We are now in the process of developing new SLO assessments for our students.
BIOL G182	cSLO 1	Fall 2015	Given the relatively low success rate, I will have to spend a little more time emphasizing the assessed concepts in lecture. To further my students' comprehension of these concepts, I plan on calling back to these concepts in lectures presented after the initial presentation of the ideas encompassed by this SLO.
BIOL G182	cSLO 2	Spring 2017	Next cycle, SLO assessments shall be executed on an exam or activity that takes place earlier in the semester, such that student success will be more accurately reflected.
BIOL G182	cSLO 3	Spring 2018	At this time, no adjustments will be made regarding this cSLO. 100% competence is adequate.

Course Name	cSLO	Semester Assessed	cSLO Data Planning
BIOL G182	cSLO 5	Spring 2016	The 3 students that did not meet 80% effectiveness were apparently in need of more assistance in understanding their articles. Future plans include reminding the students that, if they don't understand their article, I can help them with it during office hours or after class.
BIOL G182	cSLO 5	Fall 2017	The importance of being "on time" with assignments will be emphasized next semester. As well, students will be made aware that they are welcome to come to office hours for instructor assistance when comprehension of their chosen article is difficult.
BIOL G183	cSLO 1	Spring 2018	Students will encouraged to study more rigorously for the final. In the future, those students that seem to be showing poor study habits can be encouraged to change such habits prior to the administration of the final exam.
BIOL G183	cSLO 2	Spring 2016	Since 83% of students in this semester's Botany course earned a 70% or higher on this question it seems they have mastered this concept adequately. No changes in presentation are planned for this part of the course for fall 2016. A different Botany cSLO will be assessed in the fall of 2016 and spring of 2017.
BIOL G183	cSLO 5*	Fall 2015	The 96% success rate of this question indicates that most students correctly grasped the concept of plant anatomy in relation to plant systematics and taxonomy. No need to change this SLO and SLOa are anticipated.
BIOL G200	cSLO 1	Summer 2016	Due to the high level of success on this SLO, I will assess a different SLO in the Fall.
BIOL G200	cSLO 2	Spring 2017	The students demonstrated comprehension of this SLO, next semester I will assess an additional cSLO.
BIOL G200	cSLO 3	Fall 2015	I am very pleased with the level of understanding demonstrated on the assessment of this SLO. I will proceed to the assessment of another SLO in the following semester.
BIOL G200	cSLO 3	Spring 2016	I will be sure to emphasize these points throughout the semester in order to increase student comprehension.
BIOL G200	cSLO 3	Fall 2016	Since the students achieved at an acceptable rate, I will assess a different SLO next semester.
BIOL G200	cSLO 3	Fall 2017	Given that the students achieved at an acceptable rate, I will move on to another SLO in the spring semester.
BIOL G200	cSLO 4	Summer 2017	I will continue to teach present the material that pertains to this SLO in the same way due to the high level of studnet success. I will assess an additional SLO in the fall semester.
BIOL G200	cSLO 5	Spring 2018	Students have achieved at a successful level. I will assess an addition SLO next term.
BIOL G205	cSLO 1	Spring 2018	We will assess a different SLO next semester.
BIOL G205	cSLO 2	Spring 2016	Students have shown mastery of this SLO. We will continue current methods of instruction.
BIOL G205	cSLO 2	Spring 2016	I would like to assess this cSLO in a semester when I teach more than just 2 students, perhaps in Fall 2016. I usually have 4-6 G205's/semester and that may provide a better look at how well this cSLO is being understood and applied by these students.
BIOL G205	cSLO 2	Spring 2016	As 100% of the students were successful, no action is necessary.
BIOL G205	cSLO 2	Spring 2016	No future changes are necessary
BIOL G205	cSLO 2	Spring 2016	No action necessary
BIOL G205	cSLO 2	Spring 2016	Students have shown mastery of this SLO. We will continue current methods of instruction.
BIOL G205	cSLO 2	Spring 2017	As 100% of the students were successful, no action is necessary.
BIOL G205	cSLO 3	Fall 2016	No future changes necessary.
BIOL G205	cSLO 3	Summer 2016	Since the summer school G205 size was so small (only 6 students), the Dept. would like to re-assess this same SLO in the fall when there is a greater number of G205

Course Name	cSLO	Semester Assessed	cSLO Data Planning
			students. In addition, many more courses than just General Microbiology (BIo. G210) and Anatomy (Bio. G220) are offered during the regular school year. This will gives us a better idea as to whether we are meeting this SLO requirment and we can make plans to either move to another SLO to assess in 2017 or to revise the way we teach this one.
BIOL G205	cSLO 4	Fall 2015	Students who already display outstanding behaviors in our classes are invited to participate in this independent study course, and therefore we would expect no less than 100% success rate. We will continue to mentor our students on good communication skills and proper technique.
BIOL G205	cSLO 5	Fall 2017	Faculty are satisfied with the outcome and will evaluate a different SLO in the next semester.
BIOL G210	cSLO 3	Fall 2016	Our results indicate that the skills assessed this semester have been well taught and mastered by the vast majority of our students. I think future assessment of different skill sets would be informative and perhaps lead to improved pedagogy in another area.
BIOL G210	cSLO 3	Summer 2016	This SLO is being met with outstanding results at this time. We will assess once more in the Fall of 2016 and if similar results are obtained, we will move on to other SLO's for 2017 .
BIOL G210	cSLO 4	Spring 2016	All instructors of microbiology will try to emphasize the items tested this semester. We may also try a different assessment, going for an essay format rather than just multiple choice responses which do not evaluate or give credit for partial understanding.
BIOL G210	cSLO 4	Summer 2015	Since this part of cSLO 4 seems to be adequately taught and comprehended by students it is time to move on to another part of cSLO 4 or to another cSLO entirely. I plan to continue using the “scratcher” Scantrons on a group testing basis and also in individual exams. The feedback from students is almost 100% positive so I will assess this way again in the fall semester. I also plan to present these unique Scantrons and their new means of assessment at the next Bio. Sciences Dept. meeting. The joy is that students can earn part credit if they can narrow down the answer rather than getting the same score as someone who knew nothing or simply guessed. Students also get instant feedback on the correct answer as opposed to never knowing the right response. Students reported that they feel their retention of the material will be improved as a result of using the IP AT approach. It’s actually very exciting!
BIOL G210	cSLO 4	Spring 2017	After the summer school data is in, all instructors in the micro program will meet in early fall 2017 to discuss the outcomes and decide how to proceed forward in an effort to improve student learning of material covered by this cSLO.
BIOL G210	cSLO 4	Fall 2017	The microbiology instructors will confer early in Spring 2018 to decide on our next cSLO to test as well as the testing modality. We have assessed lecture material for the past year so we may want to switch and test lab understanding and competency during the spring.
BIOL G210	cSLO 4	Spring 2018	More emphasis needs to be placed on long term memory of the subject matter. I think this could easily be done by adding comprehensive questions on each subsequent exam.
BIOL G210	cSLO 4	Spring 2018	A possible solution which I plan to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams.
BIOL G210	cSLO 4	Summer 2017	For fall, we will change the questions asked to a topic covered close to the end of the course: immunology. This will allow us to note if students do better with retention of recent material and therefore, an improved success rate. After this assessment in fall we may want to consider either expanding the scope of our

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			questions, adding more than just 4 questions or perhaps trying an entirely different means of assessment.
BIOL G210L	cSLO 3	Fall 2016	Our results indicate that the skills assessed this semester have been well taught and mastered by the vast majority of our students. I think future assessment of different skill sets would be informative and perhaps lead to improved pedagogy in another area.
BIOL G210L	cSLO 4	Spring 2016	Our Dept. action plan is to 1) emphasize and better explain viral structure, replication and disease processes and 2) find a better assessment method than just multiple choice questions. We may try an essay that entails the same information so that we can better judge the depth of knowledge by giving partial credit when earned. We can then pinpoint the weaknesses in our presentation more accurately.
BIOL G210L	cSLO 4	Summer 2015	Since this part of cSLO 4 seems to be adequately taught and comprehended by students it is time to move on to another part of cSLO 4 or to another cSLO entirely. I plan to continue using the "scratcher" Scantrons on a group testing basis and also in individual exams. The feedback from students is almost 100% positive so I will assess this way again in the fall semester. I also plan to present these unique Scantrons and their new means of assessment at the next Bio. Sciences Dept. meeting. The joy is that students can earn part credit if they can narrow down the answer rather than getting the same score as someone who knew nothing or simply guessed. Students also get instant feedback on the correct answer as opposed to never knowing the right response. Students reported that they feel their retention of the material will be improved as a result of using the IP AT approach. It's actually very exciting!
BIOL G210L	cSLO 4	Spring 2017	All micro lecture and lab instructors of G210 will meet in early fall to discuss and decide how to go forward with this kind of cSLO assessment format. We may need to change our teaching approach, offer better ways to help students retain information or present the info in lab as well as in lecture to further comprehension (ie.,, emphasize the viral lytic cycle when we are doing the Bacteriophage Population Count experiment).
BIOL G210L	cSLO 4	Spring 2018	A possible solution which I plan to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams. (05/22/2018)
BIOL G210L	cSLO 4	Spring 2018	A possible solution which, I hope to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams.
BIOL G210L	cSLO 4	Spring 2018	A possible solution which I plan to employ, is to make our exams more comprehensive by asking several questions on each exam (except the first) on material covered on prior exams.
BIOL G219	cSLO 2	Fall 2017	The instructors are extremely pleased with our success rate as this SLOa demonstrates our students ability to successfully present content learned in a variety of ways. We will be assessing another SLO in the future.
BIOL G219	cSLO 3	Spring 2018	While the majority of our students successful demonstrated knowledge of the anatomy of the stomach, the faculty would like to improve the score regarding the cardia. To facilitate this, we plan on adding more labeling and review exercises to discussion and promote hands-on learning.
BIOL G219	cSLO 4	Fall 2017	We are very pleased with the success rate of the SLOa and will test another in the future.
BIOL G220	cSLO 1	Fall 2016	The anatomy department is very please with the high success rate regarding this SLO and plan on assessing a different one in the Spring. We will make a conscious effort in the future to ensure that we visit each dissection group and review

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			structures with all members to ensure that each individual is meeting their learning objectives in order to close any knowledge gaps for our students.
BIOL G220	cSLO 2	Spring 2017	Because this assessment was a great success we can use the instructional techniques and strategies used here and apply it to other areas of anatomy in the future. Some examples of these techniques include generating supplemental worksheets, diagramming structures on the board, and using interactive online media. All of these techniques allow students to spend more time in the material and thus absorb the concepts more effectively. In addition, we hope that the Human Anatomy Discussion course continues to grow and supplement the learning as it provides additional time to apply active learning strategies for student success.
BIOL G220	cSLO 2	Summer 2016	Overall instructors are pleased with the success rate for this SLOa but will emphasis genotypes more in the upcoming semesters to help close the learning gap students are experiencing regarding this core concept in biology.
BIOL G220	cSLO 3	Fall 2015	Instructors feel that students have satisfied this SLO. We will continue to emphasize study time in lab with models, lab bookwork, and assignments to ensure that this success rate continues. We also plan on testing one of the remaining 4 SLO's next semester in order to ensure that all SLO's are evaluated and that such high student success is achieved in other areas.
BIOL G220	cSLO 3	Spring 2018	Unfortunately, our success rate fell below our acceptable minimum of 70%. After discussion, the Anatomy instructors felt that their students needed to spend more time with dissected material. Often, students do not like to review this material due to the odor and comfortableness level but the faculty is preparing to dedicate more class time to dissections to remedy this.
BIOL G220	cSLO 4	Summer 2015	Overall, instructors are extremely pleased with the results of the SLOa. We feel that students have satisfactorily completed SLO #4 and as a result we will continue our current efforts to maintain this level of success for semesters to come. We plan on assessing a different SLO for Fall 2015.
BIOL G220	cSLO 4	Fall 2017	While a success rate of 81% is very good, there was an interesting trend in our data. Classes that did not give the assessment as a quiz achieved success rates roughly 30% lower than classes who were given the assessment as a scheduled quiz with points attached to it. This indicates that our students are not reviewing material on a daily basis and seem to review material closer to a scheduled quiz or exam. Overall, the program will be looking to assess another SLO in the future but instructors plan on looking at ways to improve student involvement in the material and their studying between quizzes and exams. In addition, since this SLOa was a new format, the rubric for assessment needs to be improved. Spelling and partial credit need to be taken into account when grading for success.
BIOL G220	cSLO 5	Spring 2016	Instructors feel that a success rate of 78% is acceptable although we would like to see a higher achievement. Success rates in classes that involved homework assignments over the lymphatic system were higher than classes that did not have such assignments. Adding activities such as homework and formative assessments during class to reinforce material will be encouraged among faculty to help improve student success.
BIOL G220	cSLO 5	Summer 2017	Since 87% is a very good number , we will probably move on to another SLO in Fall 2017.
BIOL G220L	cSLO 1	Fall 2016	The anatomy department is very please with the high success rate regarding this SLO and plan on assessing a different one in the Spring. We will make a conscious effort in the future to ensure that we visit each dissection group and review structures with all members to ensure that each individual is meeting their learning objectives in order to close any knowledge gaps for our students.

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BIOL G221L	cSLO 4	Spring 2018	While students appear to be demonstrating skills of this SLO at an acceptable level for these systems on lab reports, students can be evaluated over more systems and terms for a more comprehensive evaluation, possibly using results from practical exams.
BIOL G225	cSLO 1	Fall 2015	From the previous SLOs we have observed that reinforcement and essentially time with the material seems to be what results in high outcome achievement. Upon discussion, we have discovered that this particular concept was heavily reinforced in both lectures and lab. Diagrams and drawing were used to really solidify the concepts and clarify the process. In the future, such emphasis on diagrams and

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			drawings should perhaps continue to be expanded to various areas of physiology. This form of assessment (using a fill in the blank type multiple choice question may also be a great tool to help students reinforce concepts on homework or quizzes. Hopefully to increase their competency on future short answer questions, which seem to always be a problematic area.
BIOL G225	cSLO 2	Spring 2018	In the future we will not need to evaluate this assessment since the results were stellar, we can however, learn from its success and use the techniques we found beneficial and ally them to other assessments. These include integrating hands-on activities with the assessments, and providing several sample or review questions to help build students confidence.
BIOL G225	cSLO 3	Spring 2017	We repeated this assessment to see if the reason for the high success rate was originally due to a small sub-population of summer students. We now see that with a larger sample size, the success rate went up even further. The reason behind this may be due to the extra time that dedicated in a 16 week semester versus a summer session. By spreading information over several lectures, it allows instructors to reinforce the concepts in a variety of ways so that students can eventually build on these concepts during wet-lab experiments, and ultimately be successful in graphing and interpreting data.
BIOL G225	cSLO 3	Summer 2016	Seeing as this SLO assessment has been a great success we do not plan to alter the activity or adjust the methods for this assignment. We do however want to utilize the success of this SLO assessment as a tool for other experiments conducted in the lab. Adjusting some other assignments so they are more hands-on or engaging would definitely help students achieve competency in multiple areas. In addition, dosing questions regarding data analysis in small parts following each applicable the experiment would also be beneficial. Using this method, students would be able to solidify their grasp of the material while the experiment is fresh in their minds. This approach was used with the fluid flow data analysis above and proved successful.
BIOL G225	cSLO 3	Fall 2017	We can learn from the results of this assessment and strive to integrate activities that are hands on and interactive as well as one's that involve a collaborative group component into the learning. In addition, whenever possible/applicable, we can give small previews of areas that are covered later in the course early on. This will not only help link the course together and make it cohesive, but also prepare and prime students for difficult concepts early on. The results of this SLO are completely satisfactory for the program and will not need a second immediate assessment next semester.
BIOL G225	cSLO 4	Spring 2016	We can gain a lot of insight from this assessment. In the future, using similar techniques to gradual build concepts and reinforcing them throughout the semester will be very helpful for student success and retention. Repeated exposure with emphasis on new topics being discussed will help students have a solid understanding of the physiological concepts and ultimately identify abnormal physiological values.
BIOL G225	cSLO 5	Fall 2016	After meeting and discussing the results of the data, the physiology program compiled several factors that may contribute to the success of the this SLO assessment. One of the major techniques used here was scaffolding from the pre-requisite course Biol G220 Human Anatomy. By referencing a course that students have already taken and building on that knowledge, we found students were able to easily connect the concepts and relate the structure and function together. We recommend using this technique in as a teach strategy and encourage all physiology instructors to sit in and observe the Human Anatomy course, as to better relate the information to the students. We will most likely choose a

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BIOL G225L	cSLO 1	Fall 2015	From the previous SLOs we have observed that reinforcement and essentially time with the material seems to be what results in high outcome achievement. Upon discussion, we have discovered that this particular concept was heavily reinforced in both lectures and lab. Diagrams and drawing were used to really solidify the concepts and clarify the process. In the future, such emphasis on diagrams and drawings should perhaps continue to be expanded to various areas of physiology. This form of assessment (using a fill in the blank type multiple choice question may also be a great tool to help students reinforce concepts on homework or quizzes. Hopefully to increase their competency on future short answer questions, which seem to always be a problematic area.
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ECOL G100	cSLO 1	Fall 2015	The 69% success rate of this question indicates that most students were able to read an interpret graphical data. However, given that the instructor presents and discusses graphical data to the class at nearly every class meeting, the success rate should have been higher. This SLO is a valuable goal of this course and should be retained. No need to change this SLO and SLOa are anticipated.
ECOL G100	cSLO 2	Spring 2016	Since this cSLO appears to have been successfully presented and mastered by this semester's Ecology G100 students, a different cSLO will be assessed in Fall 2016.
ECOL G100	cSLO 4	Spring 2017	For the next semester, I intend to incorporate alternate methods of assessing this SLO to focus on student understanding rather than writing skills, such as essay exam questions and smaller assignments. Currently, my three multiple choice exams include numerous questions that cover ecological issues and impacts. I will also use those as a way to track student performance (5/26/2017).