Course or Program Assessment Summary

http://academic.cuesta.edu/sloa/docs/Course_and_Program_Assessment_Summary_F_2011.docx

This form can be used to record SLO assessment plans and results for courses or programs. It is recommended that this document be stored on a group drive, or in MyCuesta.

Division: **Biology** *Program:* **Biology** *Date:* **May 10, 2012** *v. 3 2012*

Courses in program, or course: Bio 201A, 201B & 204

Faculty involved with the assessment and analysis: Nancy Jean Mann, John Veres, Silvio Favoreto

Course-to-program outcome mapping document** is completed Yes__X___ No_____

1	Student Learning Outcome Statements **X** Program ☐ Course	1. Apply the Scientific Method, including developing the ability to design, implement, and critically evaluate a Scientific Study and a Controlled Experiment. ***Bio 201A*** 2. Write a scientific paper. ***Bio 201A*** 3. Use the metric system to make measurements of length, volume, and mass. ***Bio 201A*** 4. Outline the metabolic reactions of living organisms. ***Bio 201A*** 5. Use a compound light microscope and dissecting microscope to characterize cell structure and organism morphology. ***Bio 202*** 6. Explain the mechanisms by which cells divide, explain the processes of asexual and sexual reproduction, and place cell division in the context of life cycles. ***Bio 202*** 7. Explain the basic principles of anatomy and physiology of organisms. ***Bio 201B*** 8. Outline the taxonomy and phylogenetic relationships of the major groups of organisms. ***Bio 201B*** 9. Analyze the processes that lead to evolution and explain the role of evolution in life's diversity. ***Bio 201B*** 10. Define microorganisms; describe their main cell components and the functions of each. ***Bio 204*** 11. Describe the biological features of major bacterial, virus, fungi and parasite organisms of importance in medicine, industry, biotechnology and environmental systems. ***Bio 204*** 12. Define the components of the immune system and describe the mechanisms that regulate host-microbe interactions. ***Bio 204***
2	Assessment Methods Plan (identify assessment instruments, scoring rubrics, SLO mapping diagrams)	1. Mouse respiration Causative Study lab report, Microorganisms in the environment Correlative Study lab report. 2. Research paper assignment. 3. Final lab exam questions. 4. Final written exam question. 5. The outcome involves assessing the ability of students to use a compound light microscope and dissecting microscope to characterize cell structure and organism morphology. 6. For this outcome, students are asked to explain the mechanisms by which cells divide, explain the processes of asexual and sexual reproduction, and place cell division in the context of life cycles. 9. Exam #1, 21 multiple choice or true-false questions. 10, 11 & 12. Data is being collected during Spring 2012 semester.
3	Assessment Administration	1-4. Administer each element during the Fall semester (approximately 60 students). The following 3

	Plan (date(s), sample size or selection of course sections, scoring procedures, etc.)	semesters analyze results and plan improvements, plan implementation, and post-implementation SLO assessment as outlined in the Assessment Cycle Calendar. Scoring procedures vary widely depending on the specific SLO. 5&6. Administer each element during the Spring 2011 semester (24 students). Over the following 3 semesters, analyze results and plan improvements, plan implementation, and post-implementation SLO assessment as outlined in the Assessment Cycle Calendar. Scoring procedures vary widely depending on the specific SLO. 7&8. Will be assessed Spring 2013 & every year after that. 9. N = 21 questions (multiple choice or true-false) on Exam #1. Only one section of 201B is offered only in the spring semester. Results from Spring 2012 are being assessed/reported. 10, 11 & 12. Data is being collected during Spring 2012 semester.
4	Assessment Results Summary (summarize Data)	1-4. Fall 2010 data includes data from two sections of Bio 201A with about 51 students total. This was a particularly strong Bio 201A class. The percentage of students achieving outcomes was 80% or greater for all 4 program outcomes. 5. After analyzing the Spring 2008 semester data, I recognized that the percentage of students passing this Program SLO was too low (13%). 6. After analyzing the Spring 2007 semester data, I recognized that the percentage of students passing the Biology Program Student Learning Outcome #6 was too low (41%). 9. 71% pass rate on 21 questions (N = 35 students)
5	Discussion of Assessment Procedure and Results, and Effectiveness of Previous Improvement Plans	1-4. Students are doing fine on these 4 program outcomes. We will continue to monitor the results of assessment data. 5. Initially, Biology Program SLO #5 was assessed by way of a series of questions on the final lab exam in which students used microscopes to answer questions regarding cell structure and organism morphology. But the final lab exam at that time was quite large and it included all of the whole plant (macroscopic) questions as well as the microscope questions. Since we examine the microscope slides early in the semester, some students would apparently forget the information related to the microscope slides. So, in order to improve the percentage of students passing this outcome, I split the final lab exam into two exams. Now the first lab exam is given in the middle of the semester and it covers all of the microscope work. The second lab exam is given at the end of the semester and it covers the whole plant (macroscopic) questions. Since making that change, the percentage of student passing Biology Program Outcome #5 has increased from 13% during the Spring 2008 semester to 75-86% during the following three semesters the course was taught. 6. In the Bio 202 class, students are presented organism life cycles in two different formats. One format is provided in their textbook and the other format is provided in their laboratory manual. Initially, many students studied the life cycles from their textbook because it has nice pictures. But I have realized that the life cycles as they are presented in the General Botany textbook have too many pictures and unnecessary information and as such may be hard for some students to understand. The life cycles as they are presented in the laboratory manual are simpler with fewer pictures. So after the Spring 2007

		semester, I began recommending that students study life cycles from their laboratory manual. As a result, the percentage of students passing this outcome increased from 41% during the Spring 2007 semester to 96% during the Spring 2011 semester. 9. The target of 70% or better has been met for this SLO. Many of these same questions/concepts will be covered on the cumulative portion of the final exam.
6	Recommended Changes & Plans for Implementation of Improvements	1-4. No changes needed at this time. 5&6. See discussion above. 9. After the results from the cumulative portion of the Final Exam are obtained, analysis will be done to see if the success rate in #4 above is the same or better. Hopefully, results will improve after a semester of repetition.
7	Description or evidence of dialog among course or program-level faculty about assessment plan and results	There are regular meetings between Bio201A and Bio201B faculty to discuss strategies for student success and to maintain coordination between 201A and 201B. Meetings with all faculty involved in Bio201A, Bio201B and Bio204 take place each semester, usually at the beginning of the semester or over break. This provides for a chance to work on assessment.

**Course and program level outcomes are required by ACCJC to be aligned. Each program needs to complete a program map to show the alignment. See examples of completed CPAS and program mapping documents are available at http://academic.cuesta.edu/sloa