

Course Assessment Results aligned to Program SLOs

San Mateo CCCD

CAN Program - Biological Sciences

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
Use the Scientific Method to investigate biological questions and critically evaluate and effectively communicate scientific data.	CAN Dept - Biological Sciences - CAN BIOL 100 - Intro To Life Sciences - organize data - Effectively organize and present scientific information to a group. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Project-based assignment involving informational research, data analysis, and presentation through written or oral means of delivery.</p> <p>Assessment Method Category: Essay</p> <p>Success Criterion: At least 70% of students will score 70% or better on the project.</p>		
	CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers - Field Identification - Identify plants in the field using the knowledge of structures. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Identification questions in the field.</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: 70% of students will identify the plants correctly.</p>	05/27/2011 - 84.62% of students achieved > 70% in the class field final	<p>Result Type: Criterion met</p> <p>Reporting Cycle: 2010 - 2011</p>
	CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers - Scientific Method - Demonstrate the ability to formulate hypotheses and be able to use the scientific method to investigate biological processes and phenomenon. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Laboratory Exercises</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: 70% of students will score at least 70% on the assignment</p>	01/09/2013 - Nine out of 12 students achieved 70% or more on the Scientific Method lab Activity	<p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>
	CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers			

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	<p>- Analytical Skills - Organize, analyze, and successfully communicate scientific data with clear and meaningful explanations and evaluation. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Plant database plus analysis questions</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: 70% of students will score at least 70% on the assignment</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 110 - Principles Of Biology</p> <p>- Scientific method - 6. Apply the scientific method of observation, hypothesis, prediction, experimentation, and interpretation of results. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: review of lab portfolio, which includes activities that require student to perform each step of the scientific method of inquiry.</p> <p>Assessment Method Category: Portfolio</p> <p>Success Criterion: 85% of students will complete labs that require use of these steps.</p>		
		<p>Assessment Method: Students will perform all steps of the scientific method, starting with a question and hypothesis and culminating in conclusions based on data. Written lab reports will be assessed.</p> <p>Assessment Method Category: Capstone Assignment/Project</p> <p>Success Criterion: 75% of students will score 70% or higher on this assignment.</p>	<p>05/06/2010 - Eleven out of 14 students (79%) who turned in an experimental spider paper received a 70% or greater. This paper required students to perform all steps of the scientific method.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	
			<p>06/01/2009 - SLO # 6 was assessed through an ecology experiment paper that each student was required to complete. The majority of students</p>	<p>12/04/2009 - With respect to creating graphics, a session should be held in a computer lab so that every student can</p>

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			<p>understood the assignment and were able to complete it in a satisfactory manner; nine out of thirteen students received a "C" or better.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <p>Related Documents: BIOL 110 Fall 08 report</p>	<p>follow the step-by-step instructions regarding how to design a graph or table. After the instructions are given, students' questions could be answered on an individual basis. Currently, this lesson is given in a regular classroom, so most students can't literally follow along with their own computers. With respect to constructing an adequate discussion section, many students had difficulty with establishing conclusions, then supporting them with explanations and citations. This process could be taught through exercises that specifically review these connections with examples that are both unrelated and related to this project.</p>
	<p>CAN Dept - Biological Sciences - CAN BIOL 132 - Human Biology</p> <p>Laboratory</p> <p>- scientific method - apply all steps of the scientific method to answer questions and solve problems. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: evaluate lab portfolios, including hypotheses, data collection and organization, and interpretation and conclusion sections.</p> <p>Assessment Method Category: Portfolio</p> <p>Success Criterion: At least 70% of students will complete their lab portfolios with scores of 75% or better.</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 132 - Human Biology</p> <p>Laboratory</p> <p>- data, graphs - create and interpret graphs and tables with data (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: evaluate lab portfolio for data tables and graphs, as well as interpretations.</p> <p>Assessment Method Category: Portfolio</p> <p>Success Criterion: at least 70% of students will correctly</p>	<p>01/07/2013 - Among those labs requiring construction of tables, only 55% of students did this correctly. Some of them may not have realized that a proper table was required; others may not have recognized the elements of a good table.</p>	<p>01/07/2013 - Be sure that students do an assignment on tables and graphs. Modify the existing one used in the Bio 110 manual appendix. Include questions on spotting the errors in tables and graphs on biweekly quizzes.</p>

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		construct tables and graphs, and then interpret the data appropriately.	<p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>Action Plan Category: Use New or Revised Teaching methods</p>
	CAN Dept - Biological Sciences - CAN BIOL 132 - Human Biology Laboratory - genetic inheritance - analyze inheritance of traits using genetic data (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: assignment with genetic problems that include a variety of concepts of human genetics</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: at least 70% of students will correctly complete the assignment</p>		
	CAN Dept - Biological Sciences - CAN BIOL 225 - Biology Of Organisms - scientific method - Explain and practice the scientific method of inquiry. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Specific labs require various components of the scientific method to be practiced, especially formulation of hypotheses and predictions. Some labs require the complete process and documentation by students.</p> <p>Assessment Method Category: Portfolio</p> <p>Success Criterion: At least 80% of students will score 70% or higher on their portfolios overall AND on selected labs that require the entire scientific process and documentation.</p>	01/07/2013 - termite lab -only 1/23 scored lower than 75%. C fern lab - scores ranged from 24-46 out of 50; avg 40 (80%). Only 2 students (9%) scored below 75%. On total portfolio score, only 1/24 students scored below 77%.	<p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>
	CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology	-		

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	<p>mitosis, meiosis, and Mendel - Compare and contrast chromosome movement in mitosis and meiosis, and demonstrate how molecular mechanisms of chromosomal behavior explain Gregor Mendel's experimental results as well as deviations from his ratios. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Multiple Choice Questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>		
		<p>Assessment Method: Short Essay Questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions with a score of 70% or better.</p> <p>12/12/2013 - 77% of students were able to competently (score 70% or better) answer the question: "sing DIAGRAMS, compare and contrast the most important similarities and differences between Mitosis and Meiosis (especially Meiosis I). How do these differences serve the biological purpose of each process? EXPLAIN the biological purposes of Mitosis, and of Meiosis." This is a very comprehensive and detailed question, and requires higher order (analysis and synthesis) cognitive ability with the concepts. This is a good level of competency with this question. However, only 56% scored 80% or better, showing high proficiency with this subject. This is a more ideal level, and student success/proficiency can be improved by more rigorous discussion, assignments, regular feedback, and practice problems with the modes of eukaryotic cellular reproduction.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2013 - 2014</p>	<p>03/05/2012 - (From Final Exam [Part 4], Fall 2011): "Diagram and compare/contrast between Mitosis and Meiosis (especially Meiosis I). How do these differences serve the biological</p>	

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		<p>purpose of each process? EXPLAIN the biological purposes of Mitosis, and of Meiosis."</p> <p>On this short essay question, 26/30 students (87%) successfully related and described the essential molecular factors, processes, and differences in chromosome segregation during Mitosis and Meiosis. Mendelian genetics for Eukaryotic organisms is founded on molecular inheritance and Chromosomal genetics. These are important topics in eukaryotic genetics, which is a preeminent topic in Cell/Molecular Biology. Discussion in lecture, multiple interactive discussion sections in small groups, quantitative lab exercises on the topic, group analysis of these lab exercises, and extensive review sessions including practice problems (also in lab homework and regular quizzes) seem to be generating a high level of success among BIOL 230 students on this topic. I was very satisfied that 73% of students (22/30) in BIOL 230 are also scoring at least 80% (B-level and above!) on this topic.</p> <p>Since fall 2010, I have incorporated some more extensive pre-testing through more rigorous biweekly quizzes. I continue to encourage students to participate in more peer-learning communities/cooperative learning through regular study groups among students. More regular interactive and cooperative learning has been very successful among some students in many of my classes over the last few years, and I'm exploring more ways to make it a regular part of my courses and/or the students' academic lifestyles. This would</p>		

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			<p>also include more formalized learning with tutors in the Learning Center and MESA center.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology</p> <p>laboratory competency - Use current laboratory techniques and apply the scientific method to identify and isolate various biological macromolecules and organelles, and to analyze enzyme activity and metabolic pathways.</p> <p>(Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Laboratory Practical Examination</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students should satisfactorily earn at least 70% of the points on the practical laboratory exam questions and activities.</p>	<p>12/06/2012 - On the final lab practical exam, 100% of students showed competency (scored 70% or better) with laboratory techniques, knowledge of the scientific method and laboratory concepts, data analysis, and performance of essential laboratory skills. 86% were highly successful, scoring 80% or better.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	
		<p>Assessment Method: Formal Laboratory Report(s)</p> <p>Assessment Method Category: Project</p> <p>Success Criterion: At least 70% of students should satisfactorily earn at least 70% of the points on the laboratory report.</p>		
		<p>Assessment Method: Evaluation of the Laboratory Notebook/Manual for thorough record-keeping of all data produced in the laboratory, analysis of data, and ability to correctly answer conceptual questions</p>		

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		<p>related to the laboratory experiments.</p> <p>Assessment Method Category: Portfolio</p> <p>Success Criterion: At least 80% of students should satisfactorily earn at least 80% of the points on each assigned for thorough completion of the laboratory notebook and data analysis.</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology - data analysis and communication - Organize and analyze qualitative and quantitative data into cohesive and well-written laboratory reports that properly reference relevant scientific literature. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Formal Laboratory Report(s)</p> <p>Assessment Method Category: Project</p> <p>Success Criterion: At least 70% of students should satisfactorily earn at least 70% of the points on the laboratory report.</p>	<p>10/11/2012 - On formal laboratory report (Enzymology labs and native PAGE), 100% of students produced reports with good presentation, analysis and explanation of data and the scientific concepts. Hypothesis were well formed, and experiments were competently designed, showing good Scientific Method. Most impressively, 75% of students showed HIGH proficiency at this outcome, scoring 85% or better.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 240 - General Microbiology - laboratory competency - Use proper laboratory procedures to successfully culture, isolate, and characterize various species of bacteria. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: In class observation of student technique</p> <p>Assessment Method Category: Presentation/Performance</p> <p>Success Criterion: At least 70% of students demonstrate proficiency and correct technique</p>	<p>12/10/2012 - 93% of students demonstrated great proficiency with aseptic and culturing techniques, as well as use of the microscopes and record-keeping in lab notebooks.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>01/06/2012 - 81.9%</p>

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		<p>Result Type: Criterion met</p> <p>Reporting Cycle: 2010 - 2011</p> <hr/> <p>06/28/2010 - 85% of students demonstrated proficiency and correct techniques</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <hr/>		
	<p>Assessment Method: specific questions on lab exams</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p> <hr/>	<p>06/28/2010 - 83% of students answered these questions correctly</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <hr/>		
	<p>Assessment Method: Direct observations of laboratory class performance, Laboratory practical examination, evaluation of thorough record-keeping in notebook, Formal Laboratory Report(s), lab quiz questions, and data tables or conceptual questions in the graded laboratory manual/notebook.</p> <p>Success Criterion: At least 70% of students should satisfactorily earn at least 70% of the points on each assessment.</p> <hr/>			

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	<p>CAN Dept - Biological Sciences - CAN BIOL 240 - General Microbiology - analysis and communication - Organize and analyze qualitative and quantitative data into cohesive and well-written laboratory reports that properly reference relevant scientific literature. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: specific questions on lab reports</p> <p>Assessment Method Category: Essay</p> <p>Success Criterion: At least 70% of students will answer these questions with a score of 70% or better.</p>	<p>12/12/2012 - 86.7% of students EXCELLENTLY (90% score or better) presented and analyzed data, and formed correct conclusions about their laboratory experiments on unknown bacterial species. 100% of students showed basic competency, scoring 80% or better.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	
			<p>01/06/2012 - 90.6%</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2010 - 2011</p>	
			<p>06/28/2010 - 7% of students had a score lower than 70%.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - scientific analysis - Propose and/or execute laboratory experiments in physiology. Analyze, interpret and effectively communicate results from these experiments. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Students will design and carry out an independent experiment. They will report the following (a) the hypothesis and experimental design and procedures, (b) a graph of the results including a full caption, (c) interpretation and explanation of the meaning of the data, (d) whether the results support the hypothesis; if not, what further experiments would need to be done to clarify the issue.</p> <p>Assessment Method Category: Essay</p>	<p>05/31/2013 - This SLO was assessed by examining student responses to multiple choice and short essay questions regarding PhysioEx simulated lab experiments. Students had to make predictions, perform experiments, analyze data and draw conclusions. The assessments are based upon students' ability to analyze the data and draw appropriate conclusions. The average score for these assignments was 95% correct. Only one activity was below the success criterion. Given this outstanding level of success, no action is needed.</p>	

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		<p>Success Criterion: At least 70% of students will complete the assignment with a score of 70% or better.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>Related Documents: BIOL260 Hirzel S13 SLO</p> <hr/> <p>01/30/2010 - 100% of students met the expectation of the assignment with a score of 70% or better</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <hr/>		

<p>CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - teamwork - Demonstrate proper and effective interpersonal conduct and teamwork while performing laboratory experiments and writing cohesive lab reports. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Students will complete a survey to determine their attitude toward and effectiveness in group work. Surveys will be administered at the start and end of the semester. The post-test survey will include a peer-evaluation.</p> <p>Assessment Method Category: Survey</p> <p>Success Criterion: 70% of students will respond favorably on each survey question and 70% of peer-evaluations will score favorably.</p>		
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Result Type:

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		<p>Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <p>05/25/2008 - As this was the first semester assessing SLO's, we only administered the survey at the end of the semester. Students overwhelmingly learned how to work effectively in teams to accomplish lab tasks/reports. 81% reported learning helpful strategies for working together and 94% reported learning to use electronic collaborative skills. 76% considered teamwork helpful in teaching them course content. Students were fairly evenly divided between those that prefered group work and those that prefer working alone.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <p>Related Documents:</p> <p>Team Survey Pre-test</p> <p>Team Survey Post-test</p> <p>Team Survey Results S08</p> <p>Team Survey Results F08</p>	<p>05/25/2008 - Next semester we will administer this survey at the start as well as at the end of the semester. We will do so in order to determine whether students' attitudes toward group work change as a result of participating in the course.</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - clinical competency - Demonstrate competency in the use of laboratory equipment to accurately measure human physiological processes, such as radial or carotid pulse, blood pressure, EMG, ECG, Respirometry, Urometry, and Glucometry. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Instructor will directly observe students performing skills.</p> <p>Assessment Method Category: Presentation/Performance</p> <p>Success Criterion: At least 70% of students will perform these skills correctly.</p>	<p>04/17/2010 - 100% of students met criterion which was assessed on multiple dates throughout semester.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	

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Recognize and explain the evolutionary connections between biological structures and their function and between organisms and their environment.	CAN Dept - Biological Sciences - CAN BIOL 100 - Intro To Life Sciences - traits of life - Identify and explain how the key characteristics of all living things are essential to life. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: specific questions on exams in multiple choice format</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>	<p>12/04/2008 - 1: Short-answer question in in-class written examinations. The exact question asked was: You are an astronaut, and you are on the first vessel to visit another planet. You discover several objects that have the following characteristics:</p> <ul style="list-style-type: none"> a. They are composed of small structural, functional units (packages). b. These units use and release energy. c. They shrink to half their size when you make a loud noise. d. They seem to be increasing in number (replicating) by dividing in two. <p>From what you know about what constitutes a living thing, are these objects alive?</p> <p>Justify your answer by stating which of the 8 characteristics of living things, if any, you have evidence for, and which, if any, you do not.</p> <p>14/24 scored 8 or higher, out of 10 pts possible. 10/24 scored 5 pts or less. The format of the question may have distracted some students from the concepts. More practice with this analytical type of question may improve scores.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2009 - 2010</p> <p>Related Documents: BIOL 100 SLO1 results</p>	<p>12/04/2009 - More practice with analytical questions, both in written and verbal formats.</p> <hr/>

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	<p>CAN Dept - Biological Sciences - CAN BIOL 100 - Intro To Life Sciences - processes of life - Describe essential biological structures and processes that occur at the molecular, cellular, and organismal levels that enable life. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: specific questions on exams in multiple choice format</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 100 - Intro To Life Sciences - genetics - Explain the functions of genes and their role in inheritance and evolution. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: specific questions on exams in multiple choice format</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>		
		<p>Assessment Method: specific problem solving questions on exams</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 100 - Intro To Life Sciences - ecology - Discuss ecological principles that influence plant and animal interactions within ecosystems, communities, and populations. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: specific questions on exams in multiple choice format</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>		

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		<p>CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers</p> <p>- Botanical Nomenclature - Understand and use the correct scientific names and levels of classification to communicate the identity and relationships among native Californian Plants. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Plant database</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: 70% of students will score at least 70% on the assignment</p>	<p>05/31/2011 - Students achieving > 70% = 84.62%</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2010 - 2011</p> <p>Related Documents: Database Rubric</p>
		<p>CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers</p> <p>- Endemism and adaptations - Explain the concept of endemism in terms of natural selection and adaptations to particular climate and soil types. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Exam questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: 70% of students will answer the questions correctly.</p>	
		<p>CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers</p> <p>- Dichotomous keys - Understand the principles behind dichotomous keys and be able both to create a simple key and use keys in the field to identify plants. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Laboratory exercise</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: 70% of students will score at least 70% on the assignment</p>	<p>01/09/2013 - 11 out of 12 students scored more than 70% for their Field Final (91.6%)</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>
		<p>CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers</p> <p>- Form and Function - Recognize and explain the interconnections between several biological/biochemical structures</p>	<p>Assessment Method: Exam questions and laboratory exercises</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion:</p>	

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	and their biological functions. (Created By CAN Dept - Biological Sciences)	70% of students will score at least 70% on the assignment		
	CAN Dept - Biological Sciences - CAN BIOL 110 - Principles Of Biology - traits of life - 1. Describe key characteristics of all living things (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: questions embedded in quizzes or exams.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will correctly answer 80% of the questions on this topic.</p>		
	CAN Dept - Biological Sciences - CAN BIOL 110 - Principles Of Biology - life processes - 2. Describe essential biological structures and processes that occur at the molecular, cellular, and organismal levels that enable life. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Midterm questions that query understanding of chemical bonds, pH, major biological molecules, cell components, membrane function, cellular respiration, photosynthesis, cell division, and homeostasis within organisms.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: For any one topic, at least 70% of students will answer correctly the questions on that topic.</p>	12/18/2009 - Topic: cellular respiration. average % correct response for 10 questions was 66%. Topic: photosynthesis. average % correct response for 6 questions was 69%. Students had difficulty with details of cellular respiration; most understood the consequences at the organism level (i.e., Basal Metabolic Rate).	09/29/2010 - Students need more aid in learning the steps of cellular respiration. i will try using animations, worksheets, and quizzes to inspire them to tackle this complex topic with more determination. Photosynthesis was understood a bit better, and this % may improve if study methods for respiration are successful.
	CAN Dept - Biological Sciences - CAN BIOL 110 - Principles Of Biology - genetics - 3. Discuss the functions of genes and their role in inheritance and evolution. (Created By CAN Dept - Biological Sciences)	Assessment Method: Questions imbedded in midterms and quizzes. Topics include transcription, translation, gene expression, transmission genetics, sex-linked inheritance, and how genetic changes cause evolution.	12/16/2011 - midterm multiple choice 1 78% correct/22% incorrect midterm multiple choice 2 74% correct/26% incorrect midterm multiple choice 3 66% correct/34% incorrect midterm multiple choice 4 70%	

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	<p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of the successful students will answer 75% of these questions correctly.</p>	<p>correct/33% incorrect midterm multiple choice 5 89% correct/11% incorrect midterm multiple choice 6 67% correct/33% incorrect midterm multiple choice 7 77% correct/23% incorrect midterm multiple choice 8 74% correct/26% incorrect midterm multiple choice 9 70% correct/30% incorrect midterm multiple choice 10 93% correct/7% incorrect</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p> <p>Related Documents: Biol110_SLO3_Fall2011</p>		
	<p>Assessment Method: Lab activity on Hardy Weinberg population genetics will be evaluated as part of lab portfolio assessment.</p> <p>Assessment Method Category: Portfolio</p> <p>Success Criterion: At least 70% of successful students will complete the lab, including all tables and questions in the lab manual.</p>			
	<p>Assessment Method: Assignment on inheritance genetics with problems that must be solved.</p> <p>Assessment Method Category: Other</p> <p>Success Criterion:</p>			

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>At least 70% of successful students will accurately complete the problem set.</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 110 - Principles Of Biology - ecology - 4. Discuss ecological principles that influence plant and animal interactions within ecosystems, communities, and populations. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Students will apply ecological principles to a case study of an ecosystem.</p> <p>Assessment Method Category: Essay</p> <p>Success Criterion: At least 70% of successful students will correctly apply ecological principles.</p>	<p>12/20/2012 - On the final exam for Biol 110, fall 2012 semester, the following multiple choice question was asked:</p> <p>Beneficial insectary habitats are important because</p> <ul style="list-style-type: none"> a) they attract pests away from crops b) they are where predators and parasitoids lay all their eggs c) they provide nutritional resources that often aren't available otherwise d) they deter pests from infesting a crop <p>Only 18% of students responded with the correct answer, "c". The majority of students apparently confused this diversification strategy with a different approach that was also included in lecture that are designed to attracts pests, rather than supplementing beneficial insects. Clearly, more emphasis to summarize, compare and contrast these two strategies is required in order to improve upon this low success criterion. Changes will be implemented into lecture and this assessment will be repeated in spring 2013 to track improvement.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2011 - 2012</p>	<p>12/20/2012 - Clearly, more emphasis to summarize, compare and contrast these two strategies is required in order to improve upon this low success criterion. Additional case studies that exemplify each approach will also be added. Changes will be implemented into lecture and this assessment will be repeated in spring 2013 to track improvement.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p> <p>Follow-Up: 05/25/2013 - This SLO will be re-assessed concluding the Spring 2013 semester.</p> <p>12/20/2012 - Clearly, more emphasis to summarize, compare and contrast these two strategies is required to distinguish these two approaches in order to improve upon this low success criterion. Additional case studies will also be added that exemplify each approach. Changes will be implemented into lecture and this assessment will be repeated in spring 2013 to track improvement.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>Assessment Method: Questions imbedded in quizzes or exams will evaluate understanding of population growth, interactions among species, and constraints of ecosystems.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of successful students will answer these questions correctly.</p>	<p>05/23/2013 - A multiple choice question asking students to distinguish the function of trap crops was answered correctly by 89% of students.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>02/15/2012 - SLO #4 was measured in the Fall of 2011 by evaluating olive fruit fly research papers that incorporated the scientific method into an ecology experiment that was conducted by the class. In this paper, students were responsible for almost all elements of a science journal article, including a literature search, description of experimental methodology, creating graphs and/or tables, and interpreting results based on collected data. The breakdown of grades is as follows:</p> <p>A (90-100%) - 1 B (80-89%) - 3 C (70-79%) - 11 D (60-69%) - 1 F (< 59%) - 0</p> <p>As 94% (15/16) of these students received a "C" or better, this assignment was considered successful. This was the second semester that this experiment was conducted as part of the class. Last fall, 60% of students received a "C" or better, so improvements to student learning, primarily regarding experimental design and project timeline, were made and implemented.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>	02/15/2012 - No action needed.

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	<p>CAN Dept - Biological Sciences - CAN BIOL 130 - Human Biology - vital processes - Describe essential biological structures and processes that occur at the molecular and cellular levels and explain how they enable life. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: quizzes and questions embedded in exams. Topics include cell structure, cellular respiration, plasma membrane function, biological polymers, tissue types, and cell division, each of which can be assessed separately.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: For a specific topic, 70% of students will score 70% or higher on questions.</p>	<p>01/03/2012 - Quiz on molecules, role of water, pH: mean score of 80%; 89% on group quiz.</p> <p>Quiz on cell structures: 67% / 82% mean for indl/grp quizzes.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2010 - 2011</p>	<p>01/03/2012 - A class activity on cell structure and functions might improve understanding. Something which demonstrates transport across membranes would be best.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>
	<p>CAN Dept - Biological Sciences - CAN BIOL 130 - Human Biology - organ systems - Describe the basic structure and physiology of human organ systems and how they function to maintain life. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: quizzes and questions embedded in exams. Each organ system can be assessed separately.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will score 70% or higher on questions related to the organ system.</p>	<p>01/07/2013 - Scores were low (avg of less than 70%) on endocrine and immune systems. It would be revealing to look for correlation between completion of assignments and quizzes on specific organ systems and performance on exam questions related to those systems.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>01/07/2013 - Use quizzes for at least half of the organ systems; individual and group format seems to work well in generating discussion among students. Compare test scores on these topics with scores on topics that had no quizzes. Also, analyze class results according to which students were present for the quizzes.</p> <p>Action Plan Category: Develop new evaluation methods</p>
			<p>01/03/2012 - I used in-class quizzes of 10 MC questions that students took individually and then in small groups, without knowing how well they did on their individual exam. There was good discussion among students on the questions, and students felt the group quizzes were valuable. Group scores</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>were nearly always higher by several points than individual scores. Despite my attempts to balance groups, enrollment changes left some substantial differences among groups.</p> <p>For individual organ systems, lowest exam scores were for the nervous and defense systems, averaging 58% correct (nerves) and 64% correct (defense). The class averaged 73% correct on 5 MC questions related to diseases or organ systems; but for 7 MC Q on cancer, the average was only 67%. Highest scores were for skeletal (81%) and respiratory systems (83%).</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2011 - 2012</p>	
	CAN Dept - Biological Sciences - CAN BIOL 130 - Human Biology - genetics, disease, evolution - Explain the role of genetics and environment in health, disease, and evolution. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: quizzes, questions embedded in exams, and assignments, as determined by instructor</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will score 70% or higher on these questions/assignments.</p>	<p>01/03/2012 - Genetics: of 14 MC questions, scores averaged only 55%. Lowest scores were from the molecular process of transcription and translation. Higher scores were on inheritance genetics, possibly because of the worksheet with sample problems.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2011 - 2012</p>	
	CAN Dept - Biological Sciences - CAN BIOL 132 - Human Biology Laboratory - ID anatomy - identify gross anatomical features of human organ systems and cells of each tissue type. (Created By	<p>Assessment Method: lab practical exam in which students must name specific organs and body parts, using fetal pigs and other models of human organs.</p>	<p>01/07/2013 - Students scores averaged only 65% on the entire practical exam; I don't have the scores for anatomical questions only. At any rate, several students indicated that they were unclear</p>	<p>01/07/2013 - Track scores on anatomical questions. Have examples of practical exam questions during each lab period. Have students quiz each other on</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	CAN Dept - Biological Sciences)	<p>Assessment Method Category: Exam</p> <p>Success Criterion: at least 70% of students accurately identify 80% or more of the tested body parts.</p>	<p>on what would be expected of them on a practical exam.</p> <p>Result Type: Inconclusive</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>Action Plan Category: Conduct Further Assessment</p>
	CAN Dept - Biological Sciences - CAN BIOL 225 - Biology Of Organisms - traits of phyla - Describe key characteristics of different phyla and discuss their phylogeny. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Lab practical exams and questions embedded in lecture exams.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will score 70% or higher on these questions.</p>	<p>05/02/2014 - Plant biology: comparison of 2 terms. When specific topics were presented in lecture, scores were higher on those midterm questions, even though the Study Guides were identical for both terms. ex: vascular plant groups, adventitious shoots, endodermis, role of fungi. The best students answered exam questions correctly either way, but lecture helped focus attention on terms, topics for others.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2013 - 2014</p>	<p>05/02/2014 - Alternatives to lecture are desirable, but more direction is needed to ensure that students learn vocabulary and implications of facts. Try writing case studies for use in class that include essential vocabulary and concepts. class discussion must highlight applications; how to use the known facts to make inferences. ex. use of plant mutants to study processes in normal plants, as with dwarfs. include homework so that students which have not read the material can catch up.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>
			<p>01/23/2012 - In Spring 2011 term, only 60% of the class scored 70% or higher on the first lab practical. During Fall 2011, I placed index cards with sample questions (answers on the flip side) next to specimens, so that students would have a better idea of the sorts of questions they would see for the practical exam. In Fall 2011, 72% of the students scored 70% or higher on the first lab practical. The cards got their attention during lab and made them look more carefully at preserved specimens.</p> <p>Result Type:</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 225 - Biology Of Organisms - organ systems and homeostasis - Compare the various structures of diverse organisms and explain how they are used to maintain essential life processes. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: essay questions in lab portfolios and questions embedded in exams.</p> <p>Assessment Method Category: Portfolio</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 225 - Biology Of Organisms - mechanisms of evolution - Discuss how mechanisms, including natural selection, affect evolution. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: lab writeups (Hardy-Weinberg, Evolve simulation, Drosophila population) questions embedded in midterm exam. in-class discussions</p> <p>Success Criterion: 70% of students will demonstrate understanding of how genetic drift, natural selection, mutation, non-random mating, and emigration can affect evolution of a population.</p>	<p>02/28/2014 - HW lab writeups: 94% scored above 90% on the "beans". 80% scored 85% or above on the computer model. New simulation program was used, with rewritten questions. Students were more engaged, and seemed to understand the questions better.</p> <p>Drosophila lab: 70% answered the analysis questions correctly.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2013 - 2014</p>	<p>02/28/2014 - Drosophila lab: have students take more time to set up initial populations, as well as in classifying final pops, so that fewer mistakes are made and data are more reasonable.</p> <p>Rewrite questions leading them to analyze data.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>
			<p>01/07/2013 - Hardy-Weinberg Evolve lab: 87% scored higher than 75% on this lab writeup.</p> <p>Dros. lab - 1(4%) scored below 75% midterm 1 - 70% of students scored adequately or better; class average was 69% on these questions, mostly due to one very low score.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	<p>CAN Dept - Biological Sciences - CAN BIOL 225 - Biology Of Organisms - embryogenesis - Describe embryonic development of animals and plants and explain its significance. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: questions (short essay and multiple choice) embedded in midterms.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will score 70% or higher on these questions.</p>	<p>01/07/2013 - Only two students chose the essay question on embryogenesis, so there is insufficient data for this assessment method. Of 6 MC questions on the final exam, the class average was only 54% correct.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>01/07/2013 - Need activities which require students to use the vocabulary and to practice comparisons of different types of embryo development. Quiz on this topic might help realize what they do not understand. Sea urchin lab should use vocab more throughout.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>
	<p>CAN Dept - Biological Sciences - CAN BIOL 225 - Biology Of Organisms - adaptive behavior - Analyze behavioral adaptations of organisms and their basis. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Questions embedded in exams; discussion and essays on case studies in class.</p> <p>Assessment Method Category: Exam</p>	<p>02/28/2014 - Final exam MC questions: on 10 questions involving animal behavior, class avg was 65%. Students seemed to learn more from lessons focused on primate behavior (video, Walton article, field trip to SF Zoo) but not the topics covered in text reading. Introduction of unit with bird watching trip was well-received by students, and inspired some to repeat that activity on their own.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2013 - 2014</p>	<p>02/28/2014 - Without sufficient time to spend on this topic, students do not get a good understanding of major concepts. Syllabus was changed to eliminate this topic for Spring '14 . More time will be spent on community interactions, instead.</p> <p>Action Plan Category: Revise course syllabus or outline</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			Reporting Cycle: 2009 - 2010	
	CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology - subcellular structures and function - Describe and distinguish between the major macromolecules and subcellular structures in bacteria and eukaryotic cells, and explain how these structures determine associated functions in an organism. (Created By CAN Dept - Biological Sciences)	Assessment Method: Short essay question Assessment Method Category: Exam Success Criterion: At least 70% of students will answer these questions with a score of 70% or better.	09/27/2011 - 72% of students scored 70% or better on this question on the first midterm, successfully comparing and contrasting cellular/subcellular structures and their functions in Prokaryotic and Eukaryotic cells. This was fairly impressive to me this early in the semester. More exposure to cell types first-hand with microscopy in the lab, and more quiz questions might help improve these percentages.	Result Type: Criterion met Reporting Cycle: 2011 - 2012
		Assessment Method: Multiple Choice Questions Assessment Method Category: Exam Success Criterion: At least 70% of students will answer these questions correctly.		
	CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology - genetics and evolution - Compare and contrast the various processes of gene expression, genetic transfer, and gene regulation in bacterial and eukaryotic cells, and relate them to biological evolution and metabolism. (Created By	Assessment Method: Short Essay Questions Assessment Method Category: Exam Success Criterion: At least 70% of students will answer these questions with a score of 70% or better.	11/27/2012 - 87% of students were able to extensively compare and contrast the different levels of gene expression and regulation, scoring 70% or better. This was very impressive to me, as this is a very important but quite advanced level of knowledge and understanding in the course. Students are performing well by	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	CAN Dept - Biological Sciences)	<p>the third midterm in the last month of the course.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <hr/> <p>11/22/2011 - (From Midterm #3, Fall 2011): "Define and Diagram the structure of the Lac Operon (hint: not all are unique to this operon). Label and define the function of at least 7 proteins, small molecules, and DNA components involved in operon function and in positive and negative regulation. Describe how Inducible Operons are energetically efficient systems for a cell (what 2 conditions must be met for such an operon to turn ON?)."</p> <p>On this short essay question, 26/31 students (84%) successfully related and describe the essential molecular factors and regulators in gene regulation (focusing on bacterial/prokaryotic in this instance). Molecular Genetics and gene regulation are highly preeminent topics in Cell/Molecular Biology. Discussion in lecture, laboratory experiments on the topic, and extensive review sessions seem to be generating a high level of success among BIOL 230 students on this topic. I was very satisfied that 71% of students in BIOL 230 are also scoring at least 80% (B-level and above!) on this topic. Since fall 2010, I have incorporated some more extensive pre-testing through more rigorous biweekly quizzes. I continue to encourage students to participate in more peer-learning communities/cooperative learning through regular study groups among students. More regular interactive and</p>		

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>cooperative learning has been very successful among some students in many of my classes over the last few years, and I'm exploring more ways to make it a regular part of my courses and/or the students' academic lifestyles. This would also include more formalized learning with tutors in the Learning Center and MESA center.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p> <p>Related Documents: <u>Biol230-f11_FINALcorr_SLOAC.xls</u></p>	

Assessment Method:

Multiple Choice Questions

Assessment Method Category:

Exam

Success Criterion:

At least 70% of students will answer these questions correctly.

CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology - mitosis, meiosis, and Mendel - Compare and contrast chromosome movement in mitosis and meiosis, and demonstrate how molecular mechanisms of chromosomal behavior explain Gregor Mendel's experimental results as well as deviations from his ratios. (Created By CAN Dept - Biological Sciences)

Assessment Method:

Multiple Choice Questions

Assessment Method Category:

Exam

Success Criterion:

At least 70% of students will answer these questions correctly.

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>Assessment Method: Short Essay Questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions with a score of 70% or better.</p>	<p>12/12/2013 - 77% of students were able to competently (score 70% or better) answer the question: "sing DIAGRAMS, compare and contrast the most important similarities and differences between Mitosis and Meiosis (especially Meiosis I). How do these differences serve the biological purpose of each process? EXPLAIN the biological purposes of Mitosis, and of Meiosis."</p> <p>This is a very comprehensive and detailed question, and requires higher order (analysis and synthesis) cognitive ability with the concepts. This is a good level of competency with this question. However, only 56% scored 80% or better, showing high proficiency with this subject. This is a more ideal level, and student success/proficiency can be improved by more rigorous discussion, assignments, regular feedback, and practice problems with the modes of eukaryotic cellular reproduction.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2013 - 2014</p>	
			<p>03/05/2012 - (From Final Exam [Part 4], Fall 2011): "Diagram and compare/contrast between Mitosis and Meiosis (especially Meiosis I). How do these differences serve the biological purpose of each process? EXPLAIN the biological purposes of Mitosis, and of Meiosis."</p> <p>On this short essay question, 26/30 students (87%) successfully related and described the essential molecular factors, processes, and differences in chromosome segregation during Mitosis and Meiosis. Mendelian genetics for</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>Eukaryotic organisms is founded on molecular inheritance and Chromosomal genetics. These are important topics in eukaryotic genetics, which is a preeminent topic in Cell/Molecular Biology. Discussion in lecture, multiple interactive discussion sections in small groups, quantitative lab exercises on the topic, group analysis of these lab exercises, and extensive review sessions including practice problems (also in lab homework and regular quizzes) seem to be generating a high level of success among BIOL 230 students on this topic. I was very satisfied that 73% of students (22/30) in BIOL 230 are also scoring at least 80% (B-level and above!) on this topic.</p> <p>Since fall 2010, I have incorporated some more extensive pre-testing through more rigorous biweekly quizzes. I continue to encourage students to participate in more peer-learning communities/cooperative learning through regular study groups among students. More regular interactive and cooperative learning has been very successful among some students in many of my classes over the last few years, and I'm exploring more ways to make it a regular part of my courses and/or the students' academic lifestyles. This would also include more formalized learning with tutors in the Learning Center and MESA center.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>		

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	<p>CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology</p> <p>gene and cell cycle regulation - Provide specific examples to describe the various levels of eukaryotic gene regulation and cell cycle regulation, and explain how these molecular mechanisms usually ensure successful reproduction of healthy cells. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Multiple Choice Questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p> <hr/> <p>Assessment Method: Short Essay Questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions with a score of 70% or better.</p> <hr/>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 240 - General Microbiology</p> <p>- subcellular structures and function -</p> <p>Describe and distinguish between the major macromolecules and subcellular structures in bacteria and eukaryotic cells, and explain how these structures determine associated functions in an organism. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: specific exam questions in multiple choice format or short essay</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer 70% of multiple choice questions correctly, or will score at least 70% on essay questions.</p>	<p>09/23/2013 - 80% of students were able to competently (scoring at least 70%) describe and explain the subcellular structures (cell wall components) in bacteria/prokaryotes. They answered the question: "List and explain the significance of at least 8 differences that distinguish between "Prokaryotic" & Eukaryotic cells. Explain the functions of each of these cellular characteristics. Use simple diagrams where appropriate."</p> <p>66% scored HIGH proficiency (80% or better). I would like more students to earn high proficiency on this question, but this is a good result for the first midterm early in the semester.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle:</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>2013 - 2014</p> <p>02/22/2012 - 70% of students very successfully compared and contrasted Prokaryotic and Eukaryotic cellular structures and their functions, scoring 80% or better on the short essay question. 87.5% scored 70% or better on this questions, acceptably meeting this criterion. Cell types are sometimes difficult for students this early in the semester, but they seem to be getting up to speed by the second month of the semester.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>		
		<p>06/28/2010 - 91% of students answered these questions correctly</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>		

<p>CAN Dept - Biological Sciences - CAN BIOL 240 - General Microbiology - metabolic enzymes - Describe and explain how enzymes function in metabolic pathways during the transformation of energy and organic matter (especially carbon) by cells. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: specific questions on exams in multiple choice format or short essay</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer multiple choice questions correctly, or score at least 70% on essay questions.</p>	<p>05/20/2013 - 87% of 39 students accurately described and explained answers to the question: "DIAGRAM and briefly explain HOW energy from high energy electron carriers is converted to ATP in mitochondria and/or aerobic bacteria. Be sure to include the proper terms for each of at least 2 processes/ theories involved in energy conversions, and two of the proteins/ enzymes involved in the final steps of making ATP." These students showed satisfactory competency (Scored 70% or better) in knowledge of metabolic pathways and cellular enzyme</p>
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SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>functions. 82% of students displayed HIGH proficiency: scoring 80% or better on the short essay question.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	
			<p>03/19/2012 - 82% of students very successfully summarized explained the enzymatic pathways of carbon breakdown and energy harvested during glycolysis and aerobic respiration, scoring 80% or better. 87% of students acceptably met this criterion by scoring 70% or better on this short essay exam question. Students often do well on the enzymes/metabolism section. I believe they see the challenge/difficulty and so take that section very seriously. Extensive review sessions help too, and many form study groups.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>	
			<p>06/28/2010 - 89% of students answered the question correctly</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	

CAN Dept - Biological Sciences - CAN BIOL 240 - General Microbiology - genetics and evolution - Compare and contrast the various processes of genetic transfer, gene expression, and gene regulation in microbial cells and relate them to microbial evolution, growth and

Assessment Method:
specific questions on exams in multiple choice format or short essay
Assessment Method Category:
Exam
Success Criterion:

11/19/2012 - 92% of students competently described and explained prokaryotic gene structure and function (operons), scoring 70% or better. 73% scored 80% or better. This is a very good performance on a very core SLO

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	metabolism. (Created By CAN Dept - Biological Sciences)	At least 70% of students will answer these questions correctly.	for the course. Result Type: Criterion met Reporting Cycle: 2012 - 2013	
			06/28/2010 - 84% of students answered related questions correctly Result Type: Criterion met Reporting Cycle: 2009 - 2010	
	CAN Dept - Biological Sciences - CAN BIOL 250 - Human Anatomy - gross and microscopic - Describe the gross and microscopic anatomical features of human organ systems. (Created By CAN Dept - Biological Sciences)	Assessment Method: specific exam questions in multiple choice or short essay format, or lab practical Assessment Method Category: Exam Success Criterion: At least 70% of students will answer these multiple choice or lab practical questions correctly, or at least 70% of students will earn at least 70% on short essay answers	01/16/2012 - An average of 90.5% of the time students answered the assessment exam questions correctly. Result Type: Criterion met Reporting Cycle: 2011 - 2012	
			07/01/2010 - 78% Result Type: Criterion met Reporting Cycle: 2009 - 2010	
	CAN Dept - Biological Sciences - CAN BIOL 250 - Human Anatomy - changes through lifespan - Describe the anatomical changes that occur throughout the human lifespan. (Created By CAN Dept - Biological Sciences)	Assessment Method: specific exam questions in multiple choice or short essay format Assessment Method Category: Exam Success Criterion: At least 70% of students will answer these multiple choice questions correctly, or at least 70% of students will earn at least 70% on short essay answers	05/31/2013 - There were 18 quiz questions related to development, growth and/or aging of anatomical structures. The average score on these questions was 88% with a range of 67-100%. Only one of the 18 questions had a score below 70%. Two of the four questions pertaining to development of the reproductive tract had only 83% success. The relatively lower (but still	05/31/2013 - No action is needed. These results are quite strong and well above our success criterion.

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>quite good) results might be attributed to the fact that this topic comes during the last week of the semester when students are pretty much "saturated" with what they can learn.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>Related Documents: BIOL250 Hirzel S13 SLO</p>	<p>12/22/2011 - Three questions were asked on bone growth through fetal development and puberty. Students answered correctly 72, 40, 81% respectively. Difficulty came on the second question due to the use of an unfamiliar term in the correct choice, and students choosing instead a distractor that would apply to long bones rather than cranial bones. They have a basic understanding of the material but lack precision with the vocabulary and confidence needed deduce the correct answer.</p> <p>Three questions were asked on the difference that fetal structures have on blood flow through the heart. Students answered correctly 76, 87, 65% respectively. Success on the first two questions showed students learned the correct flow of blood and location of fetal structures. However their failure to answer the third question correctly shows they don't understand the significant implications of these fetal structures.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle:</p>	<p>12/22/2012 - While the results on some of the questions show success, other questions show an opportunity for improvement. More emphasis will be placed on terminology and the importance of precise language when teaching about bone development. Implications of fetal heart structures will be emphasized. Formative assessments may test for the error students made this semester.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>2011 - 2012</p> <p>Related Documents: 250_F11_lifecycle_analysis</p> <hr/> <p>05/05/2011 - 86% of the classes correctly identified the fate of the umbilical vein</p> <p>70% of class correctly identified what the embryonic bulbous cordis splits into.</p> <p>78% of the class correctly identified the fate of the embryonic ectoderm.</p> <p>78% of class correctly identified the sequence of myogenesis.</p> <p>83% of class correctly identified the fate of myofibers during morphogenesis.</p>	
			<p>Result Type: Criterion met</p> <p>Reporting Cycle: 2010 - 2011</p> <hr/> <p>07/01/2010 - 78%</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <hr/>	

CAN Dept - Biological Sciences - CAN BIOL 250 - Human Anatomy - form and function - Explain how the shape and composition of anatomical structures determine their function. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: specific exam questions in multiple choice or short essay format</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these multiple choice questions correctly, or at least 70% of students will earn at least 70% on short essay answers</p>	05/31/2013 - There were 30 questions in the lecture quizzes that required students to connect the shape/composition/location and function of an anatomical structure. The average score on these questions was 87% with a range of 50-100%. Only 6 of the 30 questions had scores below the success criterion (>70%). The majority of these poor results had a sample size of only 2-3 students that were assigned these particular questions preventing us from drawing any meaningful conclusions.
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SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>Related Documents: BIOL250 Hirzel S13 SLO</p>	<p>10/30/2012 - The mark for meeting this SLO successfully is the ability of the class to answer these questions with &#8805; 70% success. That level is success is being met for only some of these questions. I believe there are a variety of factors at work. See attached report for further information/analysis.</p> <p>Result Type: Inconclusive</p> <p>Reporting Cycle: 2011 - 2012</p> <p>Related Documents: behonick SP12 250 SLO.pdf</p>
			<p>07/01/2010 - 76%</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	

CAN Dept - Biological Sciences - CAN BIOL 250 - Human Anatomy - identify structures - Recall and identify anatomical structures from images, models, specimens and human cadavers. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Scores from two lab exams will be used to assess this SLO. One of the two exams will be the final exam. Lab exams consist of pinned structures on images, models, specimens and cadavers that the student must properly identify without the use of vocabulary lists.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer</p>	<p>08/21/2013 - Criterion met for all 4 sections surveyed for Lab Practicals 2 & 3.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>Related Documents: Behonick SP13 250 SLO</p>
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SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>these questions with a score of 70% or better.</p>	<p>thoracic skeleton and integumentary system models that were assessed via online quiz. The average score for these questions was 90% correct. Although there were about 5 questions with scores that did not meet the success criterion, these had small sample sizes of students who were assigned the questions. This prevents any meaningful conclusions to be drawn. Given the overwhelming success of these results, no action is required.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>Related Documents: BIOL250 Hirzel S13 SLO</p> <hr/> <p>01/22/2012 - Lab Practicum I: n=43; x=90.79%; s=11.23 Lab Practicum II: n=39; x=87.69%; s=11.53</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p> <hr/> <p>12/22/2011 - Formative assessment was done by quizzing students within 1 week of learning structures. They were shown photographs of models and specimens and asked to identify structures using reference vocabulary lists. Over the course of the semester, the mean score (including students who dropped the course and earned zero points) on these quizzes was 78.5%. Summative assessments were in the form of lecture and lab exams. The lecture exams included questions utilizing illustration images. The mean scores on these questions was 73% showing students</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>were able to correctly identify structures from images. The lab exams require students to identify pinned structures on models and specimens without the assistance of vocabulary lists. The mean score on these exams was 78%, or 72% if students who dropped the course are included in the calculation. Clearly students are able to correctly identify structures regardless of whether the question is in the form of an image, model or actual specimen.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p> <p>Related Documents: 250_F11_id_analysis</p> <hr/> <p>07/01/2010 - 83%</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <hr/>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - membrane potential - Explain the basis of membrane potentials and their significance to physiologic control systems (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: written exams (including multiple choice, short answer and essay questions) or written lab reports</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: At least 70% of students will answer multiple choice questions correctly, or at least 70% of students will earn at least 70% on essay answers</p>	<p>12/20/2013 - Students who attempted this assessment had a success rate of 87.4% (n = 46).</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2013 - 2014</p> <p>Related Documents: behonick FA13 BIOL260 SLO .pdf</p> <hr/> <p>05/31/2013 - Multiple means of assessment were used in this cycle: 31 questions from online quizzes, 10 activities involving online laboratory simulations, and 6 online interactive</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>homework assignments. The latter two types of assessments included multiple choice and short essay responses. Of the 16 assessments not involving quiz questions, only 1 had a score less than the success criterion. The average score for all assessments was 86% correct. Given the high success, no action is needed.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>Related Documents: BIOL260 Hirzel S13 SLO</p>	
			<p>12/15/2011 - > 90% of students correctly answered questions re: this SLO on quizzes, exams, and in lab reports.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p> <p>06/28/2010 - 95% of students correctly answered these questions.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <p>Related Documents: FA10 BIOL260 SLO1</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - homeostatic control systems - Describe the coordinated responses of physiologic systems to maintain homeostasis and to regulate change and growth. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: written exams (including multiple choice, short answer and essay questions) or written lab reports</p> <p>Assessment Method Category: Other</p> <p>Success Criterion:</p>	<p>05/31/2013 - Multiple means of assessment were used in this cycle: 114 questions from online quizzes, 9 activities involving online laboratory simulations, and 11 online interactive homework assignments. Of the twenty assessments not involving quiz</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>At least 70% of students will answer multiple choice questions correctly, or at least 70% of students will earn at least 70% on essay answers</p>	<p>questions, only 1 had a score less than the success criterion. The average score for all assessments was 84% correct. Given the high success, no action is needed.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p> <p>Related Documents: BIOL260 Hirzel S13 SLO</p>	
			<p>01/12/2012 - criterion met for all but 1 question assessed. see attached report for details.</p> <p>Result Type: Inconclusive</p> <p>Reporting Cycle: 2011 - 2012</p> <p>Related Documents: Behonick FA11 BIOL260 SLO</p>	
			<p>10/13/2011 - this criteria was met for 3/4 multiple choice questions assessed, and 3/3 short answer questions assessed. see attached PDF for further information/analysis.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2010 - 2011</p> <p>Related Documents: Behonick SP11 260 SLO</p>	
			<p>06/28/2010 - 90+ % of students correctly answered these questions.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	<p>CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - metabolism and exercise - Describe how multiple physiologic systems integrate their responses to maintain control of metabolism and exercise. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: written exams (including multiple choice, short answer and essay questions) or written lab reports</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: At least 70% of students will answer multiple choice questions correctly, or at least 70% of students will earn at least 70% on essay answers</p>	<p>06/28/2010 - 90+ % of students correctly answered these questions.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - gradients - Describe the role of electrical, chemical, electrochemical, and pressure gradients in driving physiological processes. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: written exams (including multiple choice, short answer and essay questions) or written lab reports</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: At least 70% of students will answer multiple choice questions correctly, or at least 70% of students will earn at least 70% on essay answers</p>	<p>04/30/2013 - 91% of students scored 70% or better, and 85% of students showed high competency (scoring 80% or better) explaining structure-function relationships between hemoglobin, oxygen, and carbon dioxide gas and how partial pressure gradients regulate modes, directions, and destinations/distribution of transport of these important physiological gasses to maintain oxygen and pH homeostasis throughout the body. The question asked "Compare and contrast how oxygen and carbon dioxide are transported in the bloodstream, and the properties of each molecule that determine its necessary mode of transport. How do the properties of these molecules and their transporters determine where and how each gas enters or leaves the blood? "</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>12/22/2011 - Students answered 6 of 7 multiple choice questions dealing with</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>electrochemical gradients and their role in neurophysiology on average 83% correctly. The 1 question the majority of students failed to get correct shows some confusion over the location of different types of gated channels on neurons. This can be clarified in future lectures.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p> <p>Related Documents: 260_F11_gradients</p> <p>06/28/2010 - 95% of students correctly answered these questions.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
Critically evaluate biological information and examine its significance and impact on society and the environment.	CAN Dept - Biological Sciences - CAN BIOL 100 - Intro To Life Sciences - ecology - Discuss ecological principles that influence plant and animal interactions within ecosystems, communities, and populations. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: specific questions on exams in multiple choice format</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>		
	CAN Dept - Biological Sciences - CAN BIOL 100 - Intro To Life Sciences - analyze science info - Gather and evaluate information to analyze	<p>Assessment Method: Project-based assignment involving informational research</p> <p>Assessment Method Category:</p>		

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	contemporary issues in science. (Created By CAN Dept - Biological Sciences)	Essay Success Criterion: At least 70% of students will achieve a score of 70% or better on the project.		
	CAN Dept - Biological Sciences - CAN BIOL 103 - Native Plants and Wildflowers - Human Uses of Plants - Understand and be able to explain the properties of plants that have proven to be useful to Native Californians. (Created By CAN Dept - Biological Sciences)	Assessment Method: Exam questions. Assessment Method Category: Exam Success Criterion: 70% of students will answer the questions correctly.		
	CAN Dept - Biological Sciences - CAN BIOL 110 - Principles Of Biology - analyze info - 5. Gather, evaluate, and effectively organize information to analyze contemporary issues in science. (Created By CAN Dept - Biological Sciences)	Assessment Method: Students choose a topic that constitutes a current issue, then gather and evaluate information, biological and otherwise, organize their analysis and present it to the class or to a small group of students. Assessment Method Category: Capstone Assignment/Project Success Criterion: At least 70% of students who complete this course will score 70% or higher on this project. Scoring rubric is filed in the course folder. Related Documents: BIO_110_IssueProject_Rubric BIO_110_IssueProject_Rubric	04/29/2010 - Eighty percent of students who completed this course received a 70% or greater on this current issues project. Result Type: Criterion met Reporting Cycle: 2009 - 2010	
	CAN Dept - Biological Sciences - CAN BIOL 130 - Human Biology - analyze issue - Find, evaluate the validity of, and analyze information	Assessment Method: Current Issues Project in which students identify a controversial topic in human biology and analyze biological	06/06/2013 - 84% of enrolled students scored 75% or higher.	Result Type: Criterion met

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	<p>about contemporary topics in human biology. (Created By CAN Dept - Biological Sciences)</p>	<p>information, as well as other arguments, about the topic. Format is posters, which are shared with classmates. Exact assignment depends on instructor choice.</p> <p>Assessment Method Category: Capstone Assignment/Project</p> <p>Success Criterion: At least 80% of the students will score 75% or higher on the rubric.</p>	<p>Reporting Cycle: 2012 - 2013</p> <p>01/07/2013 - Of those students that completed this paper, 85% scored at 87% or higher on the rubric. This term, the format was a research paper rather than a poster. Self-reflections by students revealed that the most difficult portions were finding scientific references and understanding those references. Requiring drafts to be submitted to me for editing was useful in improving content and writing.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>01/07/2013 - Examples of papers should be posted so that students have a specific target and my expectations are crystal clear. This could help with citation format, too.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>
			<p>01/03/2012 - Of the 14 students that completed a project, all scored better than 70%. Scores were weakest in the Pros and Cons sections, due to either not mentioning arguments of one side or the other, or not explaining the argument sufficiently. Identification of an issue was key to scoring well. 13/14 students used valid references; 2 cited them incompletely. Everyone did well at describing their opinion. Only one person included their opinion in the introduction.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>	<p>01/03/2012 - More directions and a model should be given on how to refer to sources from within the document. The Editing guides were not used as well as they might have been. Perhaps require students to turn in drafts to me, along with peer or other reviewer. Students seem to enjoy investigating a topic of their choice.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>
		<p>Assessment Method: 12 multiple choice questions in a 100 question exam</p> <p>Assessment Method Category:</p>	<p>01/27/2012 - 75% scored these questions correctly</p> <p>Result Type: Criterion met</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		<p>Exam</p> <p>Success Criterion: At least 70% of students get 80% in the test</p>	<p>Reporting Cycle: 2011 - 2012</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 130 - Human Biology</p> <p>- disease - Explain how malfunctions of these organ systems can cause disease.</p> <p>(Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Questions are embedded in midterm exams.</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of successful students will answer 70% of these questions correctly.</p>	<p>01/07/2013 - Of 7 questions on the final exam, the average score was only 58% correct. More practice should be given, both in assignments and in quizzes, on analyzing the relationship between processes and disease.</p> <p>Result Type: Criterion not met</p> <p>Reporting Cycle: 2012 - 2013</p>	<p>01/07/2013 - More practice should be given, both in assignments and in quizzes, on analyzing the relationship between processes and disease.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>
		<p>Assessment Method: Assignments involving specific cases of disease will evaluate student's understanding of various organ systems.</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: At least 70% of successful students will correctly complete these assignments.</p>		
	<p>CAN Dept - Biological Sciences - CAN BIOL 130 - Human Biology</p> <p>- genetics, disease, evolution - Explain the role of genetics and environment in health, disease, and evolution. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: quizzes, questions embedded in exams, and assignments, as determined by instructor</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will score 70%</p>	<p>01/03/2012 - Genetics: of 14 MC questions, scores averaged only 55%. Lowest scores were from the molecular process of transcription and translation. Higher scores were on inheritance genetics, possibly because of the worksheet with sample problems.</p> <p>Result Type:</p>	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
		or higher on these questions/assignments.	Criterion not met Reporting Cycle: 2011 - 2012	
	CAN Dept - Biological Sciences - CAN BIOL 132 - Human Biology Laboratory - genetic inheritance - analyze inheritance of traits using genetic data (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: assignment with genetic problems that include a variety of concepts of human genetics</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: at least 70% of students will correctly complete the assignment</p>		
	CAN Dept - Biological Sciences - CAN BIOL 230 - Cell and Molecular Biology transformation of energy - Describe and explain how enzymes and specific organelles function in catabolic and anabolic (photosynthetic) pathways during cellular transformation of energy and organic matter. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Multiple Choice Questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>		
		<p>Assessment Method: Short Essay Questions</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions with a score of 70% or better.</p>	10/30/2012 - 78% of students scored 70% or better, successfully describing and explaining the input and output of carbon atoms from organic food sources (sugar) from glycolysis through aerobic respiration. This is a difficult but one of the most essential concepts in the course, fulfilling the cellular metabolism focus of the first half of the semester.	<p>Result Type: Criterion met</p> <p>Reporting Cycle: 2012 - 2013</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>10/24/2011 - (From Midterm #2, Fall 2011): "Compare the pathways, and energy inputs and outputs of aerobic respiration and fermentation in living organisms. Include all processes/stages, electron carriers, and phosphorylated compounds."</p> <p>On this short essay question, 27/32 students (84%) successfully related and describe the essential metabolic inputs and outputs in Fermentation, and related those to respiration. Metabolism is a preeminent topic in Cellular Biology. Discussion in lecture, laboratory experiments on the topic, and extensive review sessions seem to be generating a high level of success among BIOL 230 students on this topic. I would like to bring the >70% success rate to students scoring 80% or better on related questions about enzymes and metabolism and metabolic yields in cells. This semester, 67% of students scored 80% or better on the enzymes/metabolism assessment.</p> <p>I believe that more extensive pre-testing through more rigorous biweekly quizzes and more extensive question on related laboratory exercises will help with this longer-term goal. I am also trying to find more ways to increase peer-learning communities/cooperative learning through regular study groups among students. More regular interactive and cooperative learning has been very successful among some students in many of my classes over the last few years, and I'm exploring more ways to make it a regular part of my courses and/or the students' academic lifestyles. This would also include more formalized learning with tutors in the Learning Center and MESA center.</p>	<p>10/29/2012 - I believe that more extensive pre-testing through more rigorous biweekly quizzes and more extensive question on related laboratory exercises will help with this longer-term goal. I am also trying to find more ways to increase peer-learning communities/cooperative learning through regular study groups among students. More regular interactive and cooperative learning has been very successful among some students in many of my classes over the last few years, and I'm exploring more ways to make it a regular part of my courses and/or the students' academic lifestyles. This would also include more formalized learning with tutors in the Learning Center and MESA center.</p> <p>Action Plan Category: Use New or Revised Teaching methods</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			<p>formalized learning with tutors in the Learning Center and MESA center.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>	
		<p>CAN Dept - Biological Sciences - CAN BIOL 240 - General Microbiology - classification and impact on health - Compare and contrast the major classes of bacterial, eukaryotic, and acellular microbes and their relationships to human and/or environmental health. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: specific questions on exams in multiple choice format or short essay</p> <p>Assessment Method Category: Exam</p> <p>Success Criterion: At least 70% of students will answer these questions correctly.</p>	<p>04/23/2012 - 78% of students successfully met this criterion by scoring 70% or better, and 76% of students were VERY successful, scoring 80% or better on short essay question. The question asked them to compare and contrast different classifications of prokaryotes, and identify methods to isolate and distinguish/characterize these groups. It is sometimes difficult for students to conceptualize species and classifications that they have not actually seen in lab, but most are doing well.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p>
			<p>06/28/2010 - 84% of students answered the question correctly</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	
		<p>CAN Dept - Biological Sciences - CAN BIOL 240 - General Microbiology - immune response - Compare and contrast specific mechanisms of innate and acquired immunity in humans, and describe how each aids in defense</p>	<p>Assessment Method: specific questions on exams in multiple choice format or short essay</p> <p>Assessment Method Category: Exam</p>	<p>01/06/2012 - 65.3% but only 53% of the students attempted to answer the question.</p> <p>Result Type: Criterion not met</p>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	<p>against specific infectious diseases of major organ systems. (Created By CAN Dept - Biological Sciences)</p>	<p>Success Criterion: At least 70% of students will answer these questions correctly.</p>	<p>Reporting Cycle: 2010 - 2011</p> <hr/> <p>06/28/2010 - 81% of students answered these questions correctly</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p> <hr/>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 250 - Human Anatomy - cadaver appreciation - Develop respect and appreciation for the gift of human cadavers; explain and defend their use in anatomy education. (Created By CAN Dept - Biological Sciences)</p>	<p>Assessment Method: Students will complete a survey to determine their attitude toward human cadavers.</p> <p>Assessment Method Category: Survey</p> <p>Success Criterion: At least 70% of students will answer the questions favorably.</p>	<p>05/25/2008 - When asked to consider their initial feelings (before taking the course) concerning cadavers, 60% of students report they did not have negative preconceptions and only 43% reported being apprehensive about seeing a cadaver. Cadaver use was a major reason to enroll in the course for only 40% of students. However, at the end of the semester 95% of students report that their attitude about cadaver use has become more positive. Over 90% state that care, handling, and safety concerns were adequately explained and applied. 100% of the students reported that the cadaver helped them understand the 3D relationship between structures and 98% would recommend that other students take a course with a cadaver rather than one without cadavers. 86% felt that donation of the body was worthwhile. In written comments, students were able to articulate reasons how cadavers were beneficial to students of anatomy. The justification most commonly given was that cadavers were more realistic and "hands-on" than models and photos.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle:</p>	<p>08/16/2008 - After reviewing the results of the survey it was determined that some of the questions asked were leading the students to identify specific values/advantages of using cadavers. These have been omitted and additional questions included in the survey to better identify student opinions. It was also determined that a pre-test survey will be administered at the first week of the semester to enable us to evaluate changes of attitudes and perceptions.</p> <hr/>

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
			2009 - 2010	
			Related Documents: Cadaver Survey Pre-test F08 Cadaver Survey Post-test F08	
	CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - information competency - Research, summarize and cite articles from peer-reviewed scientific literature. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: Students will select a journal article describing research on an assigned topic in physiology. They will summarize the background and hypothesis of the paper, very briefly describe the methods, and summarize the major conclusions. They will cite their source using APA style and appraise the quality and validity of this source of information.</p> <p>Assessment Method Category: Essay</p> <p>Success Criterion: At least 70% of students will complete this assignment with a score of 70% or better.</p>	01/11/2013 - This SLO was met successfully. Result Type: Criterion met Reporting Cycle: 2012 - 2013 Related Documents: Fall 2012 SLO 4	01/30/2010 - 100% of students met the criterion. Result Type: Criterion met Reporting Cycle: 2009 - 2010
	CAN Dept - Biological Sciences - CAN BIOL 260 - Human Physiology - application to lifestyle - Apply knowledge of physiologic processes to develop a healthy lifestyle, and predict the likely impact of unhealthy practices on bodily well-being. (Created By CAN Dept - Biological Sciences)	<p>Assessment Method: written exams (including multiple choice, short answer and essay questions) or written lab reports</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: At least 70% of students will answer multiple choice questions correctly, or at least 70% of students will earn at least 70% on essay answers</p>	06/28/2010 - 90+ % of students correctly answered these questions Result Type: Criterion met Reporting Cycle: 2009 - 2010	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	CAN Dept - Biological Sciences - CAN BIOL 310 - Nutrition - Apply nutrition to own diet - Students should be able to apply to their own diets the knowledge of the Food Guide Pyramid, the major nutrients, recommended servings and quantities of servings. (Created By CAN Dept - Biological Sciences)	Assessment Method: Analyze current diet to the recommended My Pyramid recommendations in a written assignment. Assessment Method Category: Essay Success Criterion: Students will achieve at least 70% score on this project.	06/06/2013 - 92% of enrolled students performed at the level of 70% or better on the assignment. Result Type: Criterion met Reporting Cycle: 2012 - 2013	
			01/19/2012 - The class average grade on this assignment was a 82%. Result Type: Criterion met Reporting Cycle: 2010 - 2011	
			01/16/2012 - 87% of students achieved at least a 70% score on this project.	
			Result Type: Criterion met Reporting Cycle: 2011 - 2012	
			05/12/2010 - 100% of students completed assignment with a score of 90% or higher	
			Result Type: Criterion met Reporting Cycle: 2009 - 2010	
			08/22/2008 - Students do not accurately identified the correct food descriptions as compared to My Pyramid recommendations. Students fail to identify the essential nutrients in doing their analysis.	
			Result Type: Criterion not met Reporting Cycle: 2009 - 2010	

SLO	Course Outcomes	Means of Assessment & Success Criteria / Tasks	Results	Action & Follow-Up
	<p>CAN Dept - Biological Sciences - CAN BIOL 310 - Nutrition</p> <ul style="list-style-type: none"> - nutrition labels - Students will be able to accurately analyze the nutrition labeling of food products and interpret the information. (Created By CAN Dept - Biological Sciences) 	<p>Assessment Method: Students will be assigned a worksheet in which they will be required to attach a food label and accurately identify and interpret the nutritional terms and values.</p> <p>Assessment Method Category: Other</p> <p>Success Criterion: Students will score at least 70% on this activity or on related exam questions.</p>	<p>01/15/2012 - Students were given a nutrition labeling worksheet to fill out from a food label. They were to identify the nutrients that are poor or excellent source. The students submitted their worksheets for points. Also, the students had an exam question to know that 20% of the daily value is a high source of a nutrient. The class had 90% who answered correctly while 10% of the students answered the question incorrectly.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2011 - 2012</p> <p>Related Documents:</p> <p>Nutrition Labeling</p> <p>Exam multiple choice question</p>	
	<p>CAN Dept - Biological Sciences - CAN BIOL 310 - Nutrition</p> <ul style="list-style-type: none"> - information competency - Students can differentiate between scientific, evidence -based nutrition information and nutrition fads. (Created By CAN Dept - Biological Sciences) 	<p>Assessment Method: Students will complete research on nutrition and evaluate the validity of their informational resources.</p> <p>Assessment Method Category: Essay</p> <p>Success Criterion: Students will earn at least 70% on these assessments.</p>	<p>02/10/2010 - 100% of students completed the assignment and earned a score of 80% or higher.</p> <p>Result Type: Criterion met</p> <p>Reporting Cycle: 2009 - 2010</p>	