

**Assessment of Student Learning Outcomes
Spring 2011
Biology**

Course	Number	Outcome Measure	PLO Assessed	ILO Supported	Assessment Method	Summary of Results	Use of results to improve in one or more of these areas			
							Instruction	Curriculum	Technology	Assessment
BIOL	1306/1106	SLO #1: Students will explain the transfer of genetic information, the chromosomal theory of inheritance and the relationship of genetics to evolutionary theory.	3	Critical Thinking	Multiple choice exam	Among all sections, the average for the 14-question exam was 54%.		We will rewrite this SLO to better reflect the course content and focus more on important general concepts.		We will rewrite the questions to reflect the revised SLO and focus more on general concepts.
BIOL	1306/1106	SLO #2: The student will be able to discuss the characteristics of life as they pertain to prokaryotes and eukaryotes with regards to differences and similarities	3	Critical Thinking	Multiple choice exam	Among all sections, the average for the 10-question exam was 71%.		We will rewrite this SLO to better reflect the course content and focus more on important general concepts.		We will rewrite the questions to reflect the revised SLO and focus more on general concepts.

		on the molecular and cellular levels of the organism.								
BIOL	1307/1107	SLO #1: Students will demonstrate knowledge of theoretical systematics and taxonomy	3	Critical Thinking	Multiple choice exam	Among all sections , the average grade on the exam was 68%.	We will develop notes and suggested guidelines for faculty regarding the teaching of SLO #1.			
BIOL	1307/1107	SLO #2: Students will demonstrate knowledge of the diversity of life, with emphasis on taxonomy, anatomy, physiology, ecology, and evolution of the following groups: --Domain Archaea and Domain Bacteria; --Domain Eukarya, including protists, and Kingdoms Fungi, Plantae, and Animalia	3	Critical Thinking	Multiple choice exam	Among all sections , the average grade on the exam was 78%.	We will provide the questions to all faculty teaching the course at the beginning of the semester, so the faculty will have adequate time to prepare their students.			
BIOL	2301/2101	SLO #1: Students will be able to locate & identify the		Critical Thinking	Objective exam	Questions/per cent missed 1/24 2/16 3/18				As a group, we will re-evaluate and, as needed, rewrite the questions.

		various regions of the human body, as well as the organs and functions associated with these regions				4/29 5/34				
BIOL	2301/2101	SLO #2: Students will be able to demonstrate an understanding of the nervous, skeletal, & muscular systems and their inter-relatedness.		Critical Thinking	Objective exam	Questions/percent missed 6/34 7/52 8/21 9/15 10/39				As a group, we will re-evaluate and, as needed, rewrite the questions.
BIOL	2302/2102	SLO #1: Students will be able to demonstrate an understanding of the structure and function of the endocrine system, cardiovascular system, lymphatic system, digestive system, respiratory system, urinary system, and reproductive system.		Critical Thinking	Multiple choice exam	Average of all sections was 71.3%.	We will provide instructors with SLO questions at the beginning of the semester, so instructors will be encouraged to stress urinary and homeostatic topics to increase student understanding.			Standardized questions for each SLO will continue to be incorporated into exams. This will give a better comparison between sections.
BIOL	2302/2102	SLO #3: Students will		Critical Thinking	Multiple choice exam	Average of all sections was	We will provide instructors with SLO			Standardized questions for

		be able to summarize various homeostatic mechanisms associated with the endocrine system, cardiovascular system, lymphatic system, respiratory system, urinary system, and reproductive system.				69.4%.	questions at the beginning of the semester, so instructors will be encouraged to stress urinary and homeostatic topics to increase student understanding.			each SLO will continue to be incorporated into exams. This will give a better comparison between sections.
BIOL	2321/2121	SLO #1 Students will demonstrate critical thinking, problem solving, and decision making while identifying two bacteria in a mixed culture.		Critical Thinking	Unknowns lab report	Among all sections the average grade was 81.8%	We will offer more opportunities to streak for isolation. We will encourage students to assess their streaking technique and results			
BIOL	2321/2121	SLO #2 Students will demonstrate understanding of factors that lead to microbial antibiotic resistance, be able to perform a technique for determining sensitivity or		Interculturally literate and socially responsible	Multiple choice exam	Among all sections and all 5 questions 78.2% were answered correctly			We will implement McGraw-Hill Learn Smart when the bookstore orders the correct book with the free program, so students can assess their understanding prior to taking the exam	We will reword the questions as needed for clarification.

		resistance, and assess the effects of resistance on society.								
BIOL	2321	SLO #3 Students will identify examples of harmful as well as beneficial actions of microorganisms, and extrapolate their effects on society.		Interculturally literate and socially responsible	Multiple choice exam	Among all sections and all 5 questions 74.65% were answered correctly			We will implement McGraw-Hill Learn Smart when the bookstore orders the correct book with the free program, so students can assess their understanding prior to taking the exam	We will reword the questions as needed for clarification.
BIOL	2404	SLO # 1 Students will associate anatomical terminology with organ or structure location		Critical Thinking	Multiple Choice Questions	Students answered five questions on anatomical terminology and organ or structure location. The overall average was 73% correct answers.	Our goal was a 5% improvement over last semester. The outcome was the same. We will continue to emphasize positional anatomy to all instructors			
BIOL	2404	SLO # 2 Students will demonstrate the relationship between the structure and function in body systems		Critical Thinking	Multiple Choice Questions	The overall average was 78% correct answers.	5% improvement was achieved. We will strive to maintain and improve 2%			
CHEM	1311 1111	SLO#1 Students will be able to use solution concentration in chemical	2	Critical Thinking	In-class multiple choice examination and laboratory experiments #24, #7, & #30.	For the 9 multiple choice questions relevant to the SLO, there	There is evidence that math review at the start of the term has improved student performance on the	SLO's have been rewritten for the fall of 2011		

		analyses employing titration techniques.				was an average of 5.5 % more students answering the questions correctly. Individual questions showed up to 20 % more correct responses	<p>assessed questions.</p> <p>Since there is a new instructor this fall, future comparisons can no longer be made with this data.</p> <p>Math skills will be emphasized throughout the course, not just at the beginning.</p> <p>Students who continue to struggle with math skills will be encouraged to seek help in the math lab.</p>			
CHEM	1311 1111	SLO#2 Students will be able to calculate energy changes occurring in chemical/physical processes and measure these changes using calorimetric techniques .	2	Critical Thinking	In-class multiple choice examination and laboratory experiments	For the 10 multiple choice questions relevant to the SLO, there was an average of 8 % more students answering the questions correctly. Individual questions showed up to 20 % more correct responses	<p>There is evidence that math review at the start of the term has improved student performance on the assessed questions.</p> <p>Since there is a new instructor this fall, future comparisons can no longer be made with this data.</p> <p>Math skills will be emphasized throughout the course, not just at the beginning.</p> <p>Students who continue to struggle with math skills will be encouraged to seek help in the math lab.</p>	SLO's have been rewritten for the fall of 2011		

CHEM	1311 1111	SLO#3 Students will apply the appropriate mathematical concept and to perform the basic arithmetic computations as required by the experiment, including the rules of significant figures, conversions of scientific units	2	Critical Thinking	In-class multiple choice examination and laboratory experiments	For the 13 multiple choice questions relevant to the SLO, there was an average of 1.5 % fewer students answering the questions correctly. Individual questions showed up to 13 % improvement or 18 % decrease in correct answers	Since there is a new instructor this fall, future comparisons can no longer be made with this data. Math skills will be emphasized throughout the course, not just at the beginning. Students who continue to struggle with math skills will be encouraged to seek help in the math lab.	SLO's have been rewritten for the fall of 2011		
CHEM	1311 1111	SLO#4 Students will apply statistical analyses to determine precision and accuracy of experimental results	2	Critical Thinking	In-class multiple choice examination and laboratory experiments	For the 14 multiple choice questions relevant to the SLO, there was an average of 14 % more students answering the questions correctly. Individual questions showed up to 30 % improvement	There is evidence that math review at the start of the term has improved student performance on the assessed questions. Since there is a new instructor this fall, future comparisons can no longer be made with this data. Math skills will be emphasized throughout the course, not just at the beginning. Students who continue to struggle with math skills will be encouraged to	SLO's have been rewritten for the fall of 2011		

							seek help in the math lab.			
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