

NATURAL SCIENCES
Institutional (ILO), Program (PLO), and Course (SLO) Alignment

Program: Biology	Number of Courses: 11	Date Updated: 09.10.2014	Submitted by: T. Jim Noyes, ext. 3356
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ILOs	1. Critical Thinking <i>Students apply critical, creative and analytical skills to identify and solve problems, analyze information, synthesize and evaluate ideas, and transform existing ideas into new forms.</i>	2. Communication <i>Students effectively communicate with and respond to varied audiences in written, spoken or signed, and artistic forms.</i>	3. Community and Personal Development <i>Students are productive and engaged members of society, demonstrating personal responsibility, and community and social awareness through their engagement in campus programs and services.</i>	4. Information Literacy <i>Students determine an information need and use various media and formats to develop a research strategy and locate, evaluate, document, and use information to accomplish a specific purpose. Students demonstrate an understanding of the legal, social, and ethical aspects related to information use.</i>
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SLO-PLO-ILO ALIGNMENT NOTES:

Mark boxes with an 'X' if: SLO/PLO is a major focus or an important part of the course/program; direct instruction or some direct instruction is provided; students are evaluated multiple times (and possibly in various ways) throughout the course or are evaluated on the concepts once or twice within the course.

DO NOT mark with an 'X' if: SLO/PLO is a minor focus of the course/program and some instruction is given in the area but students are not formally evaluated on the concepts; or if the SLO/PLO is minimally or not at all part of the course/program.

PLOs	PLO to ILO Alignment			
	(Mark with an X)			
	1	2	3	4
PLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X	X		X
PLO #2 Tools The student will master the use of appropriate biological tools and evaluate evidence gathered to explain biological principles.				X
PLO #3 Content Knowledge Students will have a working knowledge of biological principles and a mastery of a broad set of factual biological knowledge concerning ecology, evolution and cells.	X			X

SLOs	SLO to PLO Alignment <i>(Mark with an X)</i>			COURSE to ILO Alignment <i>(Mark with an X)</i>			
	P1	P2	P3	1	2	3	4
BIOL 10 Fundamentals of Biology: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 10 Fundamentals of Biology: SLO #2 Tools The student will be able to use the compound and dissecting microscope to observe cells and microorganisms.		X		X	X		X
BIOL 10 Fundamentals of Biology: SLO #3 Content Knowledge (Mitosis) The student will be able to describe key activities in cell replication.			X				
BIOL 101 Principles of Biology I: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 101 Principles of Biology I: SLO #2 Use of Microscope The student will be able to use the compound and dissecting microscope to observe cells and microorganisms.		X		X	X		X
BIOL 101 Principles of Biology I: SLO #3 Content Knowledge (Energy Flow) Students will use basic energy principles to explain the flow of energy in living systems, such as those that occur in the cellular metabolic pathways of photosynthesis and cell respiration, or the relationships observed between autotrophs and heterotrophs in ecosystems.			X				
BIOL 102 Principles of Biology II: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 102 Principles of Biology II: SLO #2 Tools The student will be able to use the compound and dissecting microscope to observe cells and microorganisms.		X		X	X		X
BIOL 102 Principles of Biology II: SLO #3 Content Knowledge (Mitosis) The student will be able to describe key activities in cell replication.			X				
BIOL 103 Fundamentals of Molecular Biology: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 103 Fundamentals of Molecular Biology: SLO #2 Content Knowledge (Central Dogma) The student will be able to provide a detailed explanation of how the unit-by-unit transfer of genetic information occurs from DNA to RNA to Protein.			X	X	X		X
BIOL 103 Fundamentals of Molecular Biology: SLO #3 Content Knowledge (Control of Gene Expression) The student will be able to explain various prokaryotic and eukaryotic gene expression control mechanisms.			X				

SLOs	SLO to PLO Alignment <i>(Mark with an X)</i>			COURSE to ILO Alignment <i>(Mark with an X)</i>			
	P1	P2	P3	1	2	3	4
BIOL 11 Fundamentals of Zoology: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 11 Fundamentals of Zoology: SLO #2 Tools The student will be able to use the compound and dissecting microscope to observe cells and microorganisms.		X		X	X		X
BIOL 11 Fundamentals of Zoology: SLO #3 Content Knowledge (Mitosis) The student will be able to describe key activities in cell replication.			X				
BIOL 12 Field Zoology: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 12 Field Zoology: SLO #2 Tools The student will be able to use the compound and dissecting microscope to observe cells and microorganisms.		X		X	X		X
BIOL 12 Field Zoology: SLO #3 Content Knowledge (Energy Flow) Students will use basic energy principles to explain the flow of energy in living systems, such as those that occur in the cellular metabolic pathways of photosynthesis and cell respiration, or the relationships observed between autotrophs and heterotrophs in ecosystems.			X				
BIOL 15 Environmental Aspects of Biology: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 15 Environmental Aspects of Biology: SLO #2 Content Knowledge (Energy Flow) Students will use basic energy principles to explain the flow of energy in living systems, such as those that occur in the cellular metabolic pathways of photosynthesis and cell respiration, or the relationships observed between autotrophs and heterotrophs in ecosystems.			X	X	X		X
BIOL 15 Environmental Aspects of Biology: SLO #3 Content Knowledge (Materials Cycling) Students will describe how biologically significant materials move between the biotic and abiotic components of an ecosystem and the role living things play in the cycling of these nutrients.			X				
BIOL 16 Field Entomology: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X				
BIOL 16 Field Entomology: SLO #2 Tools The student will be able to observe insects on compound and dissection microscopes.		X		X	X		X
BIOL 16 Field Entomology: SLO #3 Content Knowledge and Tools (Dichotomous Keying) The student will be able to determine the identity of common insects to order by applying knowledge of insect anatomy and using a dichotomous key.		X	X				

SLOs	SLO to PLO Alignment <i>(Mark with an X)</i>			COURSE to ILO Alignment <i>(Mark with an X)</i>			
	P1	P2	P3	1	2	3	4
BIOL 17 Marine Biology: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X	X		X	X		X
BIOL 17 Marine Biology: SLO #2 Content Knowledge (Energy Flow) Students will use basic energy principles to explain the flow of energy in living systems, such as those that occur in the cellular metabolic pathways of photosynthesis and cell respiration, or the relationships observed between autotrophs and heterotrophs in ecosystems.			X				
BIOL 17 Marine Biology: SLO #3 Content Knowledge (Materials Cycling) Students will describe how biologically significant materials move between the biotic and abiotic components of an ecosystem and the role living things play in the cycling of these nutrients.			X				
BIOL 18 Marine Biology Laboratory: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X	X	X		X
BIOL 18 Marine Biology Laboratory: SLO #2 Tools The student will be able to use the compound and dissecting microscopes to observe cells and microorganisms.		X					
BIOL 18 Marine Biology Laboratory: SLO #3 Content Knowledge (Energy Flow) The student will demonstrate how the principles of energy flow exist in relationships observed between autotrophs and heterotrophs in ecosystems.			X				
BIOL 8 Biology of Plants: SLO #1 Scientific Method The student will understand and apply principles of the scientific method; recognizing an idea based on reproducible evidence.	X		X	X	X		X
BIOL 8 Biology of Plants: SLO #2 Tools The student will be able to use the compound and dissecting microscope to observe cells and microorganisms.		X					
BIOL 8 Biology of Plants: SLO #3 Content Knowledge (Energy Flow) Students will use basic energy principles to explain the flow of energy in living systems, such as those that occur in the cellular metabolic pathways of photosynthesis and cell respiration, or the relationships observed between autotrophs and heterotrophs in ecosystems.			X				