

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

Program: Physics	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 Applying Relevant Principles Upon completion of their course of study in the Physics Department, students will be able to understand physical principles in order to correctly answer conceptual questions.	X			
PLO #2 Solving Physics Problems Upon completion of their course of study in the Physics Department, students will be able to identify and apply the laws of physics along with the necessary mathematics to successfully solve a physics problem.	X			
PLO #3 Data Collection & Analysis Upon completion of their course of study in the Physics Department, students will be able to use appropriate instruments in order to collect data. Students will be able to interpret and analyze that data, including error analysis.	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
PHYS 11 Descriptive Introduction to Physics: SLO #1 Applying Relevant Principles Given a description of a physical situation (floating ice cube, falling body,...) the student should be able to recognize the basic physical principles involved in order to correctly answer conceptual questions.	X			X			
PHYS 12 Laboratory for Introductory Physics: SLO #1 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from a ruler a vernier and a protractor. Students can interpret and analyze that data, including error analysis.			X	X	X		
PHYS 1A Mechanics of Solids: SLO #1 Applying Relevant Principles Students can recognize the basic physical principles which are relevant in a given physical situation involving mechanics in order to correctly answer conceptual questions.	X			X	X		
PHYS 1A Mechanics of Solids: SLO #2 Solving Physics Problems Students can identify and apply the relevant laws of physics along with the necessary mathematics to successfully solve a mechanics problem.		X					
PHYS 1A Mechanics of Solids: SLO #3 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from a Vernier caliper and a micrometer caliper. Students can interpret and analyze the collected data, including error analysis.			X				
PHYS 1B Fluids, Heat and Sound: SLO #1 Applying Relevant Principles Students can recognize the basic physical principles which are relevant in a given physical situation involving heat, fluids or sound in order to correctly answer conceptual questions.	X			X	X		
PHYS 1B Fluids, Heat and Sound: SLO #2 Solving Physics Problems Students can identify and apply the laws of physics along with the necessary mathematics to successfully solve a problem dealing with heat, fluids or sound.		X					
PHYS 1B Fluids, Heat and Sound: SLO #3 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from an instrument used to measure temperatures, densities or pressures. Students can interpret and analyze that data, including error analysis.			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
PHYS 1C Electricity and Magnetism: SLO #1 Applying Relevant Principles Students can recognize the basic physical principles which are relevant in a given physical situation involving electricity, magnetism or electromagnetism in order to correctly answer conceptual questions.	X			X	X		
PHYS 1C Electricity and Magnetism: SLO #2 Solving Physics Problems Students can identify and apply the relevant laws of physics along with the necessary mathematics to successfully solve a problem dealing with electricity, magnetism or electromagnetism.		X					
PHYS 1C Electricity and Magnetism: SLO #3 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from a multimeter and a voltmeter. Students can interpret and analyze that data, including error analysis.			X				
PHYS 1D Optics and Modern Physics: SLO #1 Applying Relevant Principles Students can recognize the basic physical principles which are relevant in a given physical situation involving electricity, magnetism or electromagnetism in order to correctly answer conceptual questions.	X			X	X		
PHYS 1D Optics and Modern Physics: SLO #2 Solving Physics Problems Students can identify and apply the relevant laws of physics along with the necessary mathematics to successfully solve a problem dealing with electricity, magnetism or electromagnetism.		X					
PHYS 1D Optics and Modern Physics: SLO #3 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from a multimeter and a voltmeter. Students can interpret and analyze that data, including error analysis.			X				
PHYS 2A General Physics: SLO #1 Applying Relevant Principles Students can identify the physical principles which are relevant in a given physical situation involving mechanics, heat, fluids or sound in order to correctly answer conceptual questions.	X			X	X		
PHYS 2A General Physics: SLO #2 Solving Physics Problems Students can identify and apply the relevant laws of physics along with the necessary mathematics to successfully solve a mechanics problem.		X					
PHYS 2A General Physics: SLO #3 Data Collection & Analysis Students demonstrate ability to correctly read and record, with appropriate units and uncertainties, measurements taken from a vernier caliper and a micrometer caliper. Students can interpret and analyze the collected data, including error analysis.			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
PHYS 2B General Physics: SLO #1 Applying Relevant Principles Students can identify the physical principles which are relevant in a given physical situation involving electricity, magnetism, electromagnetism, optics or modern physics in order to correctly answer conceptual questions.	X			X	X		
PHYS 2B General Physics: SLO #2 Solving Physics Problems Students can identify and apply the relevant laws of physics along with the necessary mathematics to successfully solve a problem dealing with electricity, magnetism, electromagnetism, optics or modern physics.		X					
PHYS 2B General Physics: SLO #3 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from a multimeter. Students can interpret and analyze that data, including error analysis.			X				
PHYS 3A General Physics with Calculus: SLO #1 Applying Relevant Principles Students can identify the physical principles which are relevant in a given physical situation involving mechanics, heat, fluids or sound in order to correctly answer conceptual questions.	X			X	X		
PHYS 3A General Physics with Calculus: SLO #2 Solving Physics Problems Students can identify and apply the relevant laws of physics along with the necessary mathematics to successfully solve a mechanics problem.		X					
PHYS 3A General Physics with Calculus: SLO #3 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from a Vernier caliper and a micrometer caliper. Students can interpret and analyze that data, including error analysis.			X				
PHYS 3B General Physics with Calculus: SLO #1 Applying Relevant Principles Students can recognize the physical principles of which are relevant in a given physical situation involving electricity, magnetism, electromagnetism, optics or modern physics in order to correctly answer conceptual questions.	X			X	X		
PHYS 3B General Physics with Calculus: SLO #2 Solving Physics Problems Students can identify and apply the laws of physics along with the necessary mathematics to successfully solve a problem dealing with electricity, magnetism, electromagnetism, optics or modern physics.		X					
PHYS 3B General Physics with Calculus: SLO #3 Data Collection & Analysis Students can read and record, with appropriate units and uncertainties, measurements taken from a multimeter. Students can interpret and analyze that data, including error analysis.			X				
PSCI 25 Exploring Physical Sciences: SLO #1 Applying Relevant Principles Students can identify the physical principles which are relevant in a given physical situation (floating object, falling object...) and explain how these principles are manifested in, and influence the behavior of a described physical situation.	X		X	X	X		