

Physics General Education Courses

College Learning Outcomes Matrix: Rate each course from 1 to 5 with 5 being the most important.

Course	Semester of SLO Assessment	1. EFFECTIVE Communication	2. Scientific or Quantitative Reasoning	3. Critical Thinking	4. Problem Solving	5. Information Literacy	GE	DEGREE
PHYS 108A General Physics I	Fall 12	3	5	3	3	3	X	
PHYS 108AC	Fall 12	3	5	3	3	3	X	
PHYS 108B General Physics II	Spring 12	3	5	3	5	3	X	
PHYS 108BC General Physics II (Calculus Supplement)	Spring 12	3	5	3	3	3	X	
PHYS 110 Introductory Physics	Spring 12	3	4	3	3	3	X	
PHYS 110L Conceptual Physics Lab	N/A	3	4	3	3	3		
PHYS 207A Mechanics and Properties of Matter	Fall 12	4	5	3	3	3	X	
PHYS 207B Electricity and Magnetism	Fall 12	3	5	3	3	1	X	
PHYS 207C Heat, Light, Sound, and Modern Physics	Spring 12	3	5	3	3	1	X	

Physics General Education Courses

GENERAL EDUCATION SLOS

WHAT ASSIGNMENTS DO YOU GIVE IN THESE CLASSES THAT ASSESS THE FOLLOWING GE SLOS?

What assessment tools do you use? Assess only SLOs that you rated 4 or 5.

Course	1. EFFECTIVE Communication	2. Scientific or Quantitative Reasoning	3. Critical Thinking	4. Problem Solving	5. Information Literacy
PHYS 108A General Physics I	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	
PHYS 108AC		Exam Problems	Exam Problems	Exam Problems	
PHYS 108B General Physics II	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	
PHYS 108BC General Physics II (Calculus Supplement)		Exam Problems	Exam Problems	Exam Problems	
PHYS 110 Introductory Physics			Exam Problems		Research Paper
PHYS 110L Conceptual Physics Lab	Lab Reports	Lab Reports	Lab Reports	Lab Reports	
PHYS 207A Mechanics and Properties of Matter	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	
PHYS 207B Electricity and Magnetism	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	
PHYS 207C Heat, Light, Sound, and Modern Physics	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	Lab Reports, Exam Problems	

Physics General Education Courses

PHYS_108A	General Physics 1	Revise Course
Expected Outcomes for Student:		
Upon completion of the course, the student will: 1. Communicate and utilize the physical laws of kinematics and thermodynamics via problem solving 2. Apply the physical laws of kinematics and thermodynamics to word problems in order to obtain clear solutions by mathematical analysis. 3. Conduct an experiment, collect and analyze data, including such tools as graphs, regressions and statistical analysis, and interpret results within the framework of the physical laws of kinematics and thermodynamics 4. Write a lab report explaining, both qualitatively and quantitatively, the scientific results of an experiment and the certainty of those results. 5. Use modern scientific practices relevant to the field of physics: including the formulation of a scientific theory based on and consistent with quantified observations. 6. Demonstrate critical thinking skills		
CourseID	Title	Action
PHYS_108AC	General Physics I - Calculus Supplement	New Course
Expected Outcomes for Student:		
1. To further develop students understanding of topics covered in Physics 108A. 2. To further develop the problem-solving skills of the students. In particular, to develop their skills in the application of the principles of calculus to some specific problems in selected topics of physics.		

PHYS_108B	General Physics II	Revise Course
Expected Outcomes for Student:		
Upon completion of the course, the student will: 1. Communicate and utilize the physical laws of electricity and magnetism via problem solving 2. Apply the physical laws and techniques of electricity and magnetism to word problems and obtain clear solutions through mathematical analysis of these laws. 3. Conduct an experiment, collect and analyze data, including such tools as graphs, regressions and statistical analysis, and interpret results within the framework of the physical laws of electricity and magnetism 4. Write a lab report explaining, both qualitatively and quantitatively, scientific results of an experiment based in the field of electricity and magnetism and report the certainty of those results. 5. Use modern scientific practices relevant to the field of electricity and magnetism: including the formulation of a scientific theory based on and consistent with quantified observations. 6. Demonstrate critical thinking skills		
PHYS_108BC	General Physics II - Calculus Supplement	New Course
Expected Outcomes for Student:		
1. To further develop students' understanding of topics covered in Physics 108B. 2. To further develop the problem-solving skills of the students. In particular, to develop their skills in the application of the principles of calculus to some specific problems in selected topics of physics.		

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PHYS_110	Introductory Physics	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. apply the scientific method to investigating and evaluating physical phenomena. 2. use fundamental physics concepts and principles to explain observations of physical phenomena. 3. research, analyze, and summarize scientific findings related to contemporary issues so as to support informed decision-making.		

PHYS_110L	Conceptual Physics Lab	New Course
Expected Outcomes for Student:		
Upon completion of the course, the student will: 1. Demonstrate a basic understanding of how the fundamental principles of physics dictate physical processes. 2. Apply rational methods to construct and execute an experiment, minimizing error and uncertainty in measurements. 3. Record, characterize and interpret measured observations accurately. 4. Compose a lab report describing procedural methods, observed results, and discussing the results of an experiment.		

PHYS_207A	Mechanics and Properties of Matter	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate a basic conceptual understanding of the fundamental concepts and definitions needed to solve problems in classical Newtonian mechanics. 2. Develop logical, causal and quantitative reasoning skills to obtain numerical or algebraic solutions to applied problems in Newtonian mechanics that are consistent with predictions and results 3. Carry out laboratory work, plan experiments, make observations and communicate results.		

PHYS_207B	Electricity and Magnetism	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Use the fundamental concepts and definitions to solve problems in classical Newtonian mechanics. 2. Explain applications and uses of the concepts of electricity and magnetism to real world problems and situations. 3. Carry out laboratory work, plan experiments, make observations and communicate results.		

PHYS_207C	Heat, Light, Sound and Modern Physics	Revise Course
Expected Outcomes for Student:		
Upon completion of this course, students will be able to: 1. Demonstrate a basic conceptual understanding of the fundamental concepts and definitions needed to solve problems in classical Newtonian mechanics. 2. Develop logical, causal and quantitative reasoning skills to obtain numerical or algebraic solutions to applied problems in waves and modern physics that are consistent with predictions and results 3. Carry out laboratory work, plan experiments, make observations and communicate results.		