

Cal Lutheran
Physics Dept. Means of Assessment Inventory

Table 2a

Core Courses in Department / Program	Midterm Exam	Final Exam	Research Paper	Graded Homework	Capstone Project / Thesis
211(L): Mech & Thermo (Calculus)	x	x		x	
212(L): Elec & Mag (Calculus)	x	x		x	
303: Radiation & Nuclear Phys	x	x		x	
309: Applied Electronics	x	x		x	
340: Advanced Phys Lab	x	x		x	
370: Digital Electronics	x	x		x	
400: Senior Research (Capstone)	x	x	x	or	x
410: Dynamics & Chaos	x	x		x	
415: Thermodynamics	x	x		x	
420: Classical Electrodynamics	x	x		x	
425: Geom & Physical Optics	x	x		x	
430: Quantum Physics	x	x		x	
440: Math Methods of Physics	x	x		x	

**Table 2(b) Physics: Using Assessment Results at the Program Level**

Desired Outcome	Direct and Indirect Measures	Outcome	Possible Reason or Hypothesis	Action Taken
Alignment of physics objectives with curriculum	Comparison of course syllabi with objectives	400 level classes lack scientific method/experimentation component, 200 level classes inadequately address all field-specific knowledge components, 211/211L & 212/212L poorly aligned	3-unit upper division classes too short on time to cover experiments, year-long 211/212 sequence too short to cover all subjects with sufficient depth, different instructors for 201/211/211L and 202/212/212L and different curricula result in poor cross-correlation.	Curriculum reform (planned for 2012-13) will address specific problems, including upper division lab components and new possible 211,212,213 sequence.

## ii. Signature Assignments

Table 3 illustrates the program outcome assessed by course and signature assignment. The signature assessment scores (final exam scores) from the past five semesters of Physics 211 and 212 plotted in Figure 1. The scores in Figure 1 were normalized by dividing the score of each student by the total number of points available on the particular exam. The student number parameter was normalized by dividing the rank of the particular student by the total number of students in the course.

Table 3 – Physics Signature Assignments

Program Outcomes	Course	Signature Assignment	Assessment Data by Semester / Term (Grades, Rubric Scores)			
			Date	Scores	Date	Scores
Field-Specific Knowledge	211 / 212	Final Exam	F 2010		Sp 2010	
Critical Thinking and Mathematical Modeling	100	Final Exam	F 2010		Sp 2010	
Communication Skills	400	Oral Presentation of Research Paper of	F 2010		Sp 2010	

[See program review report and syllabi for grading rubrics]