

Summary of 2011-2012 Annual Progress Report

- **SLO 4** Students will demonstrate the ability to apply knowledge of physics at the advanced undergraduate level (*New assessment this year*)

Course/Instrument	# of Students	# Proficient	# Exemplary
PHYS 522 (Mechanics) Final Exam Scores	16 (9 majors)	12	2
PHYS 532 (Electromagnetic Fields I) Final Exam Scores	13 (10 majors)	6	0
PHYS 662 (Intro to Quantum) Final Exam Scores	14 (11 majors)	6	2

- **SLO 2** Students will demonstrate skill in collecting, recording and analyzing data

Course/Instrument	# of Students	# Proficient	# Exemplary
PHYS 325 (Relativity & Quantum Physics) Average Lab Score	26 (12 majors)	24	16

Academic Year	# of Students	% Proficient	% Exemplary
2010-2011	26	88	77
2011-2012	26	92	62

- **SLO 3** Students will demonstrate the ability to effectively communicate information, scientific or otherwise in both written and verbal form

Course/Instrument	# of Students	# Proficient	# Exemplary
PHYS 506 (Advanced Physics Lab) Written Lab Scores	15 (11 majors)	14	10
PHYS 636 (Physical Measurement and Instrumentation) Capstone Project Scores	7 (6 majors)	7	5

Academic Year	# of Students	% Proficient	% Exemplary
2010-2011	10	100	50
2011-2012	15	93	67

Academic Year	# of Students	% Proficient	% Exemplary
2010-2011	3	100	0
2011-2012	7	100	43

An average of 53% of our students are meeting the proficiency standard for SLO 4 - Advanced Undergraduate Applications. This is not unexpected since these courses are some of the first very difficult physics courses that students take - usually during their sophomore or junior years. The department is going to develop an assessment instrument that can be administered during the senior year to get a more comprehensive measure of our student learning. The course topics in PHYS 532 & 662 are challenging beyond anything that students will have encountered up to that point and student's difficulty is generally closely related to advanced mathematical skills that students have not yet fully mastered.

Regarding SLO 2, most of our students meet the minimum proficiency level with a majority meeting exemplary level. We believe this to be the result of sound pedagogy and student practice. PHYS 325 is the next course in the calculus based introductory level sequence that most students progress through. Students have had introductory practice acquiring, recording and analyzing data in their previous courses and are now asked to go beyond the introductory level and demonstrate more advanced skill. So, students appear to be learning the skills taught.

Most students met proficiency SLO 3, which is essentially the same as last year's assessment, however, we saw an increase in numbers of students meeting the exemplary level. This indicates that our students are learning to communicate well.