

MODIFICATION OF A FIRST YEAR PHYSICS LABORATORY PROGRAM USING THE ALPE SURVEY INSTRUMENT

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ABSTRACT

ASELL* is a well accepted framework widely used to evaluate student learning in science laboratories. It consists of two survey instruments, namely ASLE* which is designed to evaluate an individual experiment and ALPE*, which is designed to evaluate the entire laboratory program.

In Semester 2, 2009 the ASELL framework was applied to a first year science non-calculus based unit Physics115. The unit is taken by a wide range of students with little or no physics background. One of the assessment components of the unit is the laboratory program which is intended to enhance students' learning through hands-on activities. The laboratory program consists of six experiments corresponding to the six modules of the unit. The ASLE survey instrument was used to collect students' responses for individual experiment during the semester and the ALPE survey instrument was used to collect students' responses for the entire laboratory program at the end of the semester.

The results for both surveys indicated that two of the six experiments needed major revision and the entire laboratory course needed some minor revision. Following the initial 2009 ALPE survey results, all the six experiments were revisited and modifications to the laboratory manual were made to make the lab activities more engaging, relevant and stimulating. Changes included reduction in the number of repetitive activities and strengthening activities designed to achieve the desired learning outcomes. At the end of Semester 2, 2010, students' responses were again collected using the ALPE survey instrument. This presentation will discuss the pre- and post-evaluation results and effectiveness of ASELL educational assessment toolbox.

*ASELL (Advancing Science by Enhancing Learning in the Laboratory)

*ASLE (ASELL Student Laboratory Evaluation)

*ALPE (ASELL Laboratory Program Evaluation)

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