

Abstract Submitted
for the PHYSTC16 Meeting of
The American Physical Society

Assessing a Laboratory Redesign with Tutorials and Inquiry-Based Experiments BRIAN THOMS, ZEYNEP TOPDEMIR, DAVID TRUSTY, EBRU ONCUL, SUMITH DOLUWEERA, JOSHUA VON KORFF, Georgia State University — A redesign of the format and content of the laboratory portion of calculus-based physics courses at Georgia State University shows significant improvement in students' conceptual learning as well as student success and progression. However, little change is observed student attitudes about science. In this redesign, labs with traditional verification-based three-hour experiments were converted into one-hour tutorials led by undergraduate learning assistants and two-hour inquiry-based experiments led by graduate teaching assistants. In the first hour, University of Washington tutorials are led by undergraduate Learning Assistants who were trained in the tutorials and are taking a physics pedagogy course. For the remaining two hours, inquiry-based experiments are guided by graduate teaching assistants with a main goal of improved conceptual understanding. This study compares the results before and after the redesign for student success and withdrawal rates, student conceptual learning as measured by the Force Concept Inventory (FCI), and student attitudes as measured by Colorado Learning Attitudes about Science Survey (CLASS).

Brian Thoms
Georgia State University

Date submitted: 22 Feb 2016

Electronic form version 1.4