

SES08-2008-020006

Abstract for an Invited Paper
for the SES08 Meeting of
the American Physical Society

Contemporary Introductory Physics: Matter & Interactions¹

RUTH CHABAY, NC State University

The goal of the contemporary physics enterprise is to explain a broad range of phenomena by using only a very small number of powerful fundamental principles. Matter & Interactions is a modern, calculus-based introductory physics curriculum for engineering and science students, which places a strong emphasis on making and using physical models, and on starting from fundamentals in analyzing physical systems. Computational modeling is an integral part of the course. An emphasis on microscopic models and on the atomic nature of matter makes possible the unification of topics that are traditionally taught as disconnected, and allows deeper exploration of the predictive power of fundamental principles. A collaborative project involving Purdue, Georgia Tech, and NC State is focused on institutionalizing this reform curriculum in large universities.

¹Supported in part by NSF grants DUE- 0320608, DUE-0237132, and DUE-0618504