

Delena Gatch | dbgatch@georgiasouthern.edu
Mark Edwards | edwards@georgiasouthern.edu
Georgia Southern University
Statesboro, Georgia, USA

Implementing Studio Physics

The Physics Department at Georgia Southern University has recently begun to offer its introductory calculus-based physics courses in a combined lecture/laboratory format known as "Studio Physics." Studio Physics integrates the current lecture and laboratory courses into a single course in which most of the class time is devoted to active, inquiry based learning. In developing these new integrated courses, we have taken advantage of many modern educational technologies. We have been systematically assessing the effects of using computer interfaced laboratory apparatus, web-based simulations, clickers, and online homework systems on student learning outcomes through administering both pre- and post- content and attitude surveys to students. Initial assessment has indicated that students enrolled in the Studio Physics courses are experiencing greater success in achieving the expected learning outcomes for the courses. Preliminary results also show that the DFW rates for the Studio Physics courses are lower than the traditional lecture courses. The Studio Physics courses have been implemented without adding any new courses to the curriculum. The integrated courses have been achieved mainly through administrative initiatives including introducing "linked" classes at registration, assigning the same instructor to this linked pair of classes, and most importantly, holding the lecture and laboratory classes in the same teaching space.

Over the next several years, the Physics Department at Georgia Southern University plans to convert all introductory calculus-based and trigonometry-based physics courses to Studio Physics courses. Traditional lectures will be replaced with interactive, technology enriched class periods which are designed around the various learning styles. Old laboratory assignments, previously very "cook-book" in nature, will be replaced with new inquiry based laboratories that rely on computer interfaced apparatus and computer simulations. We desire for the Studio Physics courses to become a research testbed for the Physics Education Research group recently established in our department.

The objectives of this session are: to introduce participants to the Studio Physics course format, to share with participants both the benefits and difficulties associated with the implementation of Studio Physics at Georgia Southern University, and to encourage the participants to consider implementing this course format in other disciplines. We plan to involve the audience by giving them the opportunity to exchange ideas for evidence-based improvement of teaching effectiveness and student learning.