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Pedagogy meets Technology: Optimizing Labs in Large Enrollment Introductory Courses[1]

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It is widely believed that hands-on experiments are an indispensable part of a good education in physics, yet how many of us can say that we are truly satisfied with the labs we provide in our own large enrollment introductory courses? What would these activities look like in a world without budget, space, and time constraints? Would they happen before, during, or after lecture? Would they be long or short? Would they be done in a classroom or at home? Would students work in groups or individually? How do these answers depend on the activity and on the student? To help us explore these questions we have developed Interactive Online Labs, a low cost wireless system that allows students to work individually or in groups, doing real hands-on experiments at home guided by software or in a classroom lead by an instructor. In this talk I will describe the IOLab system and will show preliminary results from clinical studies involving students in our introductory courses.

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