

# Redesigning Traditional Labs as Enriched Learning Environments

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An innovative lab curriculum for 1800 students was developed last year to create enriched learning environments through integration and blending of a wide range of online and face-to-face tools, activities, assessments and resources. In the new model traditional “Labs” and “Tutorials” were flipped and offered as integrated “Modules” with stronger emphasis on hypothesis testing, information literacy and communication skills. Each Module consists of two face-to-face sessions (2 hr. each) as well as significant online Digital Bridge exercises. Under a newly implemented Specifications Grading system, students were evaluated on over 30 diverse face-to-face and online assessments designed to encourage improvement of skills in ethical practice, scientific information literacy and numeracy, bench instrumentation, statistical analyses, software applications, experimental design and simulation, oral, written and graphic communication as well as metacognition in individual and collaborative learning. This mini workshop showcased the five newly developed Skills Modules and participants had an opportunity to interact with some of the resources and discussed the merits and challenges involved in the redesign and delivery process. A summary report of the pre-post redesign data analyses was also presented.

**Keywords:** Laboratory curriculum, enriched learning labs

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