

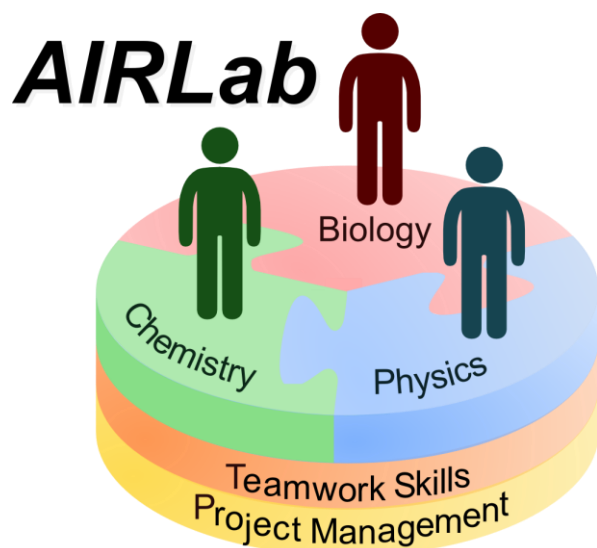


Chemical & Physical Sciences
UNIVERSITY OF TORONTO
MISSISSAUGA

COLLOQUIUM
TUESDAY, 20 JANUARY 2015
11:00 AM - 12:00 NOON
KN132

Dr. Paul Piunno
University of Toronto Mississauga

The Advanced Interdisciplinary Research Laboratory (AIRLab) Course: Design, Implementation and Improvements



AIRLab represents an exciting concept in course design that has originated from the interdisciplinary research interests of faculty members from the Department of Chemical and Physical Sciences, the Department of Biology and the Robert Gillespie Academic Skills Centre at UTM. Within a collaborative environment involving faculty members from the various disciplines as facilitators, student teams are challenged to develop rigorous problem solving, project management, teamwork, laboratory methods, and communication skills as they work collaboratively toward the completion of an interdisciplinary research project. Teams are comprised of at least three students, with representation from at least three areas of specialization, including, biology, biotechnology, chemistry, earth sciences or physics. Projects are based on current trends in research and AIRLab students are required to learn to operate as a unified research team. Students are directed to transfer their creativity into innovation by designing

experiments and assembling technology as required to solve their research challenge. For example, the inaugural research challenge was the development of a portable DNA sequencer for in-field species identification, which initiated a project at the interface between physical and life sciences and that held the potential for real-world application and positive social change. The design and implementation of the AIRLab course (now in its third offering) will be discussed. The presentation will also include accounts of the method of student team assembly, selection of suitable research challenges, specialized training provided in Agile project management, methods implemented to achieve cohesive team dynamics, development of just-in-time training toolkits, learning outcomes from this experience, course improvements implemented, and how our undergraduate degree level expectations were met at an advanced level.