

Development of a TA Training Program for Introductory Physics Labs

- **Overview of current introductory physics labs**
- **Criteria**
- **Chronology (schedule)**
- **Components**
- **Cost**

Three Introductory Physics Lab Courses

- **PHYS 0212 – *Introduction to Laboratory Physics***
 - **2 Credit hours**
 - **Algebra based**
 - **Co-requisite PHYS 0111 *Introduction to Physics 2***
- **PHYS 0219 – *Basic Laboratory Physics for Science and Engineering***
 - **2 Credit hours**
 - **Calculus based**
 - **Co-requisite PHYS 0175 *Basic Physics for Science and Engineering 2***
- **PHYS 0520 – *UHC Modern Physics Measurements***
 - **3 Credit hours**
 - **Calculus based**
 - **Pre-requisite PHYS 0175 or 0476 *Introduction to Physics, Science and Engineering 2***

The Structure of PHYS 0212

Traditional Labs

PHYS 0212 meets twice each week:

50 Minute Recitation – All of the students meet for a lecture on the basic theory and how the theory will be tested.

3 Hour Lab – The students work in groups of 2 or 3 to complete the experiments. The lab sessions have a maximum of 24 students and are run by a TA.

The Structure of PHYS 0219

Inquiry-Based Labs

PHYS 0219 meets twice each week:

50 Minute Recitation – All of the students meet for a lecture on the basic theory and how the theory will be tested.

3 Hour Lab – The students work in groups of 2 or 3 to complete the experiments. The lab sessions have a maximum of 24 students and are run by a TA.

Course Transformation Award Criteria

➤ Time Management

- Not a huge burden for faculty or TAs
- Easy for any instructor to implement
- Avoid the hero model

➤ Sustainable

- Avoid the hero model
- Novice TAs become Expert TAs

Course Transformation Award Chronology (Schedule)

➤ Fall 2018

➤ Discovery (Observations)

➤ Planning

➤ Design/Implementation

➤ Spring 2019

➤ Content Development (FER students)

➤ Implementation

Course Transformation Award Components

- **TA Interactions with the Equipment**
 - **Group Instruction**
 - **Mentor/Peer Instruction**
 - **Videos**

- **TA Interactions with the Students**
 - **8 Modules (next slide)**
 - **Overlap with PHYS 2997**

Course Transformation Award

Components – Student Interactions

Danny Doucette

Module	Topic	
1	Getting ready for lab interactions	Lab TA meeting
2	Helping students to learn epistemology of experimental physics through lab-work	Lab TA meeting
3	Developing equity in the labs	Lab TA meeting
4	Socratic questioning	PHYS 2997
5	Reinforcing ideas, reaffirming identity as a Lab TA	Lab TA meeting
6	Reflection and overview of training	Lab TA meeting
7	Anti-bias training	PHYS 2997
8	Observations (videos)	PHYS 2997

Course Transformation Award Cost (Budget)

- **Equipment/software**
- **Undergraduate student (not FER)?**
- **Danny Doucette**