



# New Faculty Experience

## For Two-Year College Physics Instructors



NFE-TYC 2010 Butler College



NFE-TYC 2013 Delta College



NFE-TYC 2016 Seminole College

The American Association of Physics Teachers (AAPT) conducts an 18-month experience designed specifically for Two-Year College Physics Faculty in their first five years of teaching (NFE). Typically, the NFE participants first meet for 5 days during the month of March, and 16 months later for a commencement conference just before an AAPT summer meeting. The NFE has happened 3 times so far, pending on grant renewal. The experience equips participants with techniques that are:

- ✓ Engaging Hands-On
- ✓ Proven at Two-Year Colleges
- ✓ Based on Physics Education Research
- ✓ Design for Promoting Active Learning



<http://physicsinstructor.com>



### NFE workshops include:

#### Interactive Engagement Strategies

The introduction in the classroom of the techniques and tools presented below were shown to enhance student understanding of physics, problem solving skills, and student views of science compared to purely traditional lecturing styles.

*The workshops about Interactive Engagement Strategies focus on practicing with the following tools, techniques and/or approaches:*

- Discourse management
- Studio physics
- Additional tools and exercises that facilitate deep and productive discussions in the classroom, such as
  - TIPERS
  - Ranking Tasks
  - comparison exercises, "What, if anything, is wrong?" exercises
  - jeopardy questions, etc.

#### Contacts

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#### Laboratory Curricular Approaches

Physics Education Research has shown that an inquiry-based approach to laboratory exercises yields better student understanding and engagement compared to traditional, step-by-step verification experiments.

There are several different ways to approach the creation of inquiry-based exercises. Here is a sample of some.

1. Open-ended problems: "Set this up and explain what you observe."
2. Testing misconceptions: "Predict, then observe a phenomenon. Resolve contradictions between predictions and observations."
3. Textbook problem: "Translate a pen-and-paper problem to a real experiment to help to solve."
4. Creations: "Design a process or product for a specific purpose."

*The workshops about Laboratory Curricular Approaches focus on practicing with the following tools and techniques:*

- Computer-interfaced sensors & detectors
- Video analysis
- Simulations

