

# Free Commercial Workshops

## CW01: Expert TA Commercial Workshop

**Location:** Sheraton - University Suite  
**Date:** Tuesday, July 31  
**Time:** 12–1 p.m.  
**Sponsor:** Expert TA

*Leader: Jeremy Morton*

Expert TA is a commercial online homework and tutorial system for introductory-level physics courses. It was designed to grade problems the way instructors do; considering more than just a student's final answer. Solving physics problems involves numerous steps such as applying equations, drawing free-body diagrams, etc; to solve for numeric answers. Expert TA's problems are all multi-step and involve these aspects of problem solving. With a sophisticated math engine, Expert TA is able to grade student equations in detail, in a manner similar to how you or your TA would. It identifies detailed mistakes with equations, deducts points, and provides specific feedback. In Homework Mode, students are provided with a detailed grade report after the assignment due date. In Tutorial mode, students can access hints, and feedback is provided instantaneously. Expert TA has partners with talented professors, leaders in physics education, to develop a rich library of original problems. Users of Expert TA have discovered the power of detailed/sophisticated grading over simple right vs. wrong grading. Instructors are provided with a much more accurate assessment of a student's work and students are provided with feedback required to help them master concepts. Join us and learn how Expert TA can help you and your students.

## CW02: Pearson Commercial Workshop

**Location:** Inn at Penn - Regents/St. Marks  
**Date:** Tuesday, July 31  
**Time:** 12:30–1:30 p.m.  
**Sponsor:** Pearson

*Leader: Eugenia Etkina*

Eugenia Etkina (Rutgers University, Graduate School of Education – GSE) was born and educated in Russia, where she was awarded her PhD in Physics Education from Moscow State Pedagogical University. She has 30 years of physics teaching experience (teaching middle school, high school, and university physics). In 1993 she developed a system in which students learn physics using processes that mirror scientific practice. That approach was enriched when she began collaborating with Alan Van Heuvelen in 2000 and now is known as Investigative Science Learning Environment (ISLE). Since 2000, Professors Etkina and Van Heuvelen have developed curricula based on ISLE, conducted over 60 workshops for physics instructors, and published *The Active Learning Guide* (second edition available from Pearson in January 2013). Please join Prof. Etkina for a discussion on the ISLE method and how it can be put into practice in your classroom using the new textbook, *College Physics*, by Etkina, Gentile, and Van Heuvelen.

## CW03: Vernier Software: New Data Collection Tools for Physics

**Location:** Inn at Penn - Regents/St. Marks  
**Date:** Tuesday, July 31  
**Time:** 4:30–6:30 p.m.  
**Sponsor:** Vernier Software & Technology

*Leaders: David Vernier  
John Gastineau, Matt Athes-Washburn*

*Vernier Software: New Data Collection Tools for Physics, including LabQuest 2* — Attend this hands-on, drop-in workshop to learn about LabQuest 2 and other new data collection tools from Vernier Software & Technology. If you need an overview of data collection, we'll be happy to show you the ba-

ics. Use the new LabQuest 2 interface and see its large color touch screen with the updated LabQuest App. Collect data on an iPad, with a LabQuest 2 serving its data to Graphical Analysis. Next, analyze and store the experiment with Graphical Analysis for the iPad. Collect data in a browser, with a LabQuest 2 serving its data, and then analyze the data right in the browser. The browser can be on an Android tablet, or even your own smart phone. Collect data with the new Vernier Diffraction Apparatus, and see just how easy it is to map out intensity for single-slit and double-slit patterns. Fire the new Vernier Projectile Launcher. Check out Malus with the new Vernier Polarizer/Analyzer Kit for our Optics Expansion Kit. Add mirrors to your optics experiments with the Mirror Set for Optics Expansion Kit. Page through the new Advanced Physics with Vernier-Beyond Mechanics book.

## CW04: Pearson Commercial Workshop

**Location:** Inn at Penn - Regents/St. Marks  
**Date:** Monday, July 30  
**Time:** 12:15–1:15 p.m.  
**Sponsor:** Pearson

*Leader: Paul Hewitt*

Please join us for a discussion with Pearson author Paul Hewitt regarding his textbooks in conceptual physics, physical science and integrated science as well as Mastering Physics.

## CW05: Klinger Educational Products Corp.

**Location:** Sheraton - University Suite  
**Date:** Monday, July 30  
**Time:** 12:15–1:15 p.m.  
**Sponsor:** Klinger Educational Products

*Leader: Walter Luhs*

Open Frame Helium Neon Laser —The humble HeNe Laser is still important for education in Photonics. We demonstrate an open cavity training system with components like the HeNe tube with Brewster windows on sides, the two cavity mirrors and line tuning elements are placed onto the optical rail. The basic alignment is demonstrated and the beam diameter inside the cavity is measured to verify the nature of Gaussian beams. By means of a Littrow prism the line tuning is demonstrated. The power of the laser is determined by measuring the current of the provided photodiode. Cleaning of optical components is trained as well as the proper use of sensitive optical components. Diode Pumped Solid State Laser (DPSSL) Step by step the modules needed for a DPSSL using a Nd:YAG crystal will be explained and arranged on an optical rail. Spectroscopic measurements of the Nd:YAG are performed. The operation of a the Nd:YAG laser with demonstration of the so called “spiking” is shown by means of an oscilloscope. Frequency doubling to visible green radiation and the stability criteria of the optical cavity is verified. Higher transverse modes are demonstrated and the reduction to the TEM00 mode is performed by using an intra-cavity iris. Glass Fibre Optics Within this hands on training the stripping and cutting of a telecom optical fiber will be learned.

## CW06: Physics2000.com Workshop in Introductory Physics

**Location:** Houston Hall - Golkin  
**Date:** Monday, July 30  
**Time:** 12:15–1:15 p.m.  
**Sponsor:** Physics2000.com

*Leader: Elisha Huggins*

Come to the popular Physics2000 workshop where you learn how to include 20th century physics in the basic Introductory Physics course.