



Workshop Physics

 Indicates a research-demonstrated benefit

Overview

A calculus-based introductory physics curriculum designed to completely replace traditional lectures and laboratories with sequenced activities.




Type of Method

Full curriculum, Classroom structure



Level

Designed for: Intro College Calculus-based 

Can be adapted for: High School  , Intro College Algebra-based, ([Explorations in Physics](#) uses the Workshop Physics style of guided inquiry but it designed for use in non science major classes)



Setting

Designed for: Studio 

Can be adapted for: Lecture - Small (<30 students)  , Lab 



Coverage

Many topics with less depth, The topic coverage has been reduced by about 15% so it is between broad and deep.



Topics

Mechanics, Electricity / Magnetism, Waves / Optics, Thermal / Statistical, Modern / Quantum



Instructor Effort

Medium







Resource Needs

TAs / LAs, Projector, Computers for students, Advanced lab equipment, Cost for students, Tables for group work





Skills





Designed for: Conceptual understanding  , Lab skills  , Using multiple representations  , Designing experiments  , collaborative skills

Can be adapted for: Problem-solving skills, Metacognition



Research Validation

Based on research into: theories of how students learn  , student ideas about specific topics 


Demonstrated to improve: conceptual understanding  , lab skills  , beliefs and attitudes  , retention of students 


Studied using: student interviews  , research at multiple institutions 



Compatible Methods

[PhET](#), [JiTT](#), [ILDs](#), [Physlets](#), [RealTime Physics](#), [SCALE-UP](#), [OSP](#), [LA Program](#), [MBL](#), [CPU](#), [Responsive Teaching](#)

 **Similar Methods** [ILDs](#), [RealTime Physics](#), [SCALE-UP](#), [MBL](#), [EiP](#)

 **Developer(s)** Priscilla Laws with contributions from Robert Boyle, Patrick Cooney, Kenneth Laws, John Luetzelschwab, David Sokoloff and Ronald Thornton

 **Website** http://physics.dickinson.edu/~wp_web/wp_homepage.html

Teaching materials

Realtime Physics is available in a series of books published by Wiley:

- [Module 1](#): The Core Volume: Mechanics I: Kinematics and Newtonian Dynamics (Units 1-7)
- [Module 2](#): Mechanics II: Momentum, Energy, Rotational and Harmonic Motion, and Chaos (Units 8 - 15)
- [Module 3](#): Heat Temperature and Nuclear Radiation: Thermodynamics, Kinetic Theory, Heat Engines, Nuclear Decay, and Random Monitoring (Units 16 - 18 and 28)
- [Module 4](#): Electricity and Magnetism (Units 19-27)