




CU Learning Assistant Program

 Indicates a research-demonstrated benefit

Overview

A program to recruit talented undergraduate science majors to become K-12 science teachers and to improve undergraduate education by implementing large-scale teaching reform. Learning assistants are talented science majors recruited to assist in the implementation of research-based curriculum in undergraduate courses, to learn about pedagogy, and to consider careers in K-12 teaching. LA programs can provide the additional instructors needed to implement many research-based methods.











Type of Method

Instructional strategy



Level



Designed for: Teacher Preparation , Intro College Calculus-based , Intro College Algebra-based , Intro College Conceptual , Astronomy , Other Science 

Can be adapted for: Intermediate Undergraduate , Advanced Undergraduate 



Setting

Designed for: Recitation/Discussion Session 

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



Coverage

Few topics with great depth, Many topics with less depth



Topics

Mechanics, Electricity / Magnetism, Waves / Optics, Thermal / Statistical, Modern / Quantum, Mathematical, Astronomy, Other Science, Pedagogy



Instructor Effort



Medium



Resource Needs



Teaching Assistants / Learning Assistants, reformed curriculum materials



 Skills







Designed for: Conceptual understanding of physics content  , Think like a scientist  , Reflecting on one's own learning, (Depends on the instructor and use of materials. Instructor may use materials that explicitly target any of these.)

Can be adapted for: Problem-solving skills, Connecting conceptual and mathematical understanding, Coherent framework for physics, Understanding how physics relates to the real world, Self-confidence around physics, Enjoyment of physics, Laboratory skills, Representing knowledge in multiple ways, Designing experiments, Creativity, Autonomy, Cooperative learning

 Research Validation

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

Demonstrated to improve: scores on multiple choice conceptual tests  , beliefs about physics 

Studied using: conceptual pre/post exams  , beliefs pre/post exams  , student interviews  , classroom observations  , video of students  , research conducted at multiple institutions 

 Compatible Methods

[Peer Instruction](#), [PhET](#), [UW Tutorials](#), [JiTT](#), [Ranking Tasks](#), [ILDs](#), [CGPS](#), [Physlets](#), [Context-Rich Problems](#), [RealTime Physics](#), [Workshop Physics](#), [TIPERs](#), [ABP Tutorials](#), [SCALE-UP](#), [Modeling](#), [OSP](#), [SDI Labs](#), [OST Tutorials](#), [ISLE](#), [Thinking Problems](#), [Workbook for Introductory Physics](#), [PBI](#), [PET](#), [PSET](#), [LEPS](#), [CAE TPS](#), [Lecture-Tutorials](#), [Astro Ranking Tasks](#), [MBL](#), [New Model Course](#), [CPU](#), [SCL](#), [TEFA](#), [CU Modern](#), [CU E&M](#), [CU QM](#), [QuILTs](#), [IQP](#), [Thermal Tutorials](#), [Mechanics Tutorials](#), [SGSI](#), [Paradigms](#), [EiP](#), [Tools for Scientific Thinking](#), [M&I](#), [Tutorials](#), [Clickers](#), [Responsive Teaching](#)

 Similar Method

None

 Developer(s)

Valerie Otero and Dick McCray

 Website

<http://laprogram.colorado.edu/>