

2022 Advanced Placement® Physics 1: Algebra-Based

About the AP® Physics 1: Algebra-Based Summer Institute

This four-day AP Physics 1 summer institute provides an opportunity for high school physics teachers to familiarize themselves with the AP Physics 1 course and meet and share ideas with others who are developing or teaching AP Physics 1. Topics will include Physics 1 course description and updates, a close look at the recent years' exam questions, inquiry-based and remote learning instructional strategies, syllabus development and course audit, lab/project requirements and ideas, and teaching resources. Participants are expected to take active roles in the institute, familiarize themselves with the AP Physics 1 curriculum and requirements, answer sample exam questions, examine sample student answers, and share inquiry-based and remote teaching strategies.

Goals of the Institute:

- Familiarize with AP Physics 1 curricula & exam requirements.
- Review AP Physics 1 topics as desired.
- Close look at the recent AP Physics 1 Exam questions and student performances.
- Share best practice ideas of inquiry-based instructions and remote learning; and
- Develop/share activities that help students develop qualitative and quantitative reasoning skills.

Tentative Daily Schedule:

Day One: Monday

- Introduction of participants
- Overview of AP P1 course and exam: The CED binder - Science practices, the course content, Course at a glance, walk through the first unit.
- The CED binder: exam information, what's assessed and how, task verbs, information & equation sheets, lab experiments, lab report
- Resources for teaching P1: The CED binder - textbooks, CED unit guides.
- sample MCQ and FRC questions
- The CED binder – instructional strategies,
- Resources for teaching P1: AP Central and AP Classroom.
- Syllabus and course audit
- A recent P1 practice exam MCQ: sort out by a unit of topics

HW:

Answer P1 MCQ's of units 1 to 7

Begin building your instructional plan that incorporates all course units, topics, and skills, as referenced in the CED.

Day Two: Tuesday

- 2017 P1 exam MCQ's units 1 and 2
- 2019 P1 exam FRQ: units 1 and 2, sample student answers
- Discussion: Strategies of teaching units 1 and 2, AP classroom, AP Daily, Assess & Reflect
- Discussion: instructional planning
- Pivot 90 min demo at 1:00
- Develop an instructional plan for units 1 and 2
- Sharing: labs, demos, & activities on units 1 and 2

HW: design a lab or demo of units 3 and 7 for tomorrow

Day Three: Wednesday

- 2019 P1 FRQ units 3 and 7, sample student answers
- 2017 P1 MCQ units 3 and 7
- discussion of last night's homework
- Discussion: Strategies of teaching units 3 and 7, AP classroom, AP Daily, Assess & Reflect
- Sharing: labs, demos, and activities of units 3 and 7
- Inquiry-based lab tryout, units 1-3, 7
- Develop an instructional plan for units 3 and 7

HW: design a lab or demo of units 4, 5, and 6 for tomorrow.

Day Four: Thursday

- 2019 P1 FRQ units 4, 5, and 6, sample student answers
- 2017 P1 MCQ units 4, 5 and 6
- Discussion: Strategies of teaching units 4, 5, and 6, AP classroom, AP Daily, Assess & Reflect
- discussion of last night's homework
- Develop an instructional plan for units 4, 5, and 6.
- Develop lab report/notebook components
- Discussion: CB Diversity & Inclusion and Equity & Access statement and discussion
- Workshop Evaluation

What to bring:

Items you should have access to during the week include:

- College Board AP Physics 1 Workshop Handbook, to be provided by the Institute.
- Participants' copies of algebra/trig-based college introductory physics textbook. This is preferred but not required.
- Instructor's handouts, to be provided by the Institute
- A scientific/engineering calculator.
- A laptop or tablet is a must for finding materials online and performing tasks.

Instructor:



Jiang Yu, Ph.D., is a professor of physics at Fitchburg State University in Massachusetts. Jiang's involvement with the AP Physics programs began in 1997 when she first led a College Board authorized AP Physics Summer Institute for high school teachers at her home university. Since then, she has led many AP Physics workshops and institutes in the United States and abroad. Jiang has participated in the AP Physics exam grading since 2000 and has served various leadership roles, including the Chief Reader from 2009 to 2013 and a Chief Reader Associate from 2013 to 2017, for which she worked with the AP Physics Exam Development Committees, set the grading rubric standards, and led the Reading operations. Currently, Jiang serves as a senior reviewer and curriculum adviser for the College Board AP Physics course audit program.