

GETTING INVOLVED WITH AP[®]

Information for High School & College Faculty

Dedra Demaree and Michael Mitchell, Georgetown University

Prepared for AAPT Summer Meeting, 2014



WHAT IS AP?

- ▶ Over 30 AP course options
- ▶ AP Course Descriptions outline content
- ▶ AP teachers have flexibility to determine how content is presented
- ▶ Courses developed by Development Committee of higher education faculty and master AP teachers
- ▶ Courses taught by qualified high school teachers
- ▶ Students can receive credit at thousands of universities worldwide

GETTING INVOLVED

READING

- ▶ Each June, AP Readers gather to score the free-response sections of the AP Exams
- ▶ Chief Reader ensures that scores accurately reflect college-level achievement
- ▶ Readers are awarded with honorarium of \$1,639
- ▶ Travel expenses, lodging, and meals covered
- ▶ Exchange ideas with other faculty, teachers, and AP Development Committee members
- ▶ Practice how to use a rubric consistently
- ▶ Earn Continuing Education Units (CEUs) and Professional Development Hours (PDHs)

DEVELOPMENT COMMITTEES

- ▶ Comprised of higher ed faculty and master AP teachers
- ▶ Meet throughout the year to create new exams
- ▶ Collaboration from college faculty ensures that AP Exams reflect college-level achievement
- ▶ Multiple-choice questions scored by computer
- ▶ Free-response portions evaluated by team of college professors and high school teachers

BENEFITS OF "TEACHING TO THE TEST"

- ▶ Gives students a focused objective
- ▶ Aids in forming the critical alignment of tests, course objectives, and learning activities
- ▶ If test learning objectives are rigorous and measures skills that students need to master, then students will learn better by focusing on the test

QUALIFICATIONS

COLLEGE READERS

- ▶ Taught 1 college course comparable to AP course within past 3 years

Apply online at <http://apcentral.collegeboard.com>
Current CV or résumé and course syllabus required

SECONDARY SCHOOL READERS

- ▶ Currently teach the AP course in F2F classroom
- ▶ 3 years of experience teaching that course

PHYSICS AP COURSE REFORMS

1 STRUCTURE

- ▶ Explores Newtonian mechanics: work, energy, and power; mechanical waves and sound; and introductory circuits
- ▶ 25% of instruction time spent in hands-on inquiry-based laboratory

DESIGN PROCESS

- ▶ Focus of the redesign is on emphasizing inquiry and reasoning achieved through applying content and concepts to science practices.
- ▶ Principles of backward design applied
- ▶ New curriculum structured around 7 Big Ideas, enduring understandings, essential knowledge, leading to learning objectives

BIG IDEAS

1. Objects and systems have properties such as mass and charge.
2. Fields existing in space can be used to explain interactions
3. The interactions of an object with other objects can be described by forces.
4. Interactions between systems can result in changes in those systems
5. Changes that occur as a result of interactions are constrained by conservation laws
6. Waves can transfer energy and momentum without the permanent transfer of mass
7. The mathematics of probability can be used to describe the behavior of complex systems and to interpret the behavior of quantum mechanical systems

SCIENCE PRACTICES

1. The student can use representations and models to communicate scientific phenomena and solve scientific problems.
2. The student can use mathematics appropriately.
3. The student can engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course.
4. The student can plan and implement data collection strategies in relation to a particular scientific question.
5. The student can perform data analysis and evaluation of evidence.
6. The student can work with scientific explanations and theories
7. The student is able to connect and relate knowledge across various scales, concepts, and representations in and across domains.

B STRUCTURE

- ▶ Explores fluid statics; thermodynamics with kinetic theory; PV diagrams and probability; magnetic fields, and other topics
- ▶ 25% of instruction time spent in hands-on inquiry-based laboratory

C CONTENT

- ▶ Electricity and Magnetism explores electrostatics, circuits, conductors, capacitors, dielectrics, magnetic fields, and electromagnetism
- ▶ Mechanics explores kinematics; Newton's laws of motion, work, energy and power; systems of particles and linear momentum; circular motion and rotation; oscillations; and gravitation

EXAM INFORMATION

1 & 2 Section 1: 50 Multiple Choice Questions, 90 Minutes, 50% of Exam Score
Discrete items, Items in sets, multiselect items (two options are correct)

Section 2: Free Response, 90 Minutes, 50% of Exam Score

- 1: 5 questions (1 Experimental Design, 1 Quantitative/Qualitative Translation, 3 Short Answer)
2: 4 questions (1 Experimental Design, 1 Quantitative/Qualitative Translation, 2 Short Answer)

C Section 1: 50 Multiple Choice Questions, 90 Minutes, 50% of Exam Score
Discrete items, Items in sets, multiselect items (two options are correct)

Section 2: Free Response, 90 Minutes, 50% of Exam Score

- 1: 5 questions (1 Experimental Design, 1 Quantitative/Qualitative Translation, 3 Short Answer)
2: 4 questions (1 Experimental Design, 1 Quantitative/Qualitative Translation, 2 Short Answer)

CHANGES TO CALCULATOR POLICY

- ▶ May be used on entire exam for C, 1, and 2.
- ▶ Any calculator except those with QWERTY functions can be used
- ▶ May not have unapproved features or capabilities (see www.collegeboard.org/ap/calculators)
- ▶ Communication between calculators is prohibited
- ▶ Memory does not need to be wiped prior to exam

AP CAPSTONES

SEMINAR ▶ Synthesize information from multiple sources and develop own perspectives as part of a foundational course

- ▶ Design and deliver oral and visual presentations individually and in a group
- ▶ Analyze information and communicate evidence-based arguments

RESEARCH ▶ Understand research methods; employ ethical research practices; access, analyze, and synthesize information for a research question

- ▶ Students design, plan, and conduct a yearlong mentored, research-based investigation.
- ▶ Students will write an academic thesis of 5,000 words along with a presentation