ROBERT S. WELCH CENTER
FOR GRADUATE AND PROFESSIONAL STUDIES
GOUCHER COLLEGE
TEACHERS' INSTITUTE
2018 GOUCHER COLLEGE

SYLLABUS

AP 594.300 Preparing Students for AP Physics 2: Algebra-Based

Week 3 (July 8-12)
Monday - Thursday 8:30 - 4:30
Friday 8:30 - 1:00

Text : AP Professional Development for Physics Handbook, AP Physics 2 Course & Exam Description
Participants are expected to be present and on time for each session.
Instructor Joe Mancino, email - mistermancino@gmail.com

This AP Physics institute is designed to help teachers build a foundation for a successful AP Physics program. We will focus on teaching the AP Physics 2 course that debuted in the 2014/2015 school year and on preparing students for the test. The first goal involves using the Course & Exam Description which pairs essential knowledge with the fundamental scientific reasoning skills necessary for scientific inquiry. The Curriculum Framework provides detailed information concerning what a student should know and what they are expected to do on the AP Physics 2 Exam. A significant amount of time will be spent considering how the new course does not just change what we teach but also changes how we teach.

Other focus areas of this course include preparing your new syllabus for AP Physics 2 and organizing the inquiry laboratory experiments/questions that comprise 25% of the time to be spent in the new course. Special topics related to the revamped course — fluids, thermodynamics, and optics — will be addressed as well. The AP Physics Curriculum Framework will be provided in the Course and Exam Description. Copies of the Framework also may be downloaded from the College Board website prior to the course.

In this course participants will

1. Become familiar with the AP Physics 2: Algebra-Based curriculum standards and develop a course syllabus that reflects these new standards.

2. Adapt in-class questioning styles to match the style of the AP exam.

3. Construct AP level multiple choice questions and problems.

4. Get hands-on experience with a variety of laboratories.

5. Modify their existing lab program to reflect the new emphasis on a more open-ended, inquiry-based approach.

6. Network with other teachers and share "best practice" lessons.

Day 1

AM1 Introductions
Agenda
Introducing the MC test
AM2 Interpreting the Curriculum Framework

PM1 Anatomy of the AP Reading
Paragraph Length Response FRQ's
PM2 Performing Labs
Resistance
Exercises in Linearization
Lab Presentations

Day 2

AM1 Homework Presentations
Technology for MC Questions
Ranking Tasks
AM2 Equity and Access
Using "AP Potential"
Success Strategies
Recruitment
Curriculum Project Assignment

PM1 Lab Based FRQ's
Sample Scoring
PM2 Hands-on Lab Time, Earth's Magnetic Field

Day 3

AM1 Homework Presentations
Pacing a Class
The AP Audit
AM2 Existing and Upcoming Resources from the College Board
Curriculum Project Work

PM1 TIPERS
Science Practices
Curriculum Project Work
PM2 Hands-on Lab Time
Topic : Diffraction and Refraction

Day 4

AM1 Homework Presentations
Applet Labs and Virtual Labs
AM2 The Qualitative / Quantitative Question
Sample Scoring
Science Writing
Picking a good textbook

PM1 Item Writing Workshop
The AP Workbook
PM2 Curriculum Presentations

Day 5

AM1 Homework Presentations
The Other AP Physics Courses
Boundaries of the AP Courses
AM2 Best Practices from Participants

Homework

After days 1-4, we will answer a series of test questions about a subset of topics and devise a list of skills and knowledge students will need in order to be successful with those questions. Every teacher will solve all the MC questions while only one group will present about FRQ solutions.

This will NOT be a burdensome time investment, yet it will expose teachers to a wide range of question types and topics on the new exam.

We will generate a list of activities and lab experiences that will help students generate that knowledge and develop those skills.

College Board AP Teacher Standards

Content Knowledge
Teacher Certification
Pedagogy and Student Learning
Analysis and Reflection
Ongoing Professional Development

Graduate Programs in Education (GPE) Outcomes/Standards

Knowledge Standards

Apply knowledge of the philosophy related to the area of specialization or certification.

Demonstrate understanding and the use of assessments appropriate to the area of specialization or certification.

Demonstrate the knowledge of the concepts of diversity applied to the area of specialization or certification.

Skills Standards

Use problem solving/critical thinking strategies appropriate to the area of specialization.

Use reflective practice within the area of specialization.

Demonstrate effective communication and presentation skills related to the area of specialization.

Use a variety of technologies appropriate for working in the area of specialization.

Disposition Standards

Demonstrate positive dispositions toward diversity and equity.

Demonstrate professionalism in one's demeanor, behavior, conduct, decision-making, and interaction with colleagues.

Requirements for Graduate Credit:
Before August 1st, prepare a timeline for your AP Physics 2 course, and email it to me.
Your timeline should include approximate dates for every topic in the course.
In addition, include a list of every activity and lab your students will be doing along with a brief description of what they students will be doing and why they will be doing it.

Examples: **Archimedes and Buoyancy**
Using only a spring scale and a cup of water, determine the density of an object.

Diffraction Lab
Determine the wavelength of a laser using a diffraction grating.
Graph the relationship between slit spacing and "x" for several objects.

This timeline can form the basis of your AP audit for AP Physics 2.

Goucher College does not issue grade reports. You can obtain your grade approximately 3 weeks after concluding the course by going to the myGoucher website.

Visit http://www.goucher.edu/information-technology/accounts-and-access/mygoucher and follow the prompts to receive your grade. If you have misplaced your password, please contact the help desk and they will walk you through this procedure (410-337-6322).

If you need a paper copy of grades for tuition reimbursement, request a transcript in writing.
You can fax your request to Student Administrative Services (SAS) at 410-337-6504 or mail to SAS at

Goucher College, SAS
1021 Dulaney Valley Road
Baltimore, MD 21204

There is no charge for this request. Please allow 3-5 working days to process.
Access the transcript request form at http://www.goucher.edu/x1891.xml.