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

SYLLABUS

AP 589.100 Preparing Students for AP Physics 1: Algebra-Based

Dates and times: Weeks 1 and 3

Week 1 Monday, June 19, 2017 through Thursday, June 22, 2017 from 8:30 AM to 4:00 PM and Friday, June 23, 2017 from 8:30 AM to 1:00 PM.

Course Description

This course will engage educators in completing several goals focused on preparing them to teach the new AP Physics 1 course that debuted in the 2014/2015 school year, and the subsequent exam to be given in May. The first goal involves making an individualized plan for the year. This plan will lay the groundwork for using the Curriculum Framework which pairs core essential knowledge with the fundamental scientific reasoning skills necessary for scientific inquiry. The second goal involves developing and practicing techniques that are consistent with the implications of the physics educational research, which guided the development of this course. The third goal is designing and practicing the laboratory work that is in line with the inquiry laboratory experiments/questions that comprise 25% of the time to be spent in the new course. The fourth goal is to spend some time with the special topics related to the revamped course. At the completion of the week, you should have a very good idea of what you should be doing on a daily basis to best prepare your students for the exam in May.

The College Board Advanced Placement Teacher Standards will apply:

1. 1. Content Knowledge
2. 2. Teacher Certification
3. 3. Pedagogy and Student Learning
4. 4. Analysis and Reflection
5. 5. Ongoing Professional Development

Copies of The College Board Advanced Placement Teacher Standards will provided during the workshop.

Graduate Programs in Education (GPE) Outcomes/Standards will apply:

Knowledge:

GPE Knowledge Standard 1. Apply knowledge of the philosophy related to the area of specialization or certification.
GPE Knowledge Standard 2. Demonstrate understanding and the use of assessments appropriate to the area of specialization or certification.
GPE Knowledge Standard 3. Demonstrate the knowledge of the concepts of diversity applied to the area of specialization or certification.

Skills

GPE Skills Standard 1. Use problem solving/critical thinking strategies appropriate to the area of specialization.
GPE Skills Standard 2. Use reflective practice within the area of specialization.
GPE Skills Standard 3. Demonstrate effective communication and presentation skills related to the area of specialization.
GPE Skills Standard 4. Use a variety of technologies appropriate for working in the area of specialization.

Disposition

GPE Disposition Standard 1. Demonstrate positive dispositions toward diversity and equity.
GPE Disposition Standard 2. Demonstrate professionalism in one's demeanor, behavior, conduct, decision-making, and interaction with colleagues.

The daily agenda will be fluid so that it can conform to the needs of the participants. Focus will be on:

1. Building Student's Critical Thinking Skills.
2. Developing materials that participants can use in their classroom in the upcoming school year to help their students with thinking skills.

Student responses to the modifications made to the multiple-choice section of the test. Understanding what the student will be expected to demonstrate in the free response section of the test. These will include:

- Responses to inquiry lab questions.
- Qualitative/Quantitative Translations.
- Short Answer.
- Analyzing graphical data.
- Viewing the added and expanded areas of the new AP Physics 1.
- Syllabus development.
- Best Practices.
- Designing Inquiry labs that will help build student skills in thinking, describing, interpreting, and making calculations and/or predictions.

SYLLABUS

Day 1

- Introductions
- AP Equity and Access Policy
- Content that needs to be covered for AP Physics 1
- Concept Outline for Physics 1
- The method of coordinating knowledge and skills that students will need to demonstrate on the AP Physics 1 Test.
- Concept Outline links the
- Big Ideas (There are 7 Big Ideas, but only the first 6 will apply to Physics 1)
- Enduring Understandings – What the students must retain.
- Essential Knowledge that will support the Enduring Understandings
- Science Practices that articulate what the student should know and be able to do.
- Learning Objectives – pairs the Essential Knowledge to the Science Practices
- Lunch
- Pacing guide
- Syllabus development (ongoing during the week.)
- Example Mini Lesson and Mapping the Lesson to the Curriculum Framework.
- Participants will work in groups to create a mini-lesson based on an assigned task. These will be shared with all the other participants.

Day 2

- What will be tested on the AP Physics 1 Exam will illustrate how the Learning Objectives will be assessed.
- Building Student's Critical Thinking Skills to Answer the Multiple-Choice and Free Response Section of the New Test.
- Participants will learn strategies for incorporating reasoning tasks that aid their students in building deeper conceptual understandings of the basic physics concepts.
- In groups, participants will develop several types of reasoning tasks that they can use in their classrooms. These activities will be shared with the group. (Bring your cell phones to record the activities that are developed during the workshop.)
- Lunch
- The new AP Physics 1 has expanded the content that students will need.
- Special Topics on Angular Motion, Angular Dynamics, and Conservation of Angular Momentum are included on the new test.
- We will do a laboratory experiment in the afternoon session as an inquiry lab and then modify and adapt it for the new Physics I format.

Day 3

- We will do another laboratory experiment in the morning session as an inquiry lab and then modify and adapt for the new Physics 1 format as we did on Wednesday.
- (Bring a laboratory experiment that works very well with your students. You will adapt it in the new format of the lab questions and share with the others on Friday.)
- Lunch
- Continue with Syllabus development and Building Student's Critical Thinking Skills.
- Special Topics as needed
- Writing Multiple Choice and Free Response Questions based on the Learning Objectives.
- Group work in developing MC and Free Response Questions that will be shared with the entire group on Friday.

Day 4

- Review of Multiple Choice Questions from the old AP B Physics released tests and modification of them into the new format to build your new question bank.
- Continued work as needed on Friday afternoon presentations and/or syllabus development.
- Lunch
- Presentations
- Downloads (Bring your jump drives)
- Paper Work

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 (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, you will need to 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. To access the transcript request form, please go to: http://www.goucher.edu/x1891.xml