

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

Preparing Students for Advanced Placement® Chemistry AP 512 (Instructor: Stephen Pulliam)

This workshop is geared toward but not limited to new AP Chemistry teachers. During the week, we will look at the unique features of AP Chemistry, review content, and explore the depth of content required by the course. Considerable time will be spent reviewing the syllabus required by the College Board for all AP courses as well as conducting labs throughout the workshop specifically designed for the course requirements. Topics to be covered include kinetics, equilibrium, thermodynamics, and electrochemistry. In order to create a culture of collaboration and community, experienced teachers will have the opportunity to share what has worked well in their course as well as brainstorm solutions for any challenges faced. In addition, we will examine past AP tests with the goal to develop strategies to enable students to perform well on the exam.

Course Objectives*

In this course students will:

- Become familiar with the AP Chemistry curriculum standards.
- Get hands-on experience with a variety of laboratories.
- Learn how to modify their existing lab program to reflect the new emphasis on a more open-ended, inquiry-based approach.
- Become familiar with the AP Chemistry Exam format.
- Network with other teachers and share “best practice” lessons.

* (Please note that the AP Teacher Standards: Content Knowledge, Teacher Certification, Pedagogy, Analysis and Reflection, and Professional Development, are addressed in these objectives.)

Graduate Programs in Education Outcomes

- GPE001: Knowledge - Theory: Apply knowledge of psychological and educational theory, research, and/or philosophy related to AP Chemistry.
- GPE002: Knowledge - Assessments: Demonstrate understanding and use of the types of assessments appropriate to AP Chemistry.
- GPE004: Knowledge - Diversity: Demonstrate knowledge of concepts related to diversity, and the interaction between concepts related to diversity and the admission of students to AP courses. Equity and Access will be discussed.
- GPE005: Skills - Theory: Demonstrate the ability to incorporate theory and research into practice related AP Chemistry.
- GPE006: Skills - Data: Demonstrate the ability to gather appropriate data and use data in problem analysis and decision-making related to AP Chemistry.

- GPE007: Skills - Problem Solving: Use problem solving/critical thinking strategies appropriate to AP Chemistry.
- GPE008: Skills - Reflection: Use reflective practice within the area of AP Chemistry.
- GPE009: Skills - Communication: Demonstrate effective communication and presentation skills related to AP Chemistry.
- GPE010: Skills - Technology: Use a variety of technologies appropriate for working in the area of AP Chemistry.
- GPE011: Dispositions - Service: Demonstrate service to the community, as related to specific projects related to AP Chemistry.
- GPE012: Dispositions - Diversity: Demonstrate positive dispositions toward diversity and equity. Equity and Access will be discussed.
- GPE013: Dispositions - Professionalism: Demonstrate professionalism in one's demeanor, behavior, conduct, decision-making, and interactions with colleagues.

Attendance policy

- If you are taking the course for credit, no absences are permitted. You must attend all five days all day to receive graduate credit.

Required pre-work

- Write out answers to all released Free Response Questions from the 2019 AP Chemistry examination and bring to first day of class. You can find them by going to <https://apcentral.collegeboard.org/courses/ap-chemistry/exam?course=ap-chemistry>
- Complete the survey that will be sent 1 week prior to the start of the course.
- Each teacher will share a curricular resource that they have used in previous Chemistry course(s), even if the resource has not been used at the AP level.

Dates and times that the course meets: Monday through Thursday, 8:30 a.m. to 4:00 p.m. Friday, 8:30 a.m. to 1:00 p.m.

Day 1

Welcome, Introductions & Expectations
 Curriculum Guidelines/Course Description/Equity and Access/Handbook Contents
 Explore the AP Exam
 The AP Course Audit
 Big Ideas and dealing with “exclusion statements”
 Big Idea 6: Chemical Equilibrium
 Overview
 Equilibrium Lab
 Inquiry Learning Activities
 Scaffolding and Differentiated Learning
 Scoring FRQs

Day 2

Textbook Selection, Course Design, Homework, Tests, Strategies

Big Idea 5: Thermodynamics

Overview

Lab - Hess's Law

Inquiry Learning Activity

Scaffolding and Differentiated Learning

Scoring FRQs

Best Practices Sharing

Big Idea 4: Kinetics

Overview

Lab

Inquiry Learning Activity

Scaffolding and Differentiated Learning

Scoring FRQs

Best Practices Sharing

Day 3

Lab in the AP Class

Resources, Reference Materials, AP Central, PhET

Big Idea 3: Chemical Reactions

Overview

Lab

Inquiry Learning Activity

Scaffolding and Differentiated Learning

Scoring FRQs

Best Practices Sharing

Big Idea 2: Bonding and Intermolecular Forces

Overview

Lab

Inquiry Learning Activity

Scaffolding and Differentiated Learning

Scoring FRQs

Best Practices Sharing

Day 4

Big Idea 1: Structure of Matter

Overview

Lab - Gravimetric Analysis of

Inquiry Learning Activity

Scaffolding and Differentiated Learning

Scoring FRQs

Best Practices Sharing

The topics listed and the order of the outline is subject to change depending on participant interest, need and College Board's PD materials availability by the start of the APSI.

Description of Requirements for Graduate Credit

- Complete all aspects of the pre-work assignments
- Complete required laboratory activities
- Complete nightly homework assignments
- Complete one of two options for projects to be submitted approximately 3 weeks after concluding the course.