Math

3D Printing & Design
(See HuaxiaSTEM Programs)

Science
High School Chemistry
AP Chemistry
AP Physics

Engineering

Technology
Python Gaming Design
Robotics
and Computer Programming

(See HuaxiaSTEM Programs)
高中化学
老师简历
课程简介

王勤老师现在是我们学校教AP化学辅导班和化学SAT班的老师，她是一个拥有20多年教学经验的老师，她在过去的25年中她在Houston Community College（休斯顿社区大学）教过大学化学，和在高中教过AP化学，荣誉高中化学和普通高中化学。她在Harmony高中和Cy-Fair ISD教过20多年，在休斯顿社区大学教过5年。在2014-2015学年她的AP化学班的学生100%通过AP化学国家考试，之前她每年AP化学班的学生有85%左右的AP考试合格率，她的AP预科班和普通化学班的学生在学区的评估测试合格率每年始终在85-90%。我们学校很高兴能够请王勤老师来教书。王勤老师现已退休，她除了在华夏教课外还为大学和高中的学生辅导化学，把化学知识传授给年轻一代。

**AP Chemistry Exam Preparing Class**

This class is to prepare students taking Advanced Placement Chemistry. Whether a student is taking AP Chemistry at his/her school or he/she is working on it independently, the stage is set for a great intellectual experience. This class is to help students try to master the AP Chemistry exam, put students on a fast track with focused review. This class will follow the College Board Concept Outline to help students practice difficult problems, diagnostic tests etc. that has all of the elements of the AP Chemistry Examination so that students can walk in with confidence and get best scores possible when they are taking exam. This class is a good supplement for AP chemistry students.

**Pre-AP Chemistry Supplement class**

Every high school student who wants to go college will take pre-AP chemistry. It is a require class. This supplemental class aligns with all public and private high schools’ curriculum, and offers many effective strategies and suggestions for guiding students as they learn chemistry. The class provides opportunities through lectures, activities and discussions that allow students to further their understanding, and to discover critical concepts, and apply the knowledge they’ve gained to their school work and assessments. This class is intended for further assessments or student homework by practice additional problems. Many students would benefit from such further problem solving in order to reach full understanding of chapter material in their school chemistry textbook.

Throughout this supplemental class, students are building problem solving and critical skills, and set a solid foundation that will be available to them for learning college chemistry and AP chemistry.

**SAT Subject--Chemistry Class**

The SAT subject-chemistry class is to prepare students to do well on this test. The subject test is prepared by the College Board and give evidence about your readiness in chemistry academic areas. Many colleges require or recommend one or more Subject Tests for admission or placement. This class will increase the understanding of chemistry subject, help students to practice problems and diagnostic tests, allow students becoming familiar with the question types and the wording of directions, and also to gain a feel for the degree of emphasis on main topics and the ways on tests, and to help students getting the best score possible. Once students obtain chemistry standardized assessment of your achievement from your good scores, some colleges use the test result for placement into their particular programs in the freshman year.

This class is a good supplement for AP chemistry students and pre-AP chemistry students. For AP chemistry students it is a great review of pre-AP chemistry to set a strong foundation in AP chemistry course. For pre-AP chemistry students it is a class to expand and strengthen the knowledge learned in pre-AP chemistry to increase problem solving ability.
A Ph. D in Geophysics from University of Texas at Dallas. Juanjuan received Texas Standard Teacher Certificate in 7-12 Mathematics and Science from Texas Education Agency (TEA) in 2017. She taught at George Ranch High School of Lamar Consolidated Independent School District in 2017, then taught at an American secondary school in China 2018-2019. The subjects she has been teaching include Calculus, Physics, Pre-Calculus, Algebra I & II, Geometry, SAT Math and Physics.

**Course Outline**

1. **Kinematics**
   - Include constant velocity, constant acceleration, vectors, motion in one and two dimensions, projectile motion, and graphical analysis.

2. **Dynamics**
   - Include force, Newton’s laws, static equilibrium, circular motion, centripetal force, rotation, universal gravitation, and simple harmonic motion.

3. **Energy and momentum**
   - Include potential energy, kinetic energy, work, power, impulse, momentum, Laws of energy conservation and momentum conservation, elastic and inelastic collision.

4. **Waves**
   - May include machine wave, sound, wave speed, frequency, wavelength, amplitude, superposition, Doppler effect.

5. **Electricity**
   - Electrostatics: may include Coulomb’s law, induced charge, electric fields, electric potential, electric potential difference, and electric potential energy.
A Ph. D in Geophysics from University of Texas at Dallas. Juanjuan received Texas Standard Teacher Certificate in 7-12 Mathematics and Science from Texas Education Agency (TEA) in 2017. Now she is teaching at a public high school in Houston Independent School District.

Instructor: 曹娟娟博士

HIGH SCHOOL AP PHYSICS 1

Goal: The goal of this course is to study the core topics and concepts that are included in the college preparatory physics course in high school, will also cover the topics appearing on AP Physics Exam.

Course Outline

1. Kinematics
   Include constant velocity, constant acceleration, vectors, motion in one and two dimensions, projectile motion, and graphical analysis.

2. Dynamics
   Include force, Newton’s laws, static equilibrium, circular motion, centripetal force, rotation, universal gravitation, and simple harmonic motion.

3. Energy and momentum
   Include potential energy, kinetic energy, work, power, impulse, momentum, Laws of energy conservation and momentum conservation, elastic and inelastic collision.

4. Waves
   May include mechanical wave, sound, wave speed, frequency, wavelength, amplitude, superposition, Doppler effect.

5. Electricity
   Electrostatics: may include Coulomb’s law, induced charge, electric fields, electric potential, electric potential difference, and electric potential energy.
   Circuits: may include series / parallel circuits, Ohm’s law, and Joule’s law.

6. Electromagnetism (Introduction)
   The course will focus on general strategies and problem solving skills, use relevant example questions to demonstrate the quick and effective ways for problem solving. Difficult concepts or topics will be emphasized, practices will be given during and after class to boost students’ understanding and mastery.
Python Web Application Programming is a one year program course designed to help students excel in AP Computer Science and also help adult student find related job and answer interview questions. Students will learn step by step how to write Python program, and how to build web application which connect to the database. We based on learn on demand concept, let student learn language basic while it is needed for the task. Require Laptop computer.

Python 1 - Semester 1:
1. Download and install all software needed for this class, such as Python package, VS code Editor and more...
2. An introduction to Python fundamentals. Topics include simple print statement, console usage, data type, operators, conditional statements, loops, arrays, class and objects, string, and Java standard classes. Students
3. write simple game and build up function concept.
4. write python program to plot chart based math formular. and learn to build own package.

Python 2 - Semester 2:
1. Download and install NPM, MongoDB, Git software tools for building web application.
2. Topics include csv file handling, JSON format, Json to class. inheritance and polymorphism, array and array list, file O and exception, recursion, sorting and searching, and program design and analysis.
3. Learn MongoDB database collection and document concept, create Python program to Create, Read, Update and Delete (CRUD) data record in DB.
4. Create Python Server to connect to MongoDB, and create DB service for CRUD.
5. Display data from Database to web browser.
6. Use React JS generate simple GUI to display database data.
Java Programming is a two-sessions computer programming course in English, designed to help students excel in AP Computer Science. No prerequisites for student. Students will learn step by step how to install tools and how to write Java program, include sample games, plot chart, database access, and simple web application. Student will learn language basic such as loop, condition, data type while they are learning build application. Since it is a on-line class, need laptop computer, better has additional monitor.

Java-1:
1. Download and install all software needed for this class, such as Java JDK, Eclipse, Git ...
2. An introduction to Java fundamentals, Topics include simple print statement, data type, operators, conditional statement, loops, array, ArrayList, String...
3. Build up OOP concept, introduce, class, interface, abstract class concept
4. Build Card game based on Java classes.

Java-2:
1. Learn Relational database access by using mySQL, and hibernate.
2. Handle Exception, write unit test, debugging, logging.
3. Learn frequently used design pattern, such as observer, command, factory, singleton...
4. Introduce ReactiveX, functional programming include map, filter, reduce, zip, soft, and more.