



# 华夏糖城 STEM



## TECHNOLOGY

Python Gaming Design  
Robotics

## SCIENCE

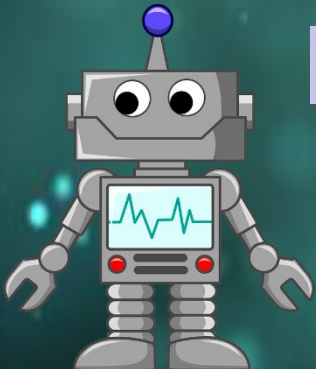
High School Chemistry  
AP Chemistry  
AP Physics  
AP Computer Science

## Math

( See HuaXiaSugarLand math )

## ENGINEERING

No class in summer



## 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，她拥有德克萨斯州终身化学教师证书和硕士学位。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，和在高中学过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到我们学校来教学。王勤老师现已退休，她除了在华夏教课外还给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. Every class will review and discuss the theories and concepts, work on the challenge problems and leave some class time to answer students' school work that assigned in their AP chemistry class.

### *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.

SYLLABUS  
PREPARATION  
COURSE

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# FOUNDAMENT AL PHYSICS

SECTION-1 (06/14-07/09)

SECTION-2 (07/12-08/06)

SECTION-3 (FALL)

SECTION-4 (FALL)



## Class Reference

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- Basic Requirement
  - Completed Pre-Algebra and Fundamental Geometry
  - Be Interested in Natural Sciences Courses
  - More Critical Thinking and Challenging
- Class Size
  - Medium Class (5-10 students)
    - 10 hours lesson
    - 6 hours in-class practice and explanation
- Class Sections
  - Section 1: Motions, Forces, Newton's Law, Work and Energy, Momentum (16 Hours)
  - Section 2: Electric Forces and Fields, DC Circuits, Magnetic Forces and Fields, Electrical Induction (16 Hours)
  - Section 3: Atoms and Molecules, Solid, Liquid and Gas, Temperature and Heat, Phase Change and Heat Transfer (16 Hours)
  - Section 4: Mechanical Waves, Sound, Geometric Optics, Electromagnetic Wave, Wave and Particle Properties (16 Hours)
- Reference Books
  - Basic Physics - A Self Teaching Guide
  - The Free High School Science Texts

## Class Introduction

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- This course is an introductory course for students who are interested in learning and understanding the natural sciences, leading up to AP Physics and AP Chemistry. Through the four stages of learning, students will be able to deeply understand the concepts and definitions of basic physics, effectively imagine, analyze and explain the common physical phenomena and physical processes, and cultivate the habit of thinking and learning interest in physics, as well as have a preliminary understanding of the basic knowledge of chemistry and reaction principle . Upon completion of this course, students will be ready for future AP physics and AP Chemistry studies.
- 本课程是针对喜欢学习和了解自然科学学科的学生的入门介绍课程，和后续AP物理和AP化学进行衔接。通过四个阶段的学习，学生们能对基础物理和化学的概念和定义有深入的了解，能对普通的物理现象和物理过程进行有效的想象、分析和解释，能够培养物理的思维习惯和学习兴趣，同时也能对化学的基础知识和反应原理有了初步的了解。学生们完成本课程的学习，能够轻松的应对将来AP物理和AP化学的学习。

## Section-1 Class Schedule (Jun. 14-Jul. 09)

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- Motions (2 hours)
  - Motion Quantities (1 Hr)
  - Motion Math (1 Hr)
  - Some Special Forces (2 Hrs)
- Forces (2 hours)
  - Types of Forces (1 Hr)
  - Relationship Between Motions and Forces (1 Hr)
- Newton's Laws (4 hours)
  - Newton's Law (2 Hr)
  - Free-Body Diagrams (2 Hrs)
- Energy and Work (4 hours)
  - Definition of Work, Energy (1 Hr)
  - Conservation of Energy (2 Hrs)
  - Application of Conservation of Energy (1 Hr)
- Momentum (4 hours)
  - Momentum and Impulse (1 Hr)
  - Conservation of Momentum (1 Hrs)
  - Collisions (2 Hr)

## Section-2 Class Schedule (Jul. 12-Aug. 06)

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- Electric Field and Electric Force (4 hours)
  - Electric Field and Charges (1 Hr)
  - The Coulumb's Law (1 Hr)
  - Static Electricity (1 Hr)
  - Electrical Current (1 Hr)
- DC Circuits (4 hours)
  - DC Circuits (1 Hr)
  - Ohm's Law (1 Hr)
  - Series and Parallel Resistance (2 Hrs)
- Magnetic Field and Forces (4 hours)
  - Magnetic Fields (1 Hr)
  - Strength of The Magnetic Field (1 Hr)
  - Cuase of Magnetism (1 Hr)
  - Electrical Meters and Electrical Motors (1 Hrs)
- Electrical Induction (4 hours)
  - Inducing Current (1 Hr)
  - Lenz's Law (2 Hr)
  - Transformer (1 Hr)

## Section-3 Class Schedule (Will be scheduled in fall)

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- Atoms and Molecules (4 hours)
  - Elements and Compounds (1 Hr)
  - Atoms and Molecules (1 Hr)
  - Periodic Table (1 Hr)
  - Electron's Orbital (1 Hr)
- Solid, Liquid and Gas (6 hours)
  - Matter (1 Hr)
  - Density (1 Hr)
  - Pressure (2 Hr)
  - Bouyancy (2 Hr)
- Temperature and Heat (4 Hrs)
  - Temperature Units (1 Hr)
  - Temperature, Internal Energy and Heat (2 Hr)
  - Specific Heat (1 Hr)
- Phase Change and Hear Transfer (2 hours)
  - Phase Change (1 Hr)
  - Heat Transfer (1 Hr)



## Section-4 Class Schedule (Will be scheduled in fall)

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- Mechanical Waves and Sound (4 hours)
  - Wave Motion (1 Hr)
  - Standing Waves (1 Hr)
  - Sound-Longitude Wave (1 Hr)
  - Diffraction and Interference (1 Hr)
- Geometric Optics (8 hours)
  - Reflection and Refraction (2 Hrs)
  - Image (1 Hr)
  - Lenses (2 Hrs)
  - Mirrors (2 Hrs)
  - Dispersion and Color (1 Hr)
- Physical Optics (2 hours)
  - Diffraction and Interference (1 Hr)
  - Young's Double-slit Experiment (1 Hr)
- Electromagnetic Waves (2 hours)
  - The Electromagnetic Spectrum (1 Hr)
  - Light - Particle and Wave (1 Hr)

SYLLABUS  
PREPARATION  
COURSE

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**AP PHYSICS**  
**1**

**SECTION-1 (06/07-07/09)**

**SECTION-2 (07/12-08/06)**

**SECTION-3 (FALL)**



## Class Reference

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- Basic Requirement
  - Completed Algebra I, Algebra II and Geometry
  - Strong logic thinking mindset
  - More practice on problems solving
  - At least 2 hours/day to practice and understand physics logics in class and/or homework
- Class Size
  - Medium Class (5-10 students), in each section:
    - 10 hours lesson
    - 4 hours in-class practice and explanation
    - 2 hours summary review
- Class Sections
  - Section 1: Kinematics, Dynamics, Work and Energy (16 Hours)
  - Section 2: Momentum and Collisions, Special Motions (16 Hours)
  - Section 3: Mechanical Waves, Electrical Field and Forces, DC Circuits (16 Hours)
- Reference Books
  - Cracking the AP Physics 1 Exam (by The Princeton Review) 2018 or newer version
  - AP Physics 1 (by Barron's) 2018 or newer version

## Class Introduction

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- This course is specially designed for students who will take AP Physics 1 or AP Physics C as their elective course. The design of the course fully conforms to the knowledge points and assessment range defined by AP Physics 1, and is applicable to most knowledge points in AP Physics C. Through three stages of learning, students will be able to cope with the assessment requirements of AP Physics in-class study and AP exam. In class, teacher will help students develop thinking habits in Physics through knowledge points, logical analysis and interpretation, as well as necessary exercises, so as to meet the assessment standards of AP examination.
- 本课程是专门针对将来选修AP Physics 1或者AP Physics C的同学们准备的，课程的设计完全符合AP Physics 1定义的知识点和考核范围，并适用于AP Physics C中绝大部分的知识点。通过三个阶段的学习，学生们有能力应付学校AP Physics的学习以及AP统考的考核要求，在课堂上，老师将通过知识点和逻辑分析解释，以及必要的习题练习，使学生们能够养成物理方面的思维习惯，达到AP考试的考核标准。

## Section-1 Class Schedule (Jun. 14 - Jul. 9)

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- General Understanding of AP Physics (1 hours)
  - Math and Physics (0.5 Hr)
  - SI and Unit Conversion (0.5 Hr)
- Vectors (1 hours)
  - Definition of Vector (0.5 Hr)
  - Operations Rules of Vectors (0.5 Hr)
- Kinematics (4 hours)
  - Motion (1 Hr)
  - Big Five Equations (1.5 Hrs)
  - Free Fall (0.5 Hr)
  - 2-Dimensional Motions (1 Hr)
- Dynamics-Newton's Laws (4 hours)
  - Newton's Laws (1 Hr)
  - Forces (1 Hr)
  - Free-Body Diagrams (2 Hrs)
- Energy, Work, and Power (4 hours)
  - Definition of Work, Energy (1 Hr)
  - Conservation of Energy (2 Hrs)
  - Application of Conservation of Energy (1 Hr)
- Final Review (2 Hrs)

## Section-2 Class Schedule (Jul. 12 - Aug. 6)

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- Momentum and Impulse (4 hours)
  - Definition of Momentum and Impulse (1 Hr)
  - Conservation of Momentum (1 Hr)
  - Collisions (2 Hrs)
- Circular Motion (3 Hrs)
  - Centripetal Acceleration and Force (1 Hr)
  - Universal Gravitational Force and Circular Motion (2 Hr)
- Simple Harmonic Motion (3 hours)
  - Description of SHM (2 Hr)
  - Applications (1 Hr)
- Torque and Rotational Motion (4 hours)
  - Relationship between Translation and Rotation (2 Hrs)
  - Center of Mass (1 Hrs)
  - Applications (1 Hr)
- Final Review (2 Hrs)



## Section-3 Class Schedule (Will be scheduled in fall)

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- Electric Field and Electric Force (6 hours)
  - Electric Field and Charges (1 Hr)
  - The Coulumb's Law (1 Hr)
  - Comparison of Electric Field vs. Gravitational Field (2 Hrs)
  - Superposition of Electric Field (2 Hrs)
- DC Circuits (4 hours)
  - Ohm's Law and Kirchhoff's Loop Rule (1 Hr)
  - Series and Parallel Resistance (2 Hrs)
  - Capacitance and Capacitors (1 hr)
- Mechanical Waves and Sound (4 hours)
  - Property of Waves (1 Hr)
  - Superposition and Interference (1 Hr)
  - Standing Waves (2 Hrs)
- Final Review (2 hours)

# PYTHON & JAVA

## G 4 & up

### 王黔江博士简介

休斯顿大学物理博士，从事计算机软件开发工作30多年，横跨如航天，物流，石油，保险，银行，航空等众多领域，熟悉软件发展的最新动态，对于Java，C# dotnet，Python, Angula，SQL server 数据库运用熟练。擅长网络应用软件的制作。特别是目前流行的MicroService，实体模拟编程，功能块导向编程，都有独到的见解。曾著有《Java实体模拟网络编程》一书，由中国人民邮电出版社出版发行。目前已经退休。

石油



保险



BANK



UNITED

航空

物流

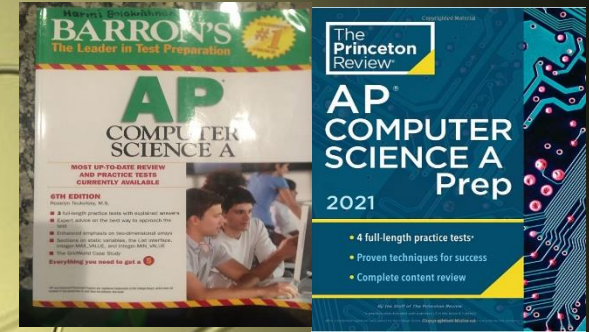






# AP Computer Science

**Instructor :**  
**Dr. 王黔江**  
**Saturday: 10-12**



## Course Goal and Suitable Students

This course is aimed at students reviewing for the AP Computer Science A exam. It is suitable for high school students who complete an AP course, ready to take the exam. In this course, we mainly focus on how to answer questions quickly, of course, correctly.

We also help students understand the Java language basic concept, make sure they are not only can "guess" the answer but know why the answer is correct.

We teach students other methods to understand questions better, such as debugging, unit testing, logging, markdown document, and more.

## Eclipse IDE Tool

We will use Eclipse as Java Programming tool for writing, running and debugging the Java source code.

- \* Create new project, new package, new class.
- \* Debug and Run the source code.
- \* Use different perspective
- \* Write Markdown documents

## Java Language Coverage

- Data type, Operators, Control structures
- OOP concept, Methods, Subclasses, Abstract classes, Interfaces
- Array, Two-dimensional arrays, ArrayList
- Selection Sort, Insertion Sort, Merge Sort, Binary Search
- Bug class, BoxBug class, Critter class, ChameleonCritter class

# 华夏中文学校 Java 实操网络软件课程

Angular

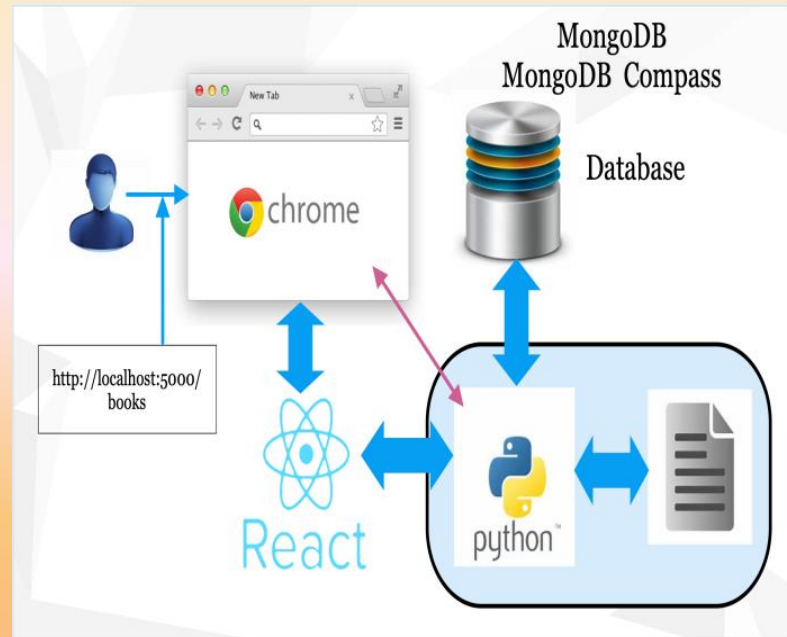
MySQL DB

Java

MicroService

成人：每周六下午10:00-12:00 AM  
儿童：周一至周四9:00-11:45 PM

成人找工作  
儿童打基础



# 华夏中文学校 Python 实操网络软件课程

Database

python

成人：每周六下午2:00-4:00 pm  
儿童：周一至周四1:30-3:30 pm

成人找工作  
儿童做游戏


让您的孩子，  
赢-在人生起跑线上








# 华夏中文学校 实Python操网络软件课程



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.



儿童课程偏重打好语言基础；成人课程则偏重建立网络编程理念，编写网络应用软件，解答面试问题。



## 华夏中文学校Java实操软件编程课程

Java Programming is a two-sessions computer programming course in English, designed to help students excel in AP Computer Science. No prereqs 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 requently used design pattern, such as observer, command, factory, sigleton...
4. Introduce ReactiveX, functional programing include map, filter, reduce, zip, soft, and more.