

Python Programming

Summer: 24 hours (8 weeks), Mon. & Thur. 1:30-3:00 PM

Who can join the classes:

Any grade 8,9 students interested in computational thinking and computer programming.



What you will learn:

◆ Computational Thinking

- Decomposition, Pattern Recognition, Algorithm, Abstraction

◆ Computer Science Concepts

- Number systems, Recursive function, **Program - Branching**, Prefix/infix/postfix notation, Bit-string, **Program - Looping**, Boolean algebra, Data structure, **Program - Array**, Graph theory, Digital electronics, **Program - String**

◆ Python Programming

- Data types, Basic operations, Control structure, Functions, Files, List, Tuple, Dictionary, Set, Object-oriented concepts, Classes design



What you can get and do?

- **Attend Bebras Computational Thinking Competition on Nov. 2020.**
- **Get two EDX online Python classes certificates.**
- **Attend 4 ACSL Junior Division Contests starting from Dec. 2020 and gain opportunity to attend ACSL All-star Contest on May 2021.**
- **Attend Microsoft Technology Associate Python Programming certification test.**
- **Ability to pass AP Computer Science Principle and AP Computer Science A**
- **Get ready to do personal application project on Game development, Data Science, Machine learning, Artificial Intelligence and more.**

30年教學經驗 · AP及SAT權威



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(Across street from Diamond Bar High school)

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Bebras Computing Challenge

- The Bebras® Computing Challenge introduces computational thinking to students.
- It is organized in over 30 countries and designed to get students all over the world excited about computing.
- Each participant gets 45 minutes to answer 15 multiple-choice questions that focus on computational and logical thinking.
- It is completed online in your own school and it shows to school and student how well their skills are developed.
- The Challenge is available for the following grade groups:
 - ♦ Kits grades 1 and 2
 - ♦ Benjamin grades 5 and 6
 - ♦ Junior grades 9 and 10
 - Castors grades 3 and 4
 - Cadet grades 7 and 8
 - Senior grades 11 and 12
- Anyone within these groups can participate; it does not matter if it is a language student or a born mathematician!
- The questions only require some basic reasoning ability.

American Computer Science League



American Computer Science League Contest

- American Computer Science League (ACSL) is an organization that arranges computer science contests for all grade-levels for more than 40 years.
- Every year over 300 teams in the United States, Canada, Europe, Africa and Asia are participating in various divisions.
- The season consists of 4 contests.
- Each contest is held at the participating school, and a school's score is the sum of the scores of its highest-scoring students.
- In each contest, students are given short theoretical and applied questions, and then a programming problem to solve.
- At the end of the year, an All-Star Contest on May is held at a common site.
- Invitations to the All-Star Contest are based on cumulative *individual scores* in the Junior, Intermediate, and Senior Divisions.

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ACSL Junior Division

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誰可以參加這門課程：

任何對電腦運算思維和電腦編程有興趣的 8、9 年級同學，都可以參加。



參加這門課程可以學到：

◆ 電腦運算思維

逻辑思维 抽象思维 算法设计 数据结构

◆ 電腦科學概念

- Number systems, Recursive function, **Program - Branching**, Prefix/infix/postfix notation, Bit-string, **Program - Looping**, Boolean algebra, Data structure, **Program - Array**, Graph theory, Digital electronics, **Program - String**

◆ Python 編程能力

- Data types, Basic operations, Control structure, Functions, Files, List, Tuple, Dictionary, Set, Object-oriented concepts. Classes design



參加這門課程對我有什麼好處？

- 參加 2020 年 11 月的全美 Bebras Computing Challenge 挑戰賽。
- 獲得兩門 EDX 線上 Python 課程的認證。
- 參加自 2020 年 12 月開始的 ACSL Intermediate Division Contests，成績優秀學生可參加 2021 年 5 月的 ACSL 全明星賽。
- 參加 Microsoft Technology Associate Python Programming 認證考試。
- 獲得 AP Computer Science Principle 和 AP Computer Science A 不錯的考試成績。
- 獲得技能進行個人在遊戲開發、大數據應用、網站應用程式開發、機器學習、人工智慧等不同領域應用項目的開發。

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Bebras Computing Challenge

- Bebras® Computing Challenge 目的在啟發學生的電腦運算思維能力。
- 全世界總共有超過 30 個以上的國家參與，並設計考題來挑戰學生的電腦運算思維能力。
- 每位參加挑戰賽的學生有 45 分鐘完成 15 題選擇題，這些都是與電腦運算和邏輯思維能力相關的題目。
- 電腦思維挑戰賽分為以下組別：

◆ Kits	grades 1 and 2	Castors	grades 3 and 4
◆ Benjamin	grades 5 and 6	Cadet	grades 7 and 8
◆ Junior	grades 9 and 10	Senior	grades 11 and 12

American Computer Science League



American Computer Science League Contest

- American Computer Science League (ACSL) 美國電腦科競賽已有 40 年以上的歷史，其競賽涵蓋小學組、初級組、中級組和高級組。
- 每年有將近 300 個隊伍來自美國、加拿大、歐洲、亞洲和非洲參加不同組別的比賽。
- 每年初賽包括 4 場比賽，**初賽成績優秀的個人**可獲邀參加每年五月的全美明星賽。

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