



Palm Springs Unified School District Secondary Course Description

Please read: Sections 1 and 2 must be completed and submitted to the Director of Secondary Curriculum and Instruction for all courses seeking PSUSD Cabinet and Board approval. Sections 3 and/or 5 must be completed if the course will be submitted to the University of California (UC) for placement on your school's a-g list and/or Career and technical educational (CTE).

***NOTE: If this is a COD "Dual Enrollment" course then the course cannot be changed.

District Office Use Only

Transcript Title(s)/Abbreviation: AP Computer Science Principles

Transcript Course Code(s)/Number(s): 4545 Cabinet/BOE Approval Date: 5/28/2019

Section 1: Course Content

1. Course Title: AP Computer Science Principles

Date this course was first submitted to the Curriculum Advisory: 5/7/19

2. Is this a re-write of an existing course? No If "Yes," what is the District Course Code: _____

3. CALPADS Code : 2458

4. PSUSD graduation requirement subject area: General Elective

5. Unit Value for complete course: 10 PSUSD credits (one year/two semesters) 6. Grade Level: 9 10 11 12

Course can be repeated for Credit?

Note: Grade level pertains to which grades the course has been designed.

7. PSUSD Department: Mathematics

8. PSUSD weighted GPA? Yes 9. Is this an "online" learning course? No

Dual Enrollment?

If "Yes," list the online provider: _____

Note: If "Yes," an additional course code will be created by ETIS with a virtual designation.

10. Will this course be offered only through the Alternative Education Program? No

11. Career Pathway Relationship

Note: Refer to the list of Industries and their associated Pathways in Section 5, Item #38

Is this course an Industry and Career Pathway-related Course? No

If "Yes," which Industry? --

Which Pathway? _____

What sequence level? --

12. Is this course an Academy-related Course? No If "Yes," which Academy? _____

13. Course Content:

For each unit of the course, provide:

1. A brief description (5-10 sentences) of topics to be addressed that demonstrates the critical thinking, depth and progression of content covered.
2. A brief summary (2-4 sentences) of at least one assignment that explains what a student produces, how the student completes the assignment and what the student learns.

Prerequisites:

It is recommended that a student in the AP Computer Science Principles course should have successfully completed a first year high school algebra course with a strong foundation on basic linear functions and composition of functions, and problem solving strategies that require multiple approaches and collaborative efforts. In addition, students should be able to use a Cartesian (x, y) coordinate system to represent points in a plane. It is important that students and their advisers understand that any significant computer science course builds upon a foundation of mathematical and computational reasoning that will be applied throughout the study of the course.

Computer Language

Unlike AP Computer Science A, which is taught in Java, the AP Computer Science Principles course does not have a designated programming language. Teachers select the programming language(s) that is most appropriate for their students.

AP Computer Science Principles Course Content

The following are the major areas of study, or big ideas, that are foundational to studying computer science:

1. Creativity: Computing is a creative activity. Creativity and computing are prominent forces in innovation; the innovations enabled by computing have had and will continue to have far-reaching impact.
2. Abstraction: Abstraction reduces information and detail to facilitate focus on relevant concepts. It is a process, a strategy, and the result of reducing detail to focus on concepts relevant to understanding and solving problems.
3. Data and Information: Data and information facilitate the creation of knowledge. Computing enables and empowers new methods of information processing, driving monumental change across many disciplines — from art to business to science.
4. Algorithms: Algorithms are used to develop and express solutions to computational problems. Algorithms realized in software have affected the world in profound and lasting ways.
5. Programming: Programming enables problem solving, human expression, and creation of knowledge. Programming and the creation of software has changed our lives. It results in the creation of software, and facilitates the creation of computational artifacts, such as music, images, and visualizations.
6. The Internet: The Internet pervades modern computing. The Internet and the systems built on it have had a profound impact on society. Computer networks support communication and collaboration.
7. Global Impact: Computing has global impact. Our methods for communicating, collaborating, problem solving, and doing business have changed and are changing due to innovations enabled by computing.

Computational Thinking Practices

The course also incorporates computational thinking practices that set clear expectations of what students will do in the course:

1. Connecting Computing – Students learn to draw connections between different computing concepts.
2. Creating computational artifacts – Students engage in the creative aspects of computing by designing and developing interesting computational artifacts as well as by applying computing techniques to creatively solve problems.
3. Abstracting – Students use abstraction to develop models and simulations of natural and artificial phenomena, use them to make predictions about the world, and analyze their efficacy and validity.

4. Analyzing problems and artifacts – Students design and produce solutions, models, and artifacts, and they evaluate and analyze their own computational work as well as the computational work others have produced.
5. Communicating – Students describe computation and the impact of technology and computation, explain and justify the design and appropriateness of their computational choices, and analyze and describe both computational artifacts and the results or behaviors of those artifacts.
6. Collaborating – Students collaborate on a number of activities, including investigation of questions using data sets and in the production of computational artifacts

AP COMPUTER SCIENCE PRINCIPLES EXAM: 2 HOURS

Assessment Overview

This assessment comprises two parts: performance tasks and the end-of-course AP Exam and the through-course AP assessment. The AP Computer Science Principles Exam will be a multiple-choice, paper and pencil exam.

The two performance tasks require students to explore the impacts of computing and create computational artifacts through programming.

Format of Assessment

AP COMPUTER SCIENCE PRINCIPLES EXAM: 2 HOURS (60% of AP Exam score)

- Multiple Choice (single- and multiple-select) | 74 Questions | 120 minutes | 60% of assessment score

AP COMPUTER SCIENCE PRINCIPLES THROUGH-COURSE PERFORMANCE TASKS (2) (Combined 40% of AP Exam Score):

- Explore – Impact of Computing Innovations | 8 hours (classroom time) | 16% of assessment score
- Create – Application to Ideas | 12 hours (classroom time) | 24% of assessment score

Sample Performance Tasks:

Performance Task: Create – Applications from Ideas

This performance task focuses on students developing computer programs and describing significant aspects of the program that allow it to run correctly.

- Students have the flexibility to write programs that reflects their interests (e.g., their desire to solve a problem; program a game; or produce digital art appealing to a specific audience, etc.) This allows students to engage in the study of computer science from a creative perspective. Students will provide evidence of their knowledge of important programming concepts such as developing algorithms and using abstractions. Students are required to submit an individual program but are able to collaborate on the development of their program.

Performance Task: Explore – Impacts of Computing Innovations

This performance task focuses on students using and applying computational analysis in the exploration of a significant computing innovation to determine and describe the impact of the innovation on people and society.

- Students select and explore an innovation of their choosing. Then, they create a computational artifact about the innovation and describe how it works and how it used, its purpose, how it consumes and/or produces data, and the harmful and beneficial effects of the innovation on people and society.

14. Course Overview [Provide a brief summary/snapshot (3-5 sentences) of the course's content]:

The AP Computer Science Principles course is designed to be equivalent to a first- semester introductory college computing course. In this course, students will develop computational thinking skills vital for success across all disciplines, such as using computational tools to analyze and study data and working with large data sets to analyze, visualize, and draw conclusions from trends. The course engages students in the creative aspects of the field by allowing them to develop computational artifacts based on their interests. Students will also develop effective communication and collaboration skills by working individually and collaboratively to solve problems, and will discuss and write about the impacts these solutions could have on their community, society, and the world.

There are two computer science offerings, and students can take either course in any order. The AP Computer Science A course and exam continues to focus on computing skills related to programming in Java. The new AP Computer Science Principles course complements AP Computer Science A as it aims to broaden participation in the study of computer science. The courses underscore the importance of communicating solutions appropriately and in ways that are relevant to current societal needs. AP Computer Science courses can help address traditional issues of equity, access, and broadening participation in computing while providing a strong and engaging introduction to fundamental areas of the discipline.

15. Texts and Supplemental Instructional Materials (*all non-core instructional materials are the responsibility of individual schools to purchase.*)

Texts: UTeach CS Principles; Abelson, H., Ledeen, K., and Lewis, H. R. Blown to Bits: your life, liberty, and happiness after the digital exp

Supplemental Materials: n/a (free online coding .org resources are available)

16. Will this course be submitted for approval by UC? Yes

Section 2: School and District Information

School Information

1. School Name: Rancho Mirage High School

School District: Palm Springs Unified School District

City and State: Palm Springs, California District Web Site: http://www.psusd.us

School Course List Contact Information (Name of AP of Curriculum or Principal)

2. Name: Kim Ballard

Position/Title: Asst. Principal / AP Coordinator Email: kballard1@psusd.us

Phone #: 760-202-6455 Ext: 1406

Teacher Contact Information (Name of teacher/administrator who authored this course)

3. Name: Bruce Rhodewalt

Position/Title: Mathematics Teacher Email: brhodewalt@psusd.us

Phone #: 760-202-6455 Ext. 2608

Section 3: Course Information

1. Was this course "Previously Approved" by UC? Yes

Note: if this course is to be submitted to UC and it was "Previously Approved," the exact same course title as the previously approved course must be used. Complete outlines are not needed for courses previously approved by UC. Courses that are defined as "previously approved" are courses from the following programs (Advanced Placement, International Baccalaureate, ROP courses, etc.), or courses from within the same district, or courses that have been removed within a three-year window are being reinstated, and/or courses from UC-approved online providers. Courses modeled after courses from outside the school district are also defined as "previously approved" but a complete course description will be required for submission to UC. Each section below represents an individual page on the UC electronic submission site.

If "No," proceed to the Course Description Section (Section 4).

If "Yes," indicate which category applies:

2. Is this course modeled after a UC-approved course from another high school outside of our district? No

Note: If "Yes," you will be required to submit a complete course description. UC will review the previous submission, if it is available, to assist them in their review process.

If "Yes," list which school: _____

Exact Course Title: _____

3. Is this course modeled after an identical course approved by UC for the current year at another high school in PSUSD: No

If "Yes," what school? _____

Exact Course Title: _____

4. Is this course being reinstated after removal within 3 years: No

If "Yes," what year was the course removed from the list? _____

Exact Course Title: _____

5. Has this course been provided program status, is not an online course, and is it listed below? Yes

If "Yes," select an option from the Program

Status list: Advanced Placement (AP)

6. If "Advanced Placement," has it been authorized by the College Board through the AP audit process? Yes

Note: UC will only allow Advanced Placement courses that have passed or are in the AP audit process. UC requires all AP courses on your list, including those approved in prior years, to be verified via the College Board AP audit process. UC will run quarterly reports based on AP Audit data. AP courses not listed on the AP audit list will be removed.

If "In Progress," date submitted to AP: _____
MM/DD/YYYY

Exact Program Course Title: Advanced Placement (AP)

7(a). Is this course provided by one of the UC-approved online curriculum providers listed in #8? No

7(b). Have you signed the appropriate partnership agreement with the provider regarding methods of delivery and instruction? No

Note: You must have signed an agreement with the appropriate provider and filed with UC in order to use their courses.

8. If the answer to either 7(a) or (b) is “No,” UC will not approve this course. If “Yes” to both 7(a) and (b)., then select the appropriate option from the Online Provider List below:

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9. Seeking “Honors” Distinction

Note: To receive “Honors” distinction for both UC and PSUSD, the course content must satisfy certain requirements. For information about these requirements, refer to the a-g Guide: <http://www.ucop.edu/a-gGuide/ag/a-g/honors.html>. For “Previously Approved” courses (including AP and IB), the honors information will be pre-populated as applicable on your UC submission template.

Yes, AP

Note: “Other Honors” is defined by UC as a course specifically designed with distinctive features which set it apart from regular high school courses in the same discipline areas. The course should be seen as comparable in terms of workload and emphasis to AP, IB or introductory college courses in the subject. Honors courses must be designed for the 11th and 12th grade level to be UC approved and require a comprehensive, year-long written final exam. In addition to AP and IB higher level courses, **high schools may certify not more than one honors level course per grade level in each of the following subject areas only: history, English, advanced mathematics, each laboratory science course, each language other than English, and each of the four VPA disciplines.** If there are no AP or IB or higher level courses in a given subject area, the high school may certify up to, but not more than two honors level courses in that area.

10. Subject Area and Category

“a” - History/Social Science

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“b” - English

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“c” - Mathematics

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“d” - Laboratory Science

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Note: Students electing to enroll in an integrated-science program (ISP) are strongly advised by UC to complete the entire three-year sequence. In most cases, the first year of an integrated science sequence fulfills only the “g” elective requirement: the second and third years of the sequence then fulfill the two-year “d” laboratory science requirement. Accordingly, if only ISP 1 and only one of ISP 2 or ISP 3 are completed, then one additional course from the categories of Biology, Chemistry, or Physics from the “d” subject area must be taken to fulfill the “d” requirement.

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Note: This category demonstrates that the course is cross-disciplinary and is often used for advanced science courses such as AP Environmental Science or Biochemistry

“e” - Language Other than English

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Language --

“f” - Visual and Performing Arts

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“g” - Elective

Other

Section 4: Course Attributes

1. Is this course classified as a Career Technical Education Course?

No

If no, skip item #2

2. If "Yes," select the name of the industry **and** Career Pathway:

- | | |
|---|----|
| <input type="checkbox"/> Agriculture and Natural Resources | -- |
| <input type="checkbox"/> Arts, Media, and Entertainment | -- |
| <input type="checkbox"/> Building and Construction Trades | -- |
| <input type="checkbox"/> Business and Finance | -- |
| <input type="checkbox"/> Education, Child Development and Family Services | -- |
| <input type="checkbox"/> Energy, Environment, and Utilities | -- |
| <input type="checkbox"/> Engineering and Architecture | -- |
| <input type="checkbox"/> Fashion and Interior Design | -- |
| <input type="checkbox"/> Finance and Business | -- |
| <input type="checkbox"/> Health Science and Medical Technology | -- |
| <input type="checkbox"/> Hospitality, Tourism, and Recreation | -- |
| <input type="checkbox"/> Information and Communication Technologies | -- |
| <input type="checkbox"/> Manufacturing and Product Development | -- |
| <input type="checkbox"/> Marketing, Sales, and Service | -- |
| <input type="checkbox"/> Public Services | -- |
| <input type="checkbox"/> Transportation | -- |