

## COURSE OVERVIEW

**Course Title:** LEVEL 5: AP COMPUTER SCIENCE

**Course Number:**

**Number of Units:** 1.0 units

**Total Hours of Instruction:** 15

### Course Description

During this course, students prepare to take the College Board Advanced Placement (AP) Computer Science exam. Up to this point, League students have been learning by programming using professional tools, but this exam requires the new skill of being able to write code on paper. We also cover the theoretical Computer Science concepts that did not fall under any of the previous skill-based topics. League levels 0-4 are a prerequisite for this course.

### Content and Evaluation

Before entering level 5, students already know how to practically apply most of the concepts on the AP Computer Science Exam. In Level 5, students learn how to write code on paper and learn theoretical Computer Science topics. Given the amount of code our students have already written by this point, we are mostly studying exam-taking in this level, and passing the AP test is a breeze.

To complete this level, students must achieve a score of 3 or higher on the AP Computer Science exam.

### Extra Credit

n/a

### Methods of Instruction

- |                                     |                                    |                                     |                                |
|-------------------------------------|------------------------------------|-------------------------------------|--------------------------------|
| <input checked="" type="checkbox"/> | CLASS DISCUSSION/DISCUSSION BOARDS | <input checked="" type="checkbox"/> | LECTURES                       |
| <input type="checkbox"/>            | FIELD TRIPS                        | <input type="checkbox"/>            | CASE STUDIES                   |
| <input type="checkbox"/>            | GROUP WORK                         | <input checked="" type="checkbox"/> | OTHER: PROGRAMMING ASSIGNMENTS |

### Out of Class Assignments

Total hours expected to complete assignments: n/a

- |                          |                    |                                     |   |
|--------------------------|--------------------|-------------------------------------|---|
| <input type="checkbox"/> | TEXTBOOK EXERCISES | <input type="checkbox"/>            | READINGS  |
| <input type="checkbox"/> | GROUP WORK         | <input type="checkbox"/>            | WRITTEN ASSIGNMENT/ESSAY(S)                           |
| <input type="checkbox"/> | STUDENT PROJECT    | <input checked="" type="checkbox"/> | OTHER: EXPLORATION OF CONCEPTS BY PROGRAMMING AT HOME |

### Evaluation/Grading

- |                                     |         |                          |                                       |
|-------------------------------------|---------|--------------------------|---------------------------------------|
| <input checked="" type="checkbox"/> | EXAM(S) | <input type="checkbox"/> | CLASS PARTICIPATION/DISCUSSION BOARDS |
|-------------------------------------|---------|--------------------------|---------------------------------------|

- WRITTEN ASSIGNMENT/ESSAY(s)
- OTHER:

- CLASS PROJECT(s)

## Topical Outline

### 1. Object Oriented Programming

- Recap of getters, setters and constructors
- Recap of objects & methods
- AP Elevens Lab
- AP Magpie Lab
- Past free response questions

### 2. 2D Arrays

- AP Picture Lab
- Past free response questions

### 3. ArrayLists

- Past free response questions

### 4. Algorithms

- Recap of String and array manipulation
- Recursion
- Past free response questions

### 5. Multiple Choice Questions

- Recap of Inheritance
- De Morgan's laws
- Past multiple choice questions