APSI Course Syllabus
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Summer Institute – Computer Science

Course Description

This workshop is designed to help prepare computer science teachers on the content and ideas in the AP Computer Science A exam. We will focus on the content of the AP curriculum, including object-oriented programming, Java, sorting, searching, recursion, and more. The goal is to bring teachers together so that they can come up to speed, expand their knowledge, and/or trade teaching techniques.

Prerequisites

Participants must have previous experience programming in a fully-featured programming language (examples include C, C++, Visual Basic, Python, Racket/Scheme, Java, etc.) but no knowledge of the AP* curriculum or Java in particular is assumed or expected.

Course Goals

- To familiarize participants with the subject and content areas covered on the AP Computer Science exam.
- To bring teachers together so they can come up to speed, expand their knowledge, and/or trade teaching experiences
- To share the necessary and varied instructional strategies which will assist both the teacher and his/her students manage the scope, depth, and complexities of AP Computer Science.
- To explore the range of software tools available to help support the course.
- To examine the three AP Computer Science A labs

Accommodations & Accessibility
- If you need accommodations because of a disability, please contact the CLASS Office 612-330-1053or stop by the Gage Center welcome desk on the link level of the Lindell Library.

Course Outline

Day 1
- Introductions
- What is CS?
- Object orientation
- Java introduction
- Objects vs. primitives

Day 2
- Objects and methods
- Developing own classes in Java
- Magpie Lab
- Loops and arrays

Day 3
- Pictures Lab
- Inheritance including interfaces
- Elevens Lab

Day 4
- Sorting and searching
- Complexity of algorithms
- Gender issues in computing
- Recursion
- Wrapup