** Brookwood High School**

High School Course Syllabus

**Course Title** **AP Computer Science A** **Term** Fall, 2011  
Teacher Crystal L. Furman room # B8

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| Email Address **Teacher Web Page** | Crystal\_Furman@gwinnett.k12.ga.us |
| Teacher Support (Help sessions etc.) | Help sessions are available Tues – Thurs after school until 2:55PM in B8. |

### Course Description

This course provides students an opportunity to further develop and refine their programming skills. We begin our study of programming and further explore the lab’s hardware, software and network components. Students will have the benefit of keeping current with social changes and ethical practices that impact the field of computer science through **current event articles and discussions**. In particular, the emphasis of this course is on the organization of information; the implementation of common data structures such as lists, and techniques of data abstraction, including encapsulation and inheritance. Students also explore recursion and the close relationship between data structures and algorithms. Hands-on programming is a central component of this course. Programming assignments will require time spent in class as well as preparation time outside of class. At the conclusion of this course, students will understand common data structures and algorithms and be able to apply that understanding to implementing new data abstractions and using existing library components. Students will be stronger programmers and feel comfortable programming in Java.

### Course Curriculum Content

This course will follow the approved **American College Board** curriculum for the Advanced Placement Computer Science curriculum which can be accessed through the web address at <http://www.collegeboard.com/student/testing/ap/sub_compscia.html?compscia>

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| **AP Curriculum Requirements** | **Units/Topics** |
| CR 1: The course includes all of the topics listed in the "Computer Science A" column of the Topic Outline in the AP Computer Science Course Description.  CR 2: The course teaches students to design and implement computer-based solutions to problems in a variety of application areas  CR 3: The course teaches students to use and implement commonly used algorithms and data structures.  CR 4: The course teaches students to develop and select appropriate algorithms and data structures to solve problems.  CR 5: The course teaches students to code fluently in an object-oriented paradigm using the programming language Java.  CR 6: The course teaches students to use standard Java library classes from the AP Java subset delineated in Appendixes A and B of the AP Computer Science Course Description.  CR 7: The course teaches students to read and understand a large program consisting of several classes and interacting objects, and enables students to read and understand the current AP Computer Science Case Study posted on AP Central.  CR 8: The course teaches students to recognize the ethical and social implications of computer use. | 1. Java Basics 2. Object Oriented Programming 3. Flow of Control 4. Iterations 5. Collections 6. Searching, Sorting, and Recursion 7. Inheritance 8. Abstract and Interface 9. Review 10. Post AP Exam |

### Instructional Materials and Supplies

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| **Published Materials** | **Instructional Supplies** |
| Horstman, Cay, *AP Edition Java Concepts*, Wiley, 2005  The AP® Computer Science GridWorld Case Study  AP® Computer Science Quick Reference Guide | OneNote notebook  AP CS Pacing Guide |

**Evaluation and Grading**

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| **Assignments** | **Grade Weights** | **Grading Scale** |
| Classwork & Homework  Special Projects / Research Paper  Unit Tests  Weekly Quizzes  Final Exam | Classroom Assignment 35%  Classwork 10%  Labs / Quizzes 25%  Summative Assessment 45%  Unit Tests  Research Project  Final Exam 20%  Objective 10%  Performance 10% | A: 90 and above  B: 80 – 89  C: 74 – 79  D: 70 – 73 F: 69 or below |

**Other Information**

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| **Expectations for Academic Success** | **Additional Requirements/Resources** |
| 1. Read daily 2. Ask questions 3. Participate constructively as a team member 4. Proof read written assignments and edit meaningfully 5. Review multiple sources of information 6. Challenge yourself to continuously improve | * Tutoring Available * Helpful Resources * Community Support Services * Lab Safety Procedures |

*The syllabus may be updated as needed throughout the semester.*