



### Course Information Sheet

**Course Name:** Computer Science III

**Instructional Material:** A+ Computer Science and CompuScholar

**Software (if required):**

**Semester One:**

Week	Topic
1	Review and Advanced Abstraction
2	Algorithm Design and Analysis
3	Dynamic Programming
4	Advanced Data Structures: Heaps and Priority Queues
5	Advanced Data Structures: Graphs and Graph Traversal
6	Graph Algorithms (Dijkstra's, A*)
7	Hashing and Hash Tables
8	Memory Management and Pointers
9	Concurrency and Parallelism
10	Introduction to Operating Systems
11	Operating System Concepts (Processes, Threads, etc.)
12	Computer Architecture Fundamentals
13	Machine Learning and AI Basics
14	Data Science and Data Manipulation
15	Introduction to Cloud Computing
16	DevOps and Agile Methodologies
17	Capstone Project Planning
18	Mid-Term Review and Examination



Semester Two:

Week	Topic
19	Advanced Cybersecurity: Cryptography and Network Security
20	Web Development: Full-Stack Frameworks
21	Database Management Systems
22	NoSQL Databases
23	Big Data and Data Warehousing
24	Mobile App Development
25	Software Testing and Quality Assurance
26	The Software Development Life Cycle (SDLC) in Depth
27	Ethical Hacking and Penetration Testing
28	Collaborative Capstone Project: Implementation
29	Collaborative Capstone Project: Advanced Development
30	Collaborative Capstone Project: Integration and Finalization
31	Project Presentations and Portfolio Defense
32	The Future of Computing and Emerging Trends
33	Entrepreneurship in Computer Science
34	Professional Development and Job Market Preparation
35	Final Review
36	Final Examination