

GEORGIA PERIMETER COLLEGE
INTRODUCTION TO COMPUTER SCIENCE
TEACHING GUIDE - CSCI 1300

I. Introduction to Computer Science

II. Prerequisite: Exit Learning Support and ESL.

III. Text: '*Computer science illuminated*', third edition by Nell Dale and John Lewis (bundled with Lab Manual and CD). Jones and Bartlett Publishers, 2007, ISBN # 07637-5130-8

IV. Catalog Description:

This course provides an overview of selected major areas of current computing technology, organization and use. Topics surveyed include the history of computing, data representation and storage, hardware and software organization, communications technologies, ethical and social issues, and fundamental problem-solving and programming skills. Hands-on projects enhance and reinforce the ideas presented in class.

V. Course Objective

The course provides students with knowledge of computer science concepts and computing skills through extensive problem-solving and project opportunities.

VI. General Notes:

Instructors will cover appropriate sections in text to comply with the Common Course Outline.

VII. Course Outline:

<u>Week</u>	<u>Text Chapter</u>	<u>Homework</u>	<u>Labs</u>
1	Read Chapter 1 Read Chapter 12	Lab Manual: Lab 1 Chapter 1 #1 - 55	

2	Read Chapter 11	Chapter 12: #1 - 54, and #61 - 72	Lab Manual: Lab12A and 12B
	Read Chapter 16	Chapter 11: #1 – 56	
		Chapter 16: #1 – 60	Lab Manual: Lab16A and Lab16B
3	Read Chapter 2 Read notes on Chapter 2 – Number System	Chapter 2: #1 - 34, and #37 – 44	Lab Manual: Lab 2,
	Read Chapter 3	Chapter 3: #1 – 38, 40-41, 47-74	Lab 3A and Lab 3B or 3C
4	Read Chapter 4	Chapter 4: #1 – 72	
	Read Chapter 6 Read Notes – Ethics	Chapter 6: #11 – 35, and #17- 51	Lab Manual: Lab 6 (or your own lab)
5	Read Chapter 5	Chapter 5: #1 - 64	Lab Manual: Lab5
6	Read Chapter 10	Chapter 10: #1 - 35, 37 - 63, 67 - 742	Lab Manual: Lab10
7	Read Chapter 15	Chapter 15: #1 – 63	Lab Manual: Lab 14 or Lab 15
8	Read chapter 6 Read Notes on Chapter 6 – Discuss examples of algorithms	Chapter 6: Review #11 –35, and #17 - 51	Algorithm Lab #1 (Developed by the Instructor)
9	Read Chapter 17	Chapter 17: #1 – 33, 44 – 55	Lab Manual: Lab17
10	Read Chapter 7	Chapter 7: #1 – 24, 44 - 46	
11	Read Chapter 8		Lab Manual

		Chapter 8: #1 – 63, 66 – 70	Lab8
12	Read Chapter 9 (only 9.1, 9.4, 9.5, and 9.7)	Chapter 9: #1 - 39, 44 - 48,	Lab Manual Lab9B
13	Give Notes on C++ or Java: • C++ Overview • C++ Operators • Programming Errors	* Practice with C++ or Java: Compile and Run more C++ demo examples	Give examples of algorithms Algorithm Lab #2 (Developed by the Instructor)
14	• If and Switch statements • The Switch Statement	* Continue to learn more by making intentional mistakes in C++ demo examples	C++ or Java Project (Developed by the Instructor)
14-15	Review for Final		

Note:

1. The sequence of text chapters, homework assignments, and labs will be at the discretion of the instructor.
2. The syllabus and course calendar are subject to change at the discretion of the instructor.

**TOPICS TO BE COVERED
SUGGESTED CHAPTER(S)**

History and Vocabulary of Computers (5%)	1, 5.3
1. What is a Computer?	
2. Types of Computers	
3. Common terms	
4. Historical issues	
Data Representation and Storage (5%)	4.1- 4.2 + notes
1. Number systems	
2. Binary	
3. Octal	
4. Hexadecimal	
5. Text	
6. ASCII/ANSI	
7. Unicode	
8. Graphics	
9. Bitmap	
10. Vector	

Computer Hardware Concepts (10%)	4.3, 5.1 - 5.2 (4.4 - 4.5 optional)
1. Central Processing Unit	
2. Arithmetic-Logic Unit	
3. Control Unit	
4. Registers	
5. Memory	
6. ROM	
7. BIOS	
8. RAM	
9. Cache	
10. Secondary Storage	
11. Disk technologies	
12. Tape technologies	
13. CD-ROM and other optical technologies	
14. Hybrid technologies	
15. Peripheral Devices	
16. Input devices	
17. Output devices	
18. Communications Devices	
19. Modems	
20. Network equipment	
Computer Software Overview (20%)	6.4, 11.1 - 11.3
1. Operating Systems	
2. Word processing	
3. Presentation/multimedia software	
4. Spreadsheets	
5. Databases	
6. Graphics	
Communications Technologies (20%)	12.1 - 12.2
1. Computer network types	
2. Network topologies and message passing	
3. Client-Server relationships	
4. Electronic mail and newsgroups	
5. The Internet	
6. The World Wide Web	
Social and Ethical Issues (10%)	14 (13 optional)
1. Privacy and information access	
2. Censorship	

3. Intellectual property rights
 4. Computer crime
 5. Professional responsibilities
 6. On-line communities
 7. Technology in everyday life
 8. Artificial intelligence (optional)
- Fundamental Problem-solving and Programming Concepts (30%) 2, 3, 7.1 - 7.6, 8.1 - 8.4
1. Problem analysis (7.7-7.8 optional)
 2. Algorithm development
 3. Program Structure
 4. Input and output
 5. Computations
 6. Decisions and repetitions
 7. Modular programming (optional)
 8. Large-scale data storage (optional)

VIII. Evaluation Methods

Details of grade determination are left to the instructor with the approval of the Department Head. Exams, assignments, and a final exam prepared by individual instructors will be used to determine the course grade. The course grade must weigh examinations for at least 50% of the grade and programming assignments for not more than 50% of the grade. Eight to ten project-oriented assignments must be assigned. Testing must consist of at least two one-hour examinations and a comprehensive final examination. The final examination must be weighted at not less than 25% nor more than 35%.

IX. Effective Date: August, 2007 **Approved Date:** May, 2007