



**CLARK ATLANTA UNIVERSITY**  
**CIS 200 – Advanced Programming**  
**Course Syllabus**

Instructor \_\_\_\_\_ Janth B. English \_\_\_\_\_

<b>Office Hours</b>	Mon., Wed. 11:00 - 1:00 Tue., Thu. 11:00 – 12:00 Tue., Wed., Thu. 8:00 – 9:00 p.m. <b>(Online)</b>
<b>Office Location</b>	SRC 1024
<b>Office Telephone</b>	(404) 880-6958
<b>Email</b>	<a href="mailto:janthenglish@yahoo.com">janthenglish@yahoo.com</a> , <a href="mailto:jenglish@cau.edu">jenglish@cau.edu</a>

<b>Course Number/Sect</b>	<b>Course Title</b>	<b>Credit Hours</b>	<b>Semester</b>	<b>Time</b>	<b>Level (U/G)</b>
CIS 200 01	Structured Programming with C	3	Spring, 2009	3:05 TTH	U
<b>Brief Description</b>	Detailed presentation of the concepts of structured programming design and implementation using the C programming language.				
<b>Prerequisites</b>	Grade of C or better in CIS 106.				

**Course Description:**

This course features problem solving using the structured programming paradigm. C will be the programming implementation language. Real world problems are presented for which the student will analyze and design solutions. Standard ANSI C will be taught within the Unix environment. Students will acquire proficiency through labs, homework and project assignments.

## Course Objectives:

- To state and explain the steps involved in problem solving.
- To analyze a problem using top-down, functional decomposition within the structured analysis and design methodology.
- To understand the functions of the operating system.
- To understand the role of the C preprocessor and basic preprocessor statements.
- To state the C data types and know the range of values they can represent.
- To understand the C arithmetic operators and their order of precedence.
- To write C arithmetic expressions to solve problems.
- To understand and write C statements to create simple output.
- To understand and write C statements to get input from the keyboard.
- To understand the concept of iteration and when to apply it in problem solving.
- To understand the construction of the "for", "while", and "do while" statements and the appropriate use of each in problem solving.
- To understand the break and continue statements and their use.
- To understand the concept of selection and when to apply it in problem solving.
- To understand and implement the "if", "if else", and "switch" statements.
- To understand the C relational operators and how they are evaluated in expressions.
- To understand and implement the conditional operator.
- To define and declare arrays.
- To solve problems using arrays.
- To define and declare functions.
- To understand the role of functions in problem solving.
- To understand arguments, formal arguments, local variables, and return values in relationship to functions.
- To utilize functions in problem solving.
- To understand and utilize multi-dimensional arrays.
- To define and declare structures.
- To utilize structures in problem solving.
- To define, declare, and utilize character strings including standard string functions.
- To understand and implement the typedef statement in creating user defined data types.
- To define and declare pointers.
- To understand the relationship between pointers and memory addresses.
- To understand pointer operations.
- To utilize pointers in problem solving.
- To understand the relationship between pointers and arrays.
- To utilize arrays of pointers in problem solving.
- To manipulate files using C including reading from and writing to files.
- To understand the importance of dynamic memory allocation in efficient memory management.
- To utilize dynamic memory allocation to implement link lists.
- To utilize link lists in problem solving.
- To demonstrate competency in utilizing the C language to solve problems of moderate complexity.

### Learning Outcomes:

The student should be able to:

- Design a solution to a problem using the structured analysis and design methodology given a problem statement.
- Understand the C data types and utilize them appropriately in problem solving.
- Define arithmetic and relational expressions and utilize them appropriately in problem solving.
- Define selection and iteration statements and utilize them appropriately in problem solving.
- Define arrays and utilize them appropriately in problem solving.
- Define functions and utilize them appropriately in problem solving.
- Define structures and utilize them appropriately in problem solving.
- Define pointers and utilize them appropriately in problem solving.
- Write C code to implement and utilize link lists.
- Implement a solution to a problem of moderate complexity using the C programming language.

### Major Topics:

- Unix operating system and shell commands
- Variable declarations
- Expression evaluation
- Iteration
- Selection
- Arrays
- Functions
- “struct” Statement
- “typedef” Statement
- Strings and String Functions
- Pointers
- File I/O
- Link Lists
- Hash Tables

### Teaching/Learning Methods:

The teaching methods will include lectures, programming assignments, hands-on laboratory assignments, and written assessments. Lecture notes will be posted to the class web-site soon after class. This methodology addresses all of the learning styles and encourages learning by reinforcing lecture with hands-on individual and group activities. **Students are expected to read the course material prior to the lecture; this will ensure maximum benefit to the student.**

### Required Readings:

**Programming in C by Stephen G. Kochan**

**Sam's Publishing**

**ISBN: 0-672-32666-3**

### Supplemental Reading Requirements:

**A C reference manual is recommended such as “C Quick Reference” by Alan C. Plantz.**

## Grading and other policies and expectations:

1. **Attendance:** Each student is responsible for all announcements, notes and homework assigned whether present in class or not.
2. **Grading Policies:** The grade will be computed as follows:

Category	Points	% of Grade
Homework Assignments	300	30%
Mini-Tests (4 at 50 points each)	200	20%
Labs (10 at 20 points each)	200	20%
Class Participation	100	10%
Midterm	100	10%
Final	100	10%

### Grading Scale:

900-1000 Points	A
800-899 Points	B
700-799 Points	C
600-699 Points	D
Below 600 Points	F

### Incomplete Policy:

- Grade "I" may be assigned only when a portion of work remains incomplete at the final stages of the semester due to an emergency. For such an exceptional situation, documentary evidence (e.g., medical certificate, etc.) is necessary.
- Grade "I" will not be assigned for the purposes of improving the grade later or accommodating unsatisfactory performance.
- An "I" will automatically turn into an "F" if it is not removed during the next semester.
- The new grade will not be higher than the average daily grade earned by the student.

3. **Late assignments/ makeup assignments:** There will be **no makeup assignments** except as defined by the university.

4. **Academic honesty:** Academic honesty is based on the principle that one's work is one's own. Clark Atlanta University encourages all members of the University to accept responsibility for taking academic honesty seriously by being well informed, by contributing to a climate in which honesty is valued, and by considering responsible ways to discourage dishonesty in the work of others. Students, faculty, administrators and staff should not condone or tolerate cheating, plagiarism, or falsification, since such activity negatively affects members of the academic community. Plagiarism is the presentation of all or a portion of someone else's work, as one's own, without properly citing/documenting the work. This definition includes copying another student's work with or without their consent. **Plagiarism is unacceptable and will result in a failing grade in the course.**

5. This class will be governed by the **Clark Atlanta University Campus Cultural Creed:**

Clark Atlanta University is committed to academic excellence, building character, and service to others. The University will achieve its mission by cultivating an environment of honesty, kindness, mutual respect, self-discipline, school loyalty, trust, academic integrity and communal pride. As a member of this scholarly community, I make the following pledge:

- I will work to promote academic honesty and integrity;
- I will work to cultivate a learning environment which opposes violence, vulgarity, lewdness and selfishness;
- I will embrace the concept of mutual respect by treating others the way I want them to treat me;
- I will support a campus culture of diversity by respecting the rights of those whose views and experiences differ from my own;
- I will honor and care for the sanctity of my body as the temple of God;
- I will commit myself to service so that I can make a difference in the world and a difference for more than just myself;
- I will celebrate and contribute to the "spirit of greatness" left by those who preceded me, and I will work to leave this a better place for those who follow me. As a member of this community, I am committed to conducting myself in ways that contribute to a civil campus environment which encourages positive behavior in others. I accept the responsibility to uphold these noble ideals as a proud member of the Clark Atlanta University Family.

<b>Course Outline and Schedule:</b>		
<b>Week#</b>	<b>Topic and Assignments</b>	<b>Required Reading</b>
1 (01/15/09)	Syllabus Review	Syllabus
2 (01/20/09)	Structured Programming	Handout
3 (01/27/09)	C Data Types, Variables, Iteration	Chapters 4 & 5
4 (02/03/09)	<b>Mini-Test #1</b> , Selection	Chapter 5 & 6
5 (02/10/09)	Arrays	Chapter 7 <b>Homework #1 Due 02/09/09</b>
6 (02/17/09)	<b>Mini-Test #2</b> , Functions, Structures	Chapter 8, 9
7 (02/24/09)	Strings and String Functions	Chapter 14, Chapter 10 <b>Homework #2 Due 02/23/09</b>
8 (03/03/09)	<b>Review, Midterm</b>	
	<b>SPRING BREAK</b>	
9 (03/17/09)	Pointers	Chapter 11
10 (03/24/09)	Pointers <b>Mini-Test #3 (Test on Thu.)</b>	Chapter 11 <b>Homework #3 Due 3/23/09</b>
11 (03/31/09)	File I/O	Chapter 16
12 (04/07/09)	Link Lists	Chapter 17
13 (04/14/09)	Link Lists Hash Tables	Chapter 17 Online Notes
14 (04/21/09)	<b>Mini-Test #4</b> , Hash Tables	Online Notes
15 (04/28/09)	Review Reading Period	<b>Homework #4 Due 04/27/09</b>
Exam Schedule	<b>Final Exams</b>	

**Note: Homework assignments are checked during lab on Mondays.**