CSCE 2010-1 DATA STRUCTURES
NORTH CENTRAL COLLEGE

DR. GODFREY MUGANDA

1. Course Description

Elementary data structures and algorithms. Topics include the design, implementation, application, and variations of the following: linked lists, stacks and queues; different types of trees; searching and sorting algorithms; graphs; and introduction to analysis of algorithms. Extensive programming required. Integrated laboratory.

2. Instructor Accessibility

You can email me at gcmuganda@noctrl.edu. Office hours are Mondays, Wednesdays, Friday 4:00 - 5:00 pm in the part-timers office, by appointment. If these hours do not suit for you, you can make an appointment for some other, mutually agreeable, time.

3. Course Textbook

The following text book is required.

Pat Morin, Open Data Structures (in Java)

You can grab the book by clicking on the link above, or by getting it from the source at http://opendatastructures.org/ods-java.pdf

4. Course Concepts and Topics

Programming language used in the course is Java. Topics to be covered are as follows:

Programming Concepts: abstract data types and their implementation, generics, deeper study of recursion, efficient memory representations of sparse matrices and graphs.

The study of recursion will involve looking at binary search, Quicksort, Mergesort, and Towers of Hanoi. Other topics to be covered include:

- stacks, priority queues, doubly-linked list, list of lists
- binary search trees, B-trees, 2-4 trees, red-black trees, AVL trees, tree representation of arithmetic expressions.
- graph representation and simple graph algorithms such as shortest paths, depth and breadth first traversal of graphs.
- Bubblesort, selection sort, heapsort.
- hashing and searching algorithms
- Introduction to complexity of algorithms and the Big O notation.

5. Course Requirements

There will be

- 4 quizzes, at 5% each, for a totals of 20%
- 2 tests, at 10% each, for a totals of 20%
- numerous homework and lab assignments, for a total of 40%
- 1 final examination, at 20%

A tentative schedule of all tests and quizzes will be published by the end of the first week.

Missed tests and quizzes cannot be made up.

All homework and lab assignments must be uploaded onto your K-drive space by the midnight on the day due. Late assignments will be penalized at 10%. However, late assignments will *not* be accepted after the due date of the following assignment. For example, assignment 3 will not be graded unless it is turned in by the due date of assignment 4.

6. Schedule of Quizzes and Tests

The schedule of testing events is tentative and is subject to change.

Date	Event
August 30	Quiz 1
September 13	Quiz 2
September 27	Test 1
October 16	Quiz 3
October 30	Quiz 4
November 15	Test 2
December 6	Final Exam

7. Ethics Policy / Academic Dishonesty

No student should turn in for grading work that has been done by someone else, or work on which they have received help but which they do not understand. Any work turned in by a student will be considered to have been plagiarized if the student can not explain it when requested to do so by the instructor. It will also be considered to have been plagiarized if there is clear evidence that the work has been copied from another source, even if the student can explain it.