Algorithms And Complexity

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| ***Syllabus Information*** |
| **CS 2860 - Algorithms and Complexity** |
| **Associated Term:**2022/23 Academic Session **Learning Outcomes**  By the end of the course students should be able to:  1. understand and reason about alternative data structure representations, and their use in algorithms;  2. implement and reason about alternative implementations for basic algorithms;  3. calculate the complexity of basic algorithms  **Course Summary:**  Complexity: counting, big-O notation, best-case, worst-case and average-case analysis.  Basic algorithms: implementation and analysis of linear search, binary search, and basic sorting algorithms, especially insertion sort, selection sort, merge sort, quick sort, heap sort.  Data structures: binary search trees, balanced binary search trees, hash tables, (binary) heaps.  Abstract datatypes: Sets, maps, priority queues.  Basics of graph algorithms: adjacency matrix and adjacency list representations; algorithms for connectivity, shortest paths, and spanning trees.  **Required Materials:**  [Click here for the reading list system](https://rhul.rl.talis.com/modules/cs2860.html)  **Technical Requirements:**  The total number of notional learning hours associated with the course are 150.  **These will normally be broken down as follows:**  Teaching & Learning Methods:  Lectures - 1 hour three times per week - 11 weeks - 33 hours  **Formative Assessment:**  In-lecture verbal feedback  **Summative Assessment:**  Quizzes (150 Minutes) - 10%  Written Assignment (5 Hours) - 10%  Written Assignment (5 Hours) - 10%  Written exam (2 Hours) - 70% |