



**Course Name:** Data Structures

**Course Number:** CS 261 (Online)

**Credits:** 4

**Instructor names:** Tim Alcon & Samina Ehsan

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**Course Schedule:**

Week	Course Activities
1	<ul style="list-style-type: none"><li>Module 1 - Overview</li><li>Exploration: Intro to Data Structures</li><li>Exploration: Some Opening Thoughts</li><li>Syllabus Quiz (<b>Due: April 07, 2021</b>)</li><li>Assignment 0: Introduction Environment Setup (<b>Due: April 07, 2021</b>)</li><li>Review - Module 1</li></ul>
2	<ul style="list-style-type: none"><li>Module 2 - Overview</li><li>Exploration: Big O Introduction</li><li>Exploration: Big O Examples</li><li>Assignment 1: Python Programming Practice (<b>Due: April 21, 2021</b>)</li><li>Review - Module 2</li></ul>
3	<ul style="list-style-type: none"><li>Module 3 - Overview</li><li>Exploration: An Overview of ADTs</li><li>Exploration: Python's List</li><li>Assignment 2: Implementation of Dynamic Array and ADTs using Dynamic Array and Amortized Analysis (<b>Due: April 28, 2021</b>)</li><li>Review - Module 3</li></ul>
4	<ul style="list-style-type: none"><li>Module 4 - Overview</li><li>Exploration: Introduction to Linked Lists</li><li>Exploration: Stacks, Queues and Deques</li><li>Assignment 3: Implementation of Linked Lists and Various ADTs Using Linked Lists (<b>Due: May 12, 2021</b>)</li><li>Review - Module 4</li></ul>
5	<ul style="list-style-type: none"><li>Module 5 - Overview</li><li>Exploration: Encapsulation and Iterators</li><li>Exploration: Iterator Example</li><li>Exploration: Binary Search</li><li>Review - Module 5</li></ul>
6	<ul style="list-style-type: none"><li>Module 6 - Overview</li><li>Exploration: Trees</li><li>Exploration: Binary Trees</li><li>Exploration: BST Operations</li><li>Assignment 4: Binary Search Tree Implementation (<b>Due: May 19, 2021</b>)</li><li><b>Quiz 1 (Available from May 05 to 09, 2021 and covers materials from Week 1 to Week 5)</b></li><li>Review - Module 6</li></ul>

Week	Course Activities
7	<ul style="list-style-type: none"> <li>Module 7 - Overview</li> <li>Exploration: AVL Trees and Balancing</li> <li>Exploration: AVL Tree Rotations</li> <li>Exploration: Rotation Implementation</li> <li>Review - Module 7</li> </ul>
8	<ul style="list-style-type: none"> <li>Module 8 - Overview</li> <li>Exploration: Priority Queues and Heaps</li> <li>Exploration: Heap Implementation</li> <li>Review - Module 8</li> </ul>
9	<ul style="list-style-type: none"> <li>Module 9 - Overview</li> <li>Exploration: Introduction to Maps and Hash Tables</li> <li>Exploration: Hash Table Collisions</li> <li>Assignment 5: AVL, Hash Map and Heap Implementation (Portfolio Assignment) (<b>Due: June 02, 2021</b>)</li> <li>Review - Module 9</li> </ul>
10 and final week	<ul style="list-style-type: none"> <li>Module 10 - Overview</li> <li>Exploration: Graphs</li> <li>Exploration: Working with Graphs</li> <li>Assignment 6: Graph and Graph Algorithms Implementation (<b>Due: June 09, 2021</b>)</li> <li>Quiz 2 (<b>Available from June 05 to 09, 2021 and covers materials from Week 6 to Week 10</b>)</li> <li>Review - Module 10</li> </ul>