

# **CITS3001 Algorithms, Agents and Artificial Intelligence**

## **Labsheet 2: optimisation algorithms**

1. Implement and analyse the dynamic programming algorithm for 0-1 Knapsack from Lecture 4.
2. Design one or more greedy heuristics for deciding the order of packing the items for your 0-1 Knapsack algorithm, and try them out.  
Be imaginative – you never know what works!

Are there heuristics that perform consistently well?

3. Implement a simple (optimal) linear greedy algorithm for Fractional Knapsack. Test it with the data you developed for the previous questions.