**Individual Assignment 1 (25%)**

Submit your assignment electronically via the Turnitin Assignment tool by Friday 30th April. The link for the Turnitin Assignment tool has been created for you under the Assignment page on MyUni. You will need to upload a Word version of your assignment to Turnitin.

ONLY e-submissions will be accepted. For guidance on how to submit your assignment electronically via MyUni, please visit http://www.adelaide.edu.au/myuni/tutorials and click on the “Submit an Assignment” tutorial. o Use ONLY the data file provided on MyUni under the ‘Assignment’ module. Please select one stock and its options to perform this assignment.

Q1 Plot annual historical volatility with 1-year implied volatility in a graph. (2 marks)

Q2 Referring to the graph in Q1, analyse the relationship between historical volatility and implied volatility. Hint: consider volatility cross-over, mean reversion, descriptive statistics etc. (6 marks)

Q3 From your analysis above, develop a delta neutral strategy for the period 26/02/2021 to 12/03/2021 to speculate/arbitrage on volatility. Explain how the strategy will work, and detail all transactions for undertaking the strategy. You can use as much capital as you like, but the cost of capital needs to be considered. Given that the strategy is theoretically risk free, you should not lose any money anyway! You are required to perform at least one rebalancing. (9 points)

Q4 At the end of the period, close all the positions and evaluate the effectiveness of your strategy.

(6 points)

REPORT WRITING. Your report must document a complete discussion of the process outlined above, including full details of transactions executed. Transaction costs must bear evidence that it is a realistic figure. Good structure, presentation and concise writing skills are likewise important. Your report length can be a MAXIMUM of 5 pages (size 12 font, 1.5 spacing), including all discussion, graphs, tables and references. (2 marks)