

**Assignment 1**  
**Learning and Computational Intelligence in Economics and Finance (CF963-7-AU)**  
**2010-2011**  
**Set by Edward Tsang, University of Essex (revised 4 November 2010)**

**1. Introduction:**

This is an assignment on data processing. This assignment accounts for 15% of your total marks in this course. This assignment should be submitted electronically. The deadline of this assignment is *11:59:59am, Monday 15 November 2010*.

**2. Objective:**

The objective of this assignment is to familiarize you with data processing in finance.

**3. Given:**

The spreadsheet associated to this assignment contains the FTSE100 Index to 2010.

**4. Your task:**

Your tasks are:

- i. To create new columns that show m-days and n-days moving average for any m and n of your choice, where m is less than n;
- ii. To create a new column that shows whether the m-days moving average crosses the n-days moving average. This column should show a “1” if the m-days moving average has changed to become greater than the n-days moving average on a particular day.
- iii. Explain how the columns created above could be used as an indicator to create a trading rule. You should add extra columns as you feel necessary. Explain clearly how your rule works but do not worry about the effectiveness of this rule – i.e. whether it makes money or not.
- iv. Explain how the rule that you created can be evaluated.

**5. Submission requirements:**

Please write your name clearly on the first page of your submission; please underline your surname. Submit a spreadsheet to show your answers in points i and ii. Submit a report of strictly no more than 600 words to answer points iii and iv. You may submit appendices to supplement your analysis.

**6. Assessment criteria for this assignment:**

Your assignment will be assessed on the quality of your analysis, and how clearly you present your ideas. This is an open-ended assignment. There are no right or wrong answers. The effectiveness of the trading rule does not affect your score, but you must clearly explain what the rule means and any rationale behind it. The aim is to test your ability to evaluate a rule using what you have learned from the lectures. No programming is required in this assignment. You could complete the assignment with a spreadsheet if you want to. However, if you feel that programming would help illustrating your ideas, please feel free to do so. This assignment tests your basic skills. Therefore, I expect the median mark to be 80% to 90%, which should be much higher than the median for the whole module.

**7. Please refer to the Student's handbook on the Departmental Policy on Plagiarism and Late Submission**

**Assignment 2**  
**Learning and Computational Intelligence in Economics and Finance (CF963-7-AU)**  
**2010-2011**  
**Set by Edward Tsang, University of Essex**

**1. Introduction:**

This is an assignment on data processing. This assignment accounts for 15% of your total marks in this course. This assignment should be submitted electronically. The deadline of this assignment is *11:59:59am, Monday 13 December 2010*.

**2. Objective:**

The objective of this assignment is to familiarize you with the concept of “directional changes” and its potential application in trading.

**3. Given:**

The spreadsheet associated to this assignment contains the FTSE100 Index to 2010.

**4. Your task:**

Your tasks are:

- i. To create a column or columns that show when directional changes has taken place under a threshold  $t$ ; here  $t$  is an integer of your choice, but it must generate between 10 and 300 directional changes in the data.
- ii. To invent a trading rule based on directional changes
- iii. To evaluate the trading rule that you have invented in ii with the data that you have generated in point i

**5. Submission requirements:**

Please submit a spreadsheet that shows your answers in point i. Submit a report of strictly no more than 1,000 words to answer points ii and iii. You may submit appendices to supplement your analysis. If you write any programs for this assignment, then please submit your executable code as well as the source codes. Please write your name clearly on the first page of your submission; please underline your surname.

**6. Assessment criteria for this assignment:**

Unlike the last assignment, the effectiveness of the trading rule will be assessed; i.e. the more effective the rule is, the higher you can potentially score. Your assignment will be assessed on the quality of your analysis, and how clearly you present your ideas. This is an open-ended assignment. You could complete this assignment with a spreadsheet if you want to. However, programming may help illustrating your ideas in this assignment. If you do decide to program, please use programming languages supported by our labs – this is to enable me to test your programs if needed.

**7. Please refer to the Student’s handbook on the Departmental Policy on Plagiarism and Late Submission**