University of Stirling
Computing Science and Mathematics

MATU9D2: PRACTICAL STATISTICS
WEEKLY ASSIGNMENT 5

This should be submitted via your tutor's box outside **room 4B89**. Ensure that you have the Course Name, your Name and Practical Group clearly marked on your answers. Your answers should be submitted by**.**

Tuesday Group:	**12noon on Friday 3th March**
Thursday Groups:	**4pm on Tuesday 7th March**
Friday Groups:	**4pm on Wednesday 8th March**

All calculations should be performed by hand and calculator (*not computer*). Include all working.

1. During the current election campaign an opinion poll was carried out in constituencies across Scotland. Each person selected was asked "which party do you intend to vote for in the next general election?"

   The data was as follows:

		Political Preference Tory	Labour	Lib Dem	SNP	Other
Gender	Male	61	152	49	98	25
	Female	92	125	62	105	31

   (i) By calculating appropriate percentages, describe the observed relationship (if any) between gender and political preference.

   (ii) By performing an appropriate test, assess formally the evidence of association between gender and political preference with a significance level of 1%.

   (iii) Calculate an interval estimate, having approximately 95% confidence, for the proportion of the population whose allegiance lies with the Labour Party.

2. A company's sales (in £M) has been monitored for 4 years, giving the following information:

Year	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1	0.63	0.86	2.33	3.82
2	3.69	2.94	5.10	8.00
3	6.83	4.86	8.05	12.20
4	9.84	7.08	11.21	16.04

(a) Plot the data

(b) Is an additive or multiplicative model more appropriate for this data?

(c) Calculate the 'smoothed' curve using the centred moving average method and plot this on your graph.

(d) Calculate the seasonal variation and hence the seasonally adjusted data. Plot this on your graph.

(e) Comment.