THE UNIVERSITY OF SYDNEY

MATH1905 STATISTICS ADVANCED

Semester 2 **Tutorial Week 1** 2012

Statistics tutorials **commence in week 2**.
These are home problem questions for week 1.

There are no tutorial questions in week 1. Problem questions are displayed on pages 2 of this document.

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Semester 2 **Problem Sheet Week 1** 2012

We encourage you to do these further problems in order to understand the course material well. Lecturers and tutors are available (during their office hours - see the notice board for details) for any help.

1. The following table gives the number of ice cream sold in a coffee shop in January 2002 in a Canadian city:

2	0	0	1	1	0	2	1
3	3	6	7	0	4	1	0
1	1	3	2	1	0	8	0
0	4	5	1	0	2	3	

Calculate the median and mean, prepare a suitable frequency distribution table for this data and draw an ordinate diagram. Please comment your results.

2. In an attempt to measure the 'true' heat of sublimation of platinum (in kcal/mole), Hampson and Walker (1961) recorded the following data (x_i):

136.2	136.6	135.8	135.4	134.7	135.0	134.1	143.3
147.8	148.8	134.8	135.2	134.9	146.5	141.2	135.4
134.8	135.8	135.0	133.7	134.2	134.9	134.8	134.5
134.3	135.2						

Complete the following frequency table and draw a histogram, describing the shape.

Interval	Frequency	Percent
[133 , 134)		
[134 , 135)		
[135 , 136)		
[136 , 137)		
[137 , 140)		
[140 , 143)		
[143 , 146)		
[146 , 149)		
Total		

3. Produce a stem-and-leaf display for the data in Question 2 (Q2) and comment on the shape.

4. You are now told that the observations 147.8 and 148.8 for the data in Q2 in are actually recording errors. Remove them from your stem-and-leaf display, reducing your sample size to 24. Find the median and quartiles of these 24 measurements and draw a rough boxplot from the five-figure summary.

5. (From the 1998 examination) A mining company finds a body of ore and obtains 24 core samples by drilling at equally spaced intervals along the body. The samples are analysed for percentage content of a valuable mineral and the results appear below.

17	18	26	18	31	31	19	17
22	13	19	17	16	14	13	10
16	14	13	23	16	20	18	30

(a) Prepare a stem-and-leaf display (the double stem version), and from it find the median and quartiles.

(b) Compare the median and the mean, referring to the *shape* of the data.

We **recommend** these **Extra problems** from *A Primer of Statistics:* Ch I p.33-34 Q1-6, 8 and 9.