TUTORIAL EXERCISE PACKAGE - 2013

MATH1015 - BIOSTATISTICS

Semester 1	Problem Set 1 (Revise and Practice Yourself)	2013

- *Biostatistics tutorials commence in week 2. Check your personal timetable for the location and time. We encourage you to attempt these problems for revision.*
- *Students are now allowed to take their own calculators (from the list of approved calculators) into the examination room. See course web page for more details.*
- *In week 1, you learn how to draw stem-and-leaf plot and histogram using a frequency table. Problems on the calculation of mean, mode and median are included for revision.*
- *There will be a multiple choice (MC) component in each assessment of this course.*

1. The following table gives the number of ice creams sold in a coffee shop in January 2003 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	

   Prepare a suitable frequency distribution table for these data.

   To answer Q2 to Q4, refer the above data set.

2. (**Multiple choice**) The mode of the data set is:

   (a) 1 (b) 0 (c) 5 (d) 4 (e) not known

3. (**Multiple choice**) The median of the data set is:

   (a) 0.0 (b) 1.0 (c) 2.0 (d) 3.0 (e) none of the above.

4. (**Multiple choice**) The mean number of ice creams sold by the shop (in January, 2003) is:

   (a) 4.1 (b) 0.9 (c) 5.0 (d) 2.0 (e) 0.0

5. 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

   Use your calculator to calculate the the mean of this data. Draw a histogram and comment the distribution.

6. Consider the following data set consisting of 12 observations:

0.7	1.1	0.7	0.9	6.5	1.6	4.0	29.1	0.2	0.1	9.2	11.9

   Rearrange the data in ascending order. Draw a stem-and-leaf plot for the data.

7. Read the instructions on the computer package **R**. Now practice the computer work sheet and answer the questions. PTO for details.

R Exercise

- You can practice this R Exercise at home. Go to the CRAN website at
  `http://www.r-project.org/`
  and get this free software, R nstalled to your system.
- Most of the basic R commands are very straight forward and derived from their natural names.

1. Go to a Computer Lab in Carslaw (or your own).
2. Log-on to the system (or to your computer).
3. Follow the instructions to get an R window.
4. Enter the data in Q6 as x on your R window. To do this just type:
   $x = c(0.7, 1.1, 0.7, 0.9, 6.5, 1.6, 4.0, 29.1, 0.2, 0.1, 9.2, 11.9)$

   Note: The data string must (always) be entered within $c()$ with each data point separated by a comma as above.
5. Find the mean of x using the command:
   mean(x)
6. Arrange the data from the smallest to the largest using the command:
   sort(x)
7. Find the length and the median of x suing:
   length(x)
   median(x)
8. Find the five number summary of x using: summary(x)
9. Create a vector y with consecutive numbers from 1 to 12 using:
   y=c(1:12)
10. Observe the values in y. To do this just type y.
11. Plot x against y using:
    plot(x,y)
12. Plot y against x using:
    plot(y,x)
13. Observe the difference between the plots in Q12 and Q13.

Some Important Points to Remember

- Check regularly the electronic noticeboard for MATH1015 Biostatistics.
- Click on **Notes for Use in the Statistics Examination** for a formulae sheet for your reference. This formulae sheet will be supplied at the final examination. Bring a copy of this sheet to tutorial classes.
- **Statistical Tables** will be supplied at the final examination.
- There will be **no computer test** based on **R** at the final examination in July.
  However, **R** questions **will be asked** in tutorial quizzes and assignments.