

# Bus 273: Statistical Analysis for Business

Fall 2011

## PROBLEM SHEET # 1

**Problem 1:** An automobile repair garage analyzes regularly the daily number of customers (that is, the daily number of cars brought for inspection), in order to be able to react to new circumstances immediately. Car arrivals in November were:

date	weekday	number	date	weekday	number	date	weekday	number
Nov 01	Friday	43	Nov 11	Monday	45	Nov 21	Thursday	28
Nov 02	Saturday	23	Nov 12	Tuesday	39	Nov 22	Friday	26
Nov 03	Sunday	0	Nov 13	Wednesday	28	Nov 23	Saturday	26
Nov 04	Monday	42	Nov 14	Thursday	35	Nov 24	Sunday	3
Nov 05	Tuesday	30	Nov 15	Friday	22	Nov 25	Monday	27
Nov 06	Wednesday	22	Nov 16	Saturday	34	Nov 26	Tuesday	26
Nov 07	Thursday	30	Nov 17	Sunday	11	Nov 27	Wednesday	34
Nov 08	Friday	30	Nov 18	Monday	42	Nov 28	Thursday	31
Nov 09	Saturday	34	Nov 19	Tuesday	22	Nov 29	Friday	28
Nov 10	Sunday	16	Nov 20	Wednesday	34	Nov 30	Saturday	31

- Draw a stemplot of the variable *number of arrivals*.
- Compute the arithmetic mean.
- Compute the median.

(Hints: The ordered set of observations is: 0, 3, 11, 16, 22, 22, 22, 23, 26, 26, 26, 27, 28, 28, 28, 30, 30, 30, 31, 31, 34, 34, 34, 34, 34, 35, 39, 42, 42, 43, 45. Furthermore,  $\sum x_i = 842$ ,  $\sum x_i^2 = 26\,870$ .)

**Problem 2:** A car travels as follows:

distance	speed
10 km	100 km/h
20 km	40 km/h

What is the average speed of the car over the whole distance of 30 km?

**Problem 3:** The price of a barrel of WTI crude oil in USD was:

2007-12-31:	\$ 95.95
2008-06-30:	\$139.96

Compute

- the average quarterly price increase in percent,
- the average weekly price increase in percent

for this period.

**Problem 4:** This exercise shows that care must be taken when we translate numerical information into a verbal formulation. Consider two statements:

- A: “34% of all households are single-person households.”  
 B: “34% of all people live in single-person households.”

- Are A and B equivalent?
- Assuming A is true, make an approximate statement about the share of people living in a single-person household.