



AME University  
2nd semester, 2018-19  
EDUC 309  
Educational Statistics

## 2. Assignment

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### 1 Descriptive statistics

Answer the following questions:

1. Where do we as professionals in the education sector use statistics in our line of work?
2. Calculate the mean  $\bar{x}$  for the following vector of five individual observations  $v_x = (4, 2, 3, 4, 2)$ . Describe your calculation in words.
3. Calculate the median  $M_v$  for the same data. Describe your calculation in words.
4. Think: Which of the two:  $\bar{x}$  or  $M_v$ , is more stable to changes of individual observations? Why?

Submit your assignment either on paper at the beginning of the next class or send it to the course email before the next class.

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## 2 Solution

1. Where do we as professionals in the education sector use statistics in our line of work?

For example: enrolment overview, student grades, GPA calculation, comparison of results, gender distributions in class or school, various ratios like: students per teacher, teachers per school, expenses per student, and much more.

2. Calculate the mean  $\bar{x}$  for the following vector of five individual observations  $v_x = (4, 2, 3, 4, 2)$ . Describe your calculation in words.

$\bar{x} = 3$ . Form the sum of all observations and divide by the sample size  $n$ .

3. Calculate the median  $M_v$  for the same data. Describe your calculation in words.

$M_v = 3$ . Order the sample from least to greatest and select the mid-point.

4. Think: Which of the two:  $\bar{x}$  or  $M_v$ , is more stable to changes of individual observations? Why?

$M_v$  is more stable to changes of individual observations. If we change the highest observation "4" into "1000", it would seriously affect the mean, but the median would remain stable. In statistics, we say the median is a more robust score than the mean, because it is not affected by extreme values.