

## Introductory Statistics Homework Short Report for Topic 06 AB

| Mean  | Std.dev | Min  | Q1    | Median | Q3    | Max   |
|-------|---------|------|-------|--------|-------|-------|
| 6.24  | 2.38    | 0.00 | 5.00  | 6.00   | 8.00  | 12.00 |
| (25%) | (9.5%)  | (0%) | (20%) | (24%)  | (32%) | (48%) |

Table 1: Summary statistics of the scores

Each of the 50 students were given 25 questions from a bank of 89 questions. Figure 1 and Table 1 give the overall summary of student performance. Table 2 lists the 50 students who scored below 80 percent on the assignment. Table 3 and Figure 2 provide summary statistics of the scores per question set and learning outcome.



Figure 1: Histogram of scores. Blue data represent scores less than 80 percent.

| % Correct     |       | % Correct     |       | % Correct     |       | % Correct     |       |
|---------------|-------|---------------|-------|---------------|-------|---------------|-------|
| w.introstat40 | 48.00 | w.introStat59 | 32.00 | w.introstat43 | 24.00 | w.introstat23 | 16.00 |
| w.introStat50 | 48.00 | w.introstat69 | 32.00 | w.introStat51 | 24.00 | w.introstat29 | 16.00 |
| w.introstat26 | 36.00 | w.introstat31 | 28.00 | w.introStat53 | 24.00 | w.introstat36 | 16.00 |
| w.introstat39 | 36.00 | w.introstat35 | 28.00 | w.introstat66 | 24.00 | w.introstat46 | 16.00 |
| w.introstat42 | 36.00 | w.introstat44 | 28.00 | w.introstat67 | 24.00 | w.introStat56 | 16.00 |
| w.introStat52 | 36.00 | w.introstat48 | 28.00 | w.introstat70 | 24.00 | w.introstat68 | 16.00 |
| w.introstat65 | 36.00 | w.introStat54 | 28.00 | w.introstat21 | 20.00 | w.introstat24 | 12.00 |
| w.introstat33 | 32.00 | w.introStat58 | 28.00 | w.introstat28 | 20.00 | w.introstat27 | 12.00 |
| w.introstat34 | 32.00 | w.introstat61 | 28.00 | w.introstat38 | 20.00 | w.introstat30 | 12.00 |
| w.introstat37 | 32.00 | w.introstat62 | 28.00 | w.introstat47 | 20.00 | w.introstat64 | 4.00  |
| w.introstat45 | 32.00 | w.introstat63 | 28.00 | w.introStat57 | 20.00 | w.introstat25 | 0.00  |
| w.introstat49 | 32.00 | w.introstat32 | 24.00 | w.introstat60 | 20.00 |               |       |
| w.introStat55 | 32.00 | w.introstat41 | 24.00 | w.introstat22 | 16.00 |               |       |

Table 2: The 50 students whose percentages are less than 80%.

### Topic 06 Learning Outcomes:

- Use standardizing to determine how many standard deviations an observation is away from the mean value.
- Use z-scores to compare observations for different quantitative variables.
- Explain how standardizing affects the shape, center, and variability of the distribution of a quantitative variable.
- Determine which quantitative variables could be modeled using the normal distribution by interpreting graphical representations of the variable.
- Apply the 68-95-99.

- F. Find percentile or area values for any given observation from a normal distribution.  
 G. Find the value of an observation when given a percentile or area value from the normal distribution.

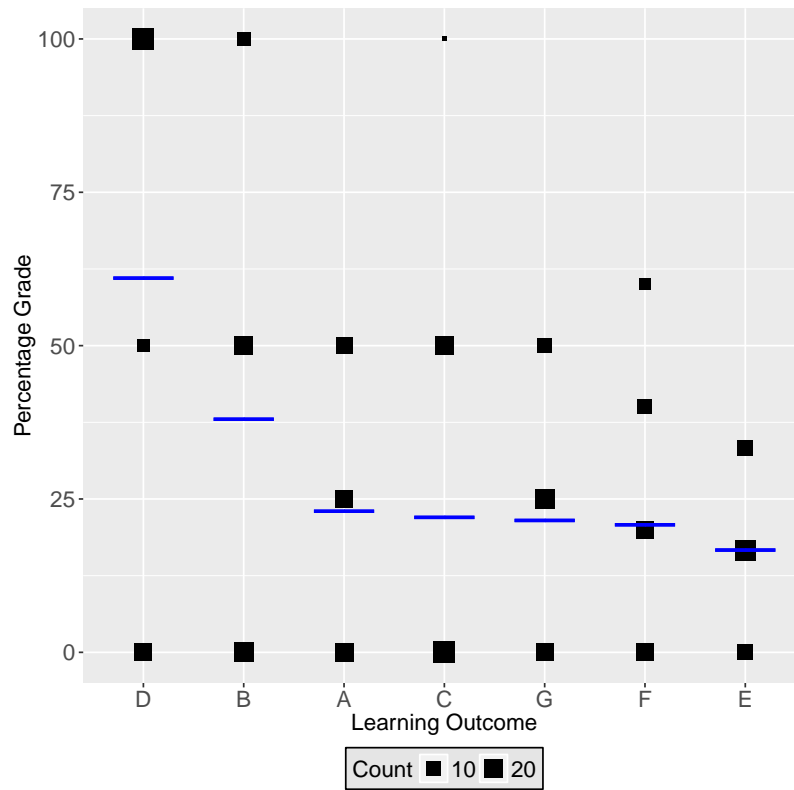


Figure 2: Fluctuation diagram of percentage correct by learning outcome. Mean scores are drawn as blue bars

| LO | Qset | # | Mean  | Std.dev | Min  | Median | Max    |
|----|------|---|-------|---------|------|--------|--------|
| D  | I    | 2 | 64    | 48.49   | 0.00 | 100.00 | 100.00 |
| D  | J    | 4 | 58    | 49.86   | 0.00 | 100.00 | 100.00 |
| A  | B    | 4 | 48    | 50.47   | 0.00 | 0.00   | 100.00 |
| A  | A    | 4 | 44    | 50.14   | 0.00 | 0.00   | 100.00 |
| B  | E    | 1 | 40    | 49.49   | 0.00 | 0.00   | 100.00 |
| B  | F    | 1 | 36    | 48.49   | 0.00 | 0.00   | 100.00 |
| F  | M    | 5 | 36    | 48.49   | 0.00 | 0.00   | 100.00 |
| F  | Q    | 5 | 30    | 46.29   | 0.00 | 0.00   | 100.00 |
| G  | S    | 5 | 26    | 44.31   | 0.00 | 0.00   | 100.00 |
| G  | U    | 5 | 26    | 44.31   | 0.00 | 0.00   | 100.00 |
| C  | H    | 1 | 24    | 43.14   | 0.00 | 0.00   | 100.00 |
| E  | L    | 9 | 23.33 | 25.42   | 0.00 | 33.33  | 66.67  |
| C  | G    | 1 | 20    | 40.41   | 0.00 | 0.00   | 100.00 |
| F  | N    | 5 | 18    | 38.81   | 0.00 | 0.00   | 100.00 |
| G  | R    | 5 | 18    | 38.81   | 0.00 | 0.00   | 100.00 |

|   |   |   |    |       |      |      |        |
|---|---|---|----|-------|------|------|--------|
| G | T | 5 | 16 | 37.03 | 0.00 | 0.00 | 100.00 |
| F | O | 5 | 14 | 35.05 | 0.00 | 0.00 | 100.00 |
| E | K | 9 | 10 | 15.43 | 0.00 | 0.00 | 33.33  |
| F | P | 5 | 6  | 23.99 | 0.00 | 0.00 | 100.00 |
| A | C | 4 | 0  | 0.00  | 0.00 | 0.00 | 0.00   |
| A | D | 4 | 0  | 0.00  | 0.00 | 0.00 | 0.00   |

Table 3: Summary statistics of the question sets. Rows are sorted by mean scores, which are marked red if less than 80 percent.