

## Introductory Statistics Homework Short Report for Topic 06

### Comparison among Sections

#### Overview

The homework results that will be compared are Topico6.AB.csv, Topico6.CD.csv.

Figure 1 shows the side-by-side boxplots for the overall scores by section. Table 1 gives the average percentages correct for each learning outcome by section. Any percentages below 80 will be marked red.

	CD	AB
D	72	61
B	31	38
A	25.5	23
G	26	21.5
C	22	22
F	19.2	20.8
E	20.67	16.67

Table 1: Average percentages correct for each learning outcome by section. Learning outcomes are sorted by the average percentages correct of all sections, from the highest to the lowest.

#### Problematic question sets

ID	LO	Qset	Name	CrtPct
1	A	A	1	46.15
2	A	A	2	54.17
3	A	A	3	36.36
4	A	A	4	46.43
5	A	B	1	50.00
6	A	B	2	50.00
7	A	B	3	52.38
8	A	B	4	52.38
9	A	C	1	0.00
10	A	C	2	0.00
11	A	C	3	0.00
12	A	C	4	0.00

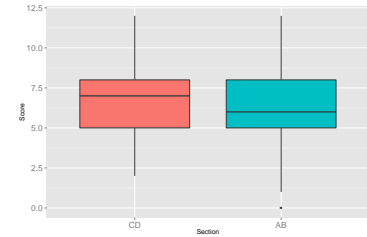


Figure 1: Boxplot for the overall scores by section. The highest median comes from Section AB,CD.

Learning objectives in this topic:

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.

Find percentile or area values for any given observation from a normal distribution.

Find the value of an observation when given a percentile or area value from the normal distribution.

13	A	D	1	0.00
14	A	D	2	0.00
15	A	D	3	0.00
16	A	D	4	0.00
17	B	E	compare1	41.00
18	B	F	compare2	28.00
19	C	G	1	20.00
20	C	H	1	24.00
21	D	I	feet	73.91
22	D	I	lowtemp	70.37
23	D	J	gain	60.71
24	D	J	mpg	80.00
25	D	J	blowhole	64.29
26	D	J	CDs	52.94
27	E	K	whale1	25.71
28	E	K	whale2	6.06
29	E	K	whale3	14.71
30	E	K	cow1	17.65
31	E	K	cow2	7.89
32	E	K	cow3	14.29
33	E	K	bulbs1	22.58
34	E	K	bulbs2	9.68
35	E	K	bulbs3	13.89
36	E	L	heights1	15.79
37	E	L	heights2	15.79
38	E	L	heights3	38.46
39	E	L	mm1	3.33
40	E	L	mm2	26.67
41	E	L	mm3	17.95
42	E	L	IQ1	36.36
43	E	L	IQ2	28.00
44	E	L	IQ3	21.43
45	F	M	mm1	40.74
46	F	M	Bulb1	16.67

47	F	M	IQ1	31.58
48	F	M	Whale1	41.18
49	F	M	Cow1	10.53
50	F	N	mm2	22.22
51	F	N	Bulb2	5.88
52	F	N	IQ2	27.27
53	F	N	Whale2	26.32
54	F	N	Cow2	12.50
55	F	O	mm3	20.00
56	F	O	Bulb3	14.29
57	F	O	IQ3	8.00
58	F	O	Whale3	24.00
59	F	O	Cow3	23.81
60	F	P	mm4	8.70
61	F	P	Bulb4	5.88
62	F	P	IQ4	20.00
63	F	P	Whale4	5.26
64	F	P	Cow4	14.29
65	F	Q	mm5	27.78
66	F	Q	Bulb5	26.32
67	F	Q	IQ5	10.53
68	F	Q	Whale5	27.27
69	F	Q	Cow5	24.24
70	G	R	mm1	33.33
71	G	R	Bulb1	22.73
72	G	R	IQ1	16.67
73	G	R	Whale1	24.00
74	G	R	Cow1	20.00
75	G	S	mm2	35.71
76	G	S	Bulb2	23.53
77	G	S	IQ2	13.64
78	G	S	Whale2	27.78
79	G	S	Cow2	26.67
80	G	T	mm3	18.18
81	G	T	Bulb3	31.25
82	G	T	IQ3	8.00
83	G	T	Whale3	12.50

84	G	T	Cow3	14.29
85	G	U	mm4	16.67
86	G	U	Bulb4	35.00
87	G	U	IQ4	33.33
88	G	U	Whale4	21.43
89	G	U	Cow4	33.33

Table 2: Question sets with any question correct percentage less than 80.

ID	LO	Qset	Name	CrtPct	Flag
1	A	A	1	46.15	
2	A	A	2	54.17	*
3	A	A	3	36.36	*
4	A	A	4	46.43	
23	D	J	gain	60.71	*
24	D	J	mpg	80.00	*
25	D	J	blowhole	64.29	*
26	D	J	CDs	52.94	*
27	E	K	whale1	25.71	*
28	E	K	whale2	6.06	*
29	E	K	whale3	14.71	
30	E	K	cow1	17.65	
31	E	K	cow2	7.89	*
32	E	K	cow3	14.29	
33	E	K	bulbs1	22.58	*
34	E	K	bulbs2	9.68	*
35	E	K	bulbs3	13.89	
36	E	L	heights1	15.79	*
37	E	L	heights2	15.79	*
38	E	L	heights3	38.46	*
39	E	L	mm1	3.33	*
40	E	L	mm2	26.67	*
41	E	L	mm3	17.95	*
42	E	L	IQ1	36.36	*
43	E	L	IQ2	28.00	*
44	E	L	IQ3	21.43	*
45	F	M	mm1	40.74	*
46	F	M	Bulb1	16.67	*

47	F	M	IQ1	31.58	*
48	F	M	Whale1	41.18	*
49	F	M	Cow1	10.53	*
50	F	N	mm2	22.22	*
51	F	N	Bulb2	5.88	*
52	F	N	IQ2	27.27	*
53	F	N	Whale2	26.32	*
54	F	N	Cow2	12.50	
55	F	O	mm3	20.00	
56	F	O	Bulb3	14.29	
57	F	O	IQ3	8.00	*
58	F	O	Whale3	24.00	*
59	F	O	Cow3	23.81	*
65	F	Q	mm5	27.78	*
66	F	Q	Bulb5	26.32	*
67	F	Q	IQ5	10.53	*
68	F	Q	Whale5	27.27	*
69	F	Q	Cow5	24.24	
70	G	R	mm1	33.33	*
71	G	R	Bulb1	22.73	
72	G	R	IQ1	16.67	*
73	G	R	Whale1	24.00	
74	G	R	Cow1	20.00	
75	G	S	mm2	35.71	*
76	G	S	Bulb2	23.53	
77	G	S	IQ2	13.64	*
78	G	S	Whale2	27.78	
79	G	S	Cow2	26.67	
80	G	T	mm3	18.18	
81	G	T	Bulb3	31.25	*
82	G	T	IQ3	8.00	*
83	G	T	Whale3	12.50	*
84	G	T	Cow3	14.29	*
85	G	U	mm4	16.67	*
86	G	U	Bulb4	35.00	*
87	G	U	IQ4	33.33	*
88	G	U	Whale4	21.43	

89	G	U	Cow4	33.33	*
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Table 3: Question sets with range greater than 15.