Assignment 11: Due Dec 10, 2017

1. There were 20 patients undergoing abdominal, thoracic, or vascular surgery, who either had documented coronary artery disease or were at high risk for coronary disease. These patients were randomly assigned to receive routine thermal care (hypothermic care, (patients' core temperatures were allowed to decrease to about 34.5°C) or normothermic (patients' core temperatures were maintained at near normal 36.5°C) care. Wound complications were assessed using the ASEPSIS scores for all patients and are listed in the following table.
    Perform a nonparametric test to see if there is statistically significant difference in average ASEPSIS scores between patients from Hypothermic and Normothermic care, at 5% level of significance.

Normothermic Care	Hypothermic Care
11	16
9	7
4	18
9	19
10	15
12	12
9	11
14	12
3	19
5	9

2. A study of early childhood education asked kindergarten students to retell two fairy tales that had been read to them earlier in the week. Each child told two stories. The first had been read to them, and the second had been read but also illustrated with pictures. An expert listened to a recording of the children and assigned a score for certain uses of language. Is there any difference between these two education ways ?

Child	1	2	3	4	5	6	7	8
Story 2	77	49	66	28	38	56	68	42
Story 1	40	72	0	36	55	45	51	40
Difference	37	-23	66	-8	-17	11	17	2

3. There are three sets of numbers (Not rank!). They have identical means (43.5), and identical medians (27.5), perform Kruskal–Wallis test among these groups at 5% level of significance.

Group 1	Group 2	Group 3
1	10	19
2	11	20
3	12	21
4	13	22
5	14	23
6	15	24
7	16	25
8	17	26
9	18	27
46	37	28
47	58	65
48	59	66
49	60	67
50	61	68
51	62	69
52	63	70
53	64	71
342	193	72

4. The following data comprises 23 groundwater samples that were collected recording the Uranium concentration (ppb) and the total dissolved solids (TDS, mg/L). It is of interest to know if the two variables are correlated? （the TDS data's skewness is not consistent with the data being normal）

	Uranium conc (ppb)	TDS (mg/L)
1	678.10	.80
2	818.93	1.93
3	302.38	.97
4	1149.60	11.80
5	573.14	1.41
6	1034.55	2.41
7	633.25	3.40
8	1095.42	.98
9	1122.58	2.46
10	686.51	.26
11	1172.84	9.97
12	593.70	.37
13	1247.95	6.70
14	533.99	.09
15	605.51	1.72
16	696.96	6.76
17	1282.95	10.27
18	531.16	.13
19	788.36	2.87
20	956.06	3.10
21	1149.38	.96
22	1069.82	3.77
23	1124.17	7.09