

# MANOVA Questions

## Question 1

A clinician noticed that a number of his manic psychotic patients did chicken impersonations in public. He wondered whether this behaviour could be used to diagnose this disorder and so decided to compare his patients against a normal sample. He observed 5 of his patients as they went through a normal day and also observed five control subjects who postgraduate students at the University of Sussex. He measured them along two dependent variables: first, how many chicken impersonations they did in the streets of Brighton over the course of a day, and second, how good their impersonations were (as scored out of 10 by an independent farmyard noise expert). The data are in Table 1:

Group	DV1 (Quality of Impersonation)	DV2 (Number of Impersonations)
Manic Psychosis	3	9
Manic Psychosis	5	15
Manic Psychosis	5	15
Manic Psychosis	4	13
Manic Psychosis	1	8
Sussex Postgrad	8	13
Sussex Postgrad	4	9
Sussex Postgrad	4	7
Sussex Postgrad	2	7
Sussex Postgrad	9	15

Table 1

1. Carry out the appropriate test to find out whether there are any differences between the manic psychosis group and the Sussex postgraduates in terms of the quality and quantity of their chicken impersonations.
2. Comment on the important parts of the output and interpret the results.
3. There is something strange about the results - what is it? Why do you think this has happened?

## Question 2

I was interested in whether students' knowledge of different aspects of psychology improved throughout their degree. I took a sample of first years, second years and third years and gave them 5 tests (scored out of 15) representing different aspects of psychology.

- **Exper:** Experimental Psychology (Cognitive, Neuropsychology etc.)
- **Stats:** Statistics
- **Social:** Social Psychology
- **Develop:** Developmental Psychology
- **Person:** Personality

### Your task:

Carry out an appropriate *general* analysis to determine whether there are overall group differences along these 5 measures.

Look at the scale-by-scale analyses of group differences produced in the output and interpret the results accordingly.

Select *contrasts* that test the hypothesis that second and third years will score higher than first years on all scales.

Select tests that compare all groups to each other—briefly compare these results with the contrasts.

Carry out a separate analysis in which you test whether a combination of the measures can successfully discriminate the groups (comment only briefly on this analysis). Include only those scales that revealed group differences for the *contrasts*. How do the results help you to explain the findings of your initial analysis?

GROUP	EXPER	STATS	SOCIAL	DEVELOP	PERSON
1st Year	4.00	12.00	12.00	12.00	11.00
	10.00	15.00	14.00	14.00	13.00
	6.00	5.00	7.00	8.00	12.00
	6.00	6.00	9.00	8.00	6.00
	4.00	5.00	9.00	13.00	13.00
	7.00	8.00	10.00	9.00	10.00
	3.00	2.00	7.00	9.00	6.00
	8.00	9.00	14.00	15.00	15.00
	6.00	7.00	10.00	10.00	9.00
	3.00	6.00	14.00	14.00	15.00
5.00	8.00	8.00	9.00	7.00	
2nd Year	6.00	10.00	8.00	10.00	12.00
	6.00	6.00	8.00	8.00	8.00
	5.00	11.00	13.00	10.00	11.00
	2.00	4.00	7.00	7.00	7.00
	8.00	7.00	5.00	9.00	7.00
	6.00	6.00	5.00	7.00	7.00
	5.00	8.00	7.00	8.00	6.00
	5.00	10.00	6.00	8.00	10.00
	8.00	10.00	12.00	12.00	10.00
	4.00	9.00	10.00	8.00	7.00
	5.00	10.00	11.00	9.00	10.00
	4.00	9.00	10.00	9.00	8.00
	7.00	10.00	7.00	7.00	8.00
	4.00	7.00	8.00	9.00	5.00
7.00	14.00	14.00	13.00	11.00	
6.00	8.00	6.00	8.00	8.00	
3rd Year	5.00	11.00	6.00	9.00	10.00
	10.00	4.00	8.00	5.00	9.00
	7.00	13.00	8.00	8.00	12.00
	6.00	8.00	10.00	8.00	9.00
	5.00	12.00	10.00	14.00	10.00
	9.00	11.00	11.00	12.00	10.00
	10.00	9.00	9.00	12.00	9.00
	6.00	9.00	7.00	9.00	7.00
	6.00	14.00	8.00	8.00	4.00
	9.00	12.00	9.00	9.00	5.00
	5.00	14.00	8.00	6.00	7.00
	9.00	13.00	12.00	11.00	11.00
4.00	6.00	8.00	3.00	6.00	