Chapter 10

1. A researcher measured people's physiological reactions while watching horror films and compared them to when watching erotic films and a documentary about wildlife. Different people viewed each type of film. The resulting data were normally distributed and the variances across groups were similar. What test should be used to analyse the data?
    a. Independent analysis of variance.*
    b. Repeated measures analysis of variance.
    c. Kruskal–Wallis test.
    d. Friedman's ANOVA.

2. A researcher wanted to see the effects of different learning strategies. A control group simply read the book *Discovering statistics* (book), a second group read the book and completed the end-of-chapter exercises (book and exercises), and a third group read the book, did the end-of-chapter examples and also completed the web materials (all activities). The researcher predicted that the all activities and book and exercises groups would perform better than the book group on a subsequent test, but that the book and exercises group would be worse than the all activities group . Which coding scheme would test these hypotheses in a set of planned comparisons?

a.

	Contrast 1	Contrast 2
Book	0	0
Book and Exercises	1	1
All Activities	1	–1

b.*

	Contrast 1	Contrast 2
Book	–2	0
Book and Exercises	1	1
All Activities	1	–1

c.

	Contrast 1	Contrast 2
Book	2	0
Book and Exercises	1	1
All Activities	1	1

d.

	Contrast 1	Contrast 2
Book	2	0
Book and Exercises	–1	–1
All Activities	–1	–1

3. A Bonferroni correction is when:
    a. You apply a criterion for significance based on the usual criterion for significance (.05) divided by the number of tests performed.*
    b. You divide the *F*-ratio by the number of tests performed.
    c. The degrees of freedom are corrected to make the *F*-ratio less significant.
    d. The error in the model is adjusted for the number of tests performed.

4. A psychologist was looking at the effects of an intervention on depression levels. Three groups were used: waiting list control, treatment and post treatment (a group who had had the treatment 6 months before). The change in depression levels over the time of the treatment was recorded (although bear in mind only the treatment group actually got any treatment during this time). The **R** output is below. Based on this output, what should the researcher conclude?

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Levene's Test for Homogeneity of Variance (center = "median")
       Df F value Pr(>F)
group   2  4.246  0.020
       45


                    Df   Sum Sq    Mean Sq  F value  Pr(>F)
group                2   529.437   264.719   5.110   .010
Residuals           45   2331.135  51.803


One-way analysis of means (not assuming equal variances)

data:  tumour and usage
F = 4.345, num df = 2.00, denom df = 26.436, p-value = .023
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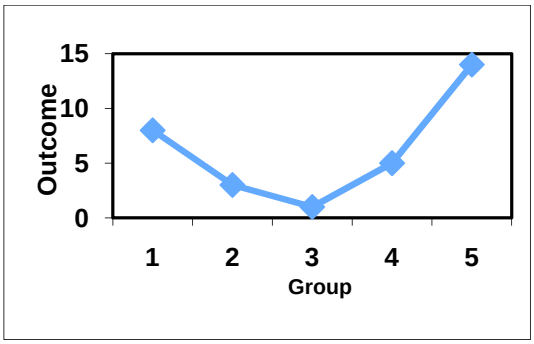
    a. The treatment groups did not have a significant effect on the change in depression levels, *F*(2, 26.44) = 4.35.
    b. The treatment groups had a significant effect on the change in depression levels, *F*(2, 26.44) = 4.35.*
    c. The treatment groups had a significant effect on the change in depression levels, *F*(2, 45) = 5.11.
    d. The treatment groups did not have a significant effect on the change in depression levels, *F*(2, 45) = 5.11.

5. What kind of trend does the following graph show?



   a. Linear.
   b. Quadratic.*
   c. Cubic.
   d. Quartic.

6. The student welfare office was interested in trying to enhance students' exam performance by investigating the effects of various interventions. They took five groups of students before their Research Methods II (RMII) exams and gave them one of five interventions: a control group just sat in a room contemplating the task ahead; the second group had a yoga class to relax them; the third was told they would get monetary rewards contingent upon the grade they received in the exam; the fourth was given beta-blockers to calm their nerves; and the fifth was encouraged to sit around winding each other up about how much revision they had/hadn't done (a bit like what usually happens). The final percentage obtained in the exam was the dependent variable. The student welfare office made four predictions: (1) all interventions should be different than the control; (2) yoga, bribery and beta-blockers should lead to higher exam scores than panic; (3) yoga and bribery should have different effects than the beta-blocker drugs; and (4) yoga and bribery should also differ. Which of the following planned contrasts (with the appropriate group codings) are correct to test these hypotheses?

a.

	Contrast 1	Contrast 2	Contrast 3	Contrast 4
Control	–4	0	0	3
Yoga	0	1	1	–1
Beta-blockers	0	1	–2	0
Bribes	0	1	1	1
You're all going to fail	0	–3	0	0

b.

	Contrast 1	Contrast 2	Contrast 3	Contrast 4
Control	–1	0	0	0
Yoga	1	1	1	–1
Beta-blockers	1	1	–1	0
Bribes	1	1	1	1
You're all going to fail	1	–1	0	0

c.*

	Contrast 1	Contrast 2	Contrast 3	Contrast 4
Control	–4	0	0	0
Yoga	1	1	1	–1
Beta-blockers	1	1	–2	0
Bribes	1	1	1	1
You're all going to fail	1	–3	0	0

d.

	Contrast 1	Contrast 2	Contrast 3	Contrast 4
Control	–4	1	1	1
Yoga	1	1	1	–4
Beta-blockers	1	1	–4	1
Bribes	1	1	1	1
You're all going to fail	1	–4	1	1