Chapter 5 Pseudoreplication

Additional self-test questions

Q5.1 The book argues that if we were surveying the food preferences of different nationalities, then using five members of one family as five independent measurements of the food preferences of the nationality of that family would not be statistically valid. Explain the reasoning behind this in your own words.

Q5.2 Are there any variables you can think of where you might be able to justify using members of the same family as independent subjects?

Q5.3 Define independence of data points in your own words.

Q5.4 Give an example of your own that helps to explain the statistical concept of independence.

Q5.5 If you were carrying out a survey, would a husband and wife count as independent data points?

Q5.6 The book discusses pseudoreplication through a shared enclosure with reference to a study of behavioural enrichment in chimpanzees. Is there any way you can usefully study enrichment if you truly only have access to one enclosure?

Q5.7 In the book, female zebra finches are given a choice between a dummy male with a bright beak on one side of their cage and one with a duller beak on the other side; which side of the cage should the brighter beaked male be placed in?

Q5.8 Consider a jury of 12 people in terms of statistical independence.

Q5.9 In the experiment on the behaviour of crickets as a function of temperature, the book warns about keeping all the crickets at one temperature in one incubator and all the crickets at the other temperature treatment in another single incubator. Explain why.

Q5.10 Explain the difference between a longitudinal study and a cross-sectional study by means of an example.