Chapter 4 Between-individual variation, replication, and sampling

Additional self-test questions

Q4.1 Any variation in the response variable between individuals in our sample (between-individual variation) that cannot be attributed to the independent factors is called by a variety of different names: random variation, inherent variation, background variation, extraneous variation, within-treatment variation, or noise. Which is your favourite and why?

Q4.2 Explain why replication is an important part of experimental design.

Q4.3 In the example looking at height difference between ten-year old Scottish boys and girls, how big a difference might you expect, and what would you expect the standard deviation of the values for one particular sex to be?

Q4.4 Can you give an example of cluster sampling in a study not involving humans?

Q4.5 Can you give an example of convenience sampling involving non-human subjects?

Q4.6 Assume that we want to compare the mass of field mice in Greater Glasgow (a city in the west of Scotland) to those on Great Cumbrae (an island near the west coast of Scotland). How would you go about sampling?

Q4.7 In the mice study above, can you think of any biological reasons why you might expect a difference?

Q4.8 We want to describe the average height of third year undergraduates at the University of St Andrews (where Graeme works). Would the third year Zoology class be a reasonable sample to use?

Q4.9 Is there any aspect of third year undergraduates at the University of St Andrews for which the third year Zoologists might be a reasonable sample to use?

Q4.10 Would you expect greater variation in height in a sample of male undergraduates at the University of St Andrews, or in a sample of males frequenting bars in the town?

OXFORD Higher Education

Oxford University Press