Chapter 6 Sample size, power, and efficient design

Additional self-test questions

Q6.1   Why might we sometimes want to increase the power of an experiment, and why might we sometimes not?

Q6.2   How might we improve the power of an experiment?

Q6.3   Can you think of an example where you would want power to be higher than 80%?

Q6.4   How can a pilot study help improve the power of your main experiment?

Q6.5   Imagine that we want to answer the question: '*Is the average height of male third year undergraduates in the engineering faculty at the University of Edinburgh different from the average height of equivalent students in the science faculty?*' How many would you sample in each faculty, given that there are about 300–400 males in each faculty?

Q6.6   If the populations were the same as the last question, but you wanted to test to see if there was a difference between these two populations in average number of books owned by a person, how would this influence the sample size that you would use?

Q6.7   Explain in your own words the advantages of a larger sample size.

Q6.8   Before you fly off on holiday, your plane is checked for metal fatigue. Which should you worry more about in this metal fatigue check: type I or type II errors?