

Learning objectives

After studying this chapter and doing the exercises, you should be able to:

- 1** Set up appropriate null and alternative hypotheses for testing research hypotheses, testing the validity of a claim and testing in decision-making situations.
- 2** Give an account of the logical steps involved in a statistical hypothesis test.
- 3** Explain the meaning of the terms null hypothesis, alternative hypothesis, Type I error, Type II error, level of significance, p -value and critical value in statistical hypothesis testing.
- 4** Construct and interpret hypothesis tests for a population mean:
 - 4.1** When the population standard deviation is known.
 - 4.2** When the population standard deviation is unknown.
- 5** Construct and interpret hypothesis tests for a population proportion.
- 6** Explain the relationship between the construction of hypothesis tests and confidence intervals.
- 7** Calculate the probability of a Type II error for a hypothesis test of a population mean when the population standard deviation is known.
- 8** Estimate the sample size required for a hypothesis test of a population mean when the population standard deviation is known.