# Section 2: Testing for correlation

## Crucial points

1. **Make sure that you know the difference between the meanings of *r* and $\rho$ and use them appropriately**
   The calculated value of *r*, which is the correlation coefficient for the sample data set, provides an estimate for $\rho$, which is the correlation coefficient for the parent population. You should use $\rho$ in the statement of your hypotheses.

2. **Make sure you write down hypotheses correctly**
   Make sure you know whether you are using a one-tail test or a two-tail test. Think carefully about the form of the alternative hypothesis: depending on the wording of the question, it may be $\rho > 0$, $\rho < 0$ or $\rho \neq 0$.
   Always write down your hypotheses using symbols in terms of $\rho$, and remember to state that $\rho$ is the correlation coefficient for the parent population.

3. **Remember to state the result of the test in words**
   It is not enough to state "accept $H_0$" or "reject $H_0$" (although you must do this!) – you must also give the result in plain English, using words such as "the evidence suggests…" or "there is not sufficient evidence to suggest that..." – never "This proves that…"!

4. **Remember that correlation does not imply causation**
   If there is correlation between two sets of variables, it may be the case that one variable causes the other, but this is not necessarily the case. For example, a third variable might affect both variables.