Successful HE applicants – Teacher notes

Students carry out significance tests on proportions to test hypotheses about successful applicants to higher education.

Suitability and Time

Level 3 (Advanced) 2 – 3 hours

Resources and equipment

Information sheets, worksheets, calculators, slideshow (optional), spreadsheet (optional)

Key mathematical language

Proportion, significance test, null hypothesis, alternative hypothesis, normal distribution, mean, standard deviation, critical values, critical region, significance levels.

Notes on the activity

The data provided on information sheet A is simulated but similar to real data available on the UCAS website.

Information sheet B outlines the method for carrying out a significance test on a proportion and provides a worked example.

Information sheet C outlines the method for carrying out a significance test on the difference between two proportions and gives a worked example.

The same methods and examples are also given in the slideshow.

The worksheet asks students to consider hypotheses which could be tested using the data, and then to carry out the related significance tests.

During the activity

Students could work individually or in pairs or small groups.

Points for discussion

It is important that students understand the reasoning behind each of the significance tests.

Discuss the use of the normal distribution, the importance of a large sample, the selection of one-tail and two-tail tests, and the associated critical values.

The slideshow and student sheets include questions that can be used to aid class discussion and help students to reflect on their work.

Extensions

A wide variety of real data is available on the UCAS website at www.ucas.ac.uk. Data can be obtained for a number of different years, as well as for individual institutions and types of courses. Students could select and analyse data that is relevant to their plans for higher education.