Advanced Higher Statistics

This is a campus course at Perth Grammar School in column E

Course Description

This Course introduces learners to experimental design, and instills and nurtures the ability of learners to indulge in good analytical practice on data sets. It develops the ability to make informed judgments on calculated statistics and to communicate appropriate conclusions.

This Course or its Units may provide progression to:

♦ other qualifications in Mathematics or related areas
♦ further study, employment and/or training

There are 3 Units in this course. They are:

a) **Data Analysis and Modelling**

The general aim of this Unit is to introduce the study of probability models. Learners will develop skills in data collection, presentation, and interpretation and will study the notion of probability and be introduced to some probability models. The theory behind the models will be explained, exploratory data analysis used as an indicator, and the uses of different random variables explored.

b) **Statistical Inference**

The general aim of this Unit is to develop and apply skills in statistical inference. Learners will select and use appropriate statistical models to assist with the analysis of data and interpret results in context, evaluating the strength and limitations of their models. The practicalities of working with sample data to consider possible population distributions and to obtain best estimates of a population mean are introduced. The importance of the distribution of sample means is highlighted, and the power of the central limit theorem is outlined and used to evaluate the accuracy of the estimated population mean. A statistical investigation generated by the learner will be carried out using the skills developed in the Unit.

c) **Hypothesis Testing**

The general aim of this Unit is to develop and apply skills in hypothesis testing. These tests will be parametric, nonparametric and bi-variate. Learners will develop skills in effectively communicating conclusions reached on the basis of statistical analysis. A statistical hypothesis test generated by the learner will be carried out using the skills developed in the Unit.

Internal Assessment

To gain the award of the Course, the learner must pass all of the Units as well as the Course assessment. The Units are internally marked and will be returned with either a pass or fail.

External Assessment

Course assessment will provide the basis for grading attainment in the Course award.