

# A Level Statistics Course Guide

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## Applications of the Course

The Statistics course is designed primarily for candidates who wish to study the applications of statistical techniques to biology, psychology, sports science, geography, geology, business studies, economics, management and the humanities. The emphasis in Statistics is on critical thinking, interpretation of numbers and research methods – this is different to the logic, style and rigour of Pure Mathematics. This course is not suitable for students who will be studying Mathematics or certain types of Engineering at university.

## GCSE Requirements

**You need at least Grade 5 (or Grade B) at GCSE Mathematics and Grade 4 (or Grade C) at GCSE English Language.** Occasionally students who have Grade 4 (or Grade C) GCSE Maths are admitted to the course, but they should be aware that they will need to spend extra time practising their mathematical skills and reading large passages of text in order to meet A Level standard.

## Course structure

The A Level Statistics course is a linear two year course with external exams in the summer of your second year. You will sit three, two hour papers, each worth a third of your overall grade. You are expected to use a calculator in all three papers. There is no choice of content and every Statistics student will study the same topics.

## Relevant Study Skills

The most important study skills are being well organised and being willing to ask for help if you do not understand. It is not even necessary to be prepared to ask in front of the whole class - you can ask another student or your teacher in an individual conversation or go to the workshops. Statistics is a cumulative subject; if you have not understood one idea, you will not understand further ideas. If you are not well organised and allow homework to pile up, you will fall behind. You will find it very hard to catch up and you will not enjoy the course. You also need to keep your notes systematically so that you can refer to them.

The course requires critical thinking, reasoning and analysis. You are expected to be able to consider lots of options, suggest arguments for and against, and plan investigations which will obtain numerical evidence to back up your arguments. You will need to critically analyse and evaluate your own, and others, methodology. You will also need to be able to substitute numbers into formulae and have a basic skill at rearranging algebraic equations. Competence at using a calculator and computer software is essential so you will need to take all opportunities to practise these skills.

The later topics depend on a mastery of the concepts learnt in the earlier topics, so it is necessary to achieve a high standard at end of the first year in order to be able to continue into the second year of this course. You will also develop your research skills, be required to read or listen to news articles and be aware of the real-world and the decisions you make!

## Assessment

You will have a test approximately every month on the most recent topics. These tests will not contribute to your final A Level grade but will instead help ensure that you are on track and that any extra support you may need is put in place. Each topic has a "Topic Revision" homework in order to help prepare. If you do not achieve a sufficient score in any of the tests, you will be required to resit this test during a lunchtime workshop.

You will also have a Cumulative Revision homework (approximately every two weeks): these will give you the opportunity to reflect upon all work you have done so far and link the topics together using the Statistical Enquiry Cycle. It also allows you to choose topics to work on in your directed study time. We will also complete a series of formal assessments, in line with the whole college, the first of these will be in January of the first year and there will be a total of four of these throughout your Statistics course. They will give you the opportunity to practise working under exam conditions and give your teacher the evidence required to write your predicted grade. In the run up to your external exams, your teacher will give you plenty of opportunities to complete examples of past exam papers.

## Equipment to bring to each lesson

You will be expected to bring paper and writing equipment to all lessons. The notes you make should be filled and kept in an appropriate folder, along with practice questions completed in class, work from the directed learning booklet, your end-of-topic tests and your cumulative homeworks.

You need to bring a calculator to every lesson. We recommend Casio FX-991EX Classwiz. **It is important that you get a calculator which can calculate probabilities from the "normal", "binomial" and "Poisson" distributions as soon as possible** – we will be seeing the normal distribution in Week 2 and you will be unable to answer the questions without such a calculator.

## Stats Packs

The college recommends that you spend at least four hours of work outside of lessons on each of your college subjects. In Statistics, we provide a booklet for each section of the course. These will include lots of practice work for all topics covered, and other helpful information such as instructions for using the calculator. This will allow you to tailor your directed learning time to best suit your learning needs. There is no textbook available for this course, so these Stats Packs will be the closest thing you will get!

## Workshops

Workshops are organised in lunchtimes. If you are identified as needing extra support in a particular area, these workshops will appear on your timetable. However there are also drop-in sessions that you can go to if there is a particular topic or homework that you want support on. Posters will go up around the Maths department advertising when these sessions are.