A level Statistics

Mathematics or Statistics - which is the right course for you?

A level Mathematics and A level Statistics are both outstanding courses, but which one would suit you and your career ambitions best?

Mathematics is heavily based on strong skills in algebra and trigonometry at GCSE, whereas Statistics relies on a lot of analysis of data. Many people underestimate the important role that Statistics has in many aspects of Business and Medicine.

The table below aims to help you make this very important decision, so we can make sure you are on the correct programme of study. Some of the progression routes after A level are detailed below, but if your career path is not featured, you can always ask for advice when you come into College for your interview. This is a general guide, so please check individual University entrance requirements for your intended course.

A level Statistics	A level Mathematics
Medicine – If you are thinking of applying to study Medicine, A level Statistics may be a more helpful option than A level Maths, especially if you have chosen Chemistry and Biology. An understanding and ability to analyse statistics is of great benefit to a career in Medicine.	**Engineering** – if you want to pursue a degree in Engineering after you finish your A levels, you need to make sure that one of the courses you choose is A level Maths. Most universities will ask for Maths.
Dentistry – If you want to pursue a career in Dentistry, A level Statistics may be a more useful course than A level Maths, especially if you have chosen Chemistry and Biology.	**Further Maths** – if you want to do A level Further Maths, you must pick A level Mathematics, rather than A level Statistics to study alongside it. The Mathematics course includes advanced algebra, calculus and trigonometry, which will prepare you for the Further Maths course.
Veterinary Science – Like Medicine and Dentistry, if you are thinking of applying to study Veterinary Science, A level Statistics is a brilliant support to the required subjects of Biology and Chemistry.	**Physics** – if you want to study A level Physics, you must also choose A level Mathematics. This is because there is a lot of Maths in the Physics syllabus and a high level of maths understanding is needed for you to succeed on the course.
Pharmacy – Statistical analysis is a fundamental skill needed by all pharmacists. As a result, choosing A level Statistics is highly recommended for students wanting to enter this field and considered a better fit than A level Mathematics.	**Computer Science** – Some Universities will stipulate A Level Mathematics, but a lot do not, so Statistics is a good choice if you find some aspects of algebra challenging and enjoy working more numerically especially with data.
Statistics is an excellent combination with Geography, Psychology, Business Studies, Economics, Biology, Chemistry, Accounting, Physical Education or any social science or humanities course.	**Economics** – Some Universities will stipulate A Level Mathematics, but a lot do not, so Statistics is a good choice if you find some aspects of algebra challenging and enjoy working more numerically especially with data.
To study Statistics at University you will need A Level Mathematics, because of the high level of algebra content at degree level and often requires As or A*.	

Topics in Mathematics and Statistics

As well as seeing the progression options that our A level Mathematics and A level Statistics courses can lead to, it's important to understand the sort of topics each course includes so you can make a judgement of which course will suit you best. The next two pages go into more detail about the A level Statistics specification, but the summary of each course below should provide a helpful comparison.

A level Mathematics Summary

This course includes Pure Maths and will see students solving equations, graphs and transformations. Advanced mathematics not covered in GCSE Maths is introduced to learners, including algebra, calculus and trigonometry. Some Mechanics and statistical models are studied, with forces, moments and friction lending support to the study of Physics in particular.

A level Statistics Summary

This course builds on the work already studied in GCSE Mathematics far more easily than A level Maths, as students will already have been introduced to numerical measures of mean, median and mode. Topics which appear in subjects like Biology, Psychology, Geography and Medicine are also covered in the course, including Chi-squared Contingency Tables, Spearman's Rank Correlation Coefficient, and the Wilcoxon tests. This makes Statistics a particularly good supporting subject. Real-world applications of statistics in industry and manufacturing also develop skills that are of use to a variety of future careers.

Please also take time to read the detailed course information on the A level Mathematics course before deciding which course to study.

A level Statistics Specification

Why study Statistics?
- Careers with good statistical skills are often well paid, interesting and rewarding.
- Statistics is the most widely used branch of mathematics in industry and commerce.
- A Level Statistics is a versatile qualification respected by employers and enables learners to become better at analysing data and using this to make predictions about future events. Expertise in statistical models is a valued asset in medicine, finance, research and marketing.
- This course will suit those learners who enjoy applying their numeracy skills without the need to employ algebraic techniques.

Why study Statistics at Solihull Sixth Form College?
- The Mathematics Department is staffed by well qualified and experienced teachers of Statistics who use a variety of teaching methods to support your learning.
- Graphical calculators and online tools are used to support, develop and enhance many of the new concepts learnt.
- There is a team of enthusiastic teachers who create a vibrant environment with the learners' interest at heart.
- There are well developed resources that are given to each learner at each point of the course.
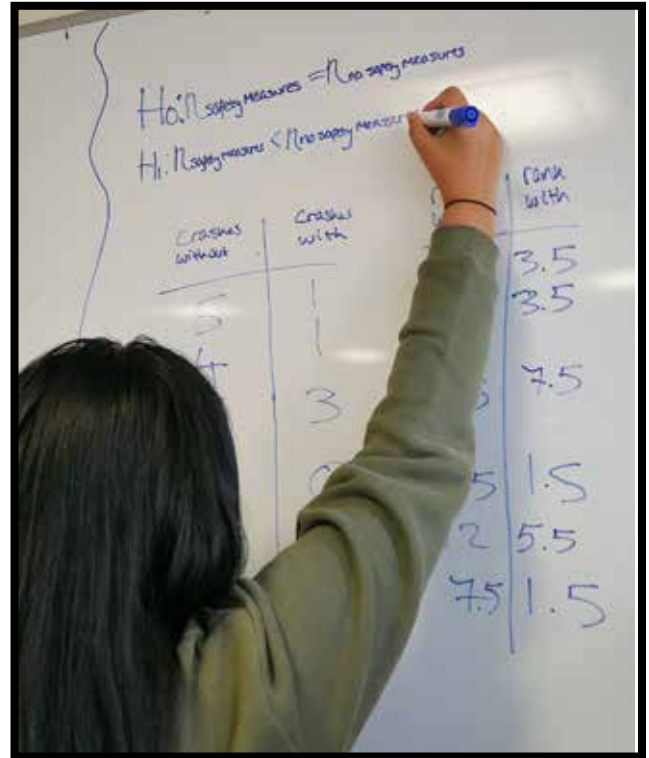
Case Study

Among the recent successful learners to have taken this course is **Casper Abosch**.

He came to the College from Tudor Grange Academy to study A levels. He achieved all A* and A grades in Statistics, Computer Science and Photography and progressed onto the University of Nottingham to study Computer Science.

"The College gave me so much support and made my time so much easier when I was really struggling. All of the staff were always there for me and helped no matter the problem, making me feel safe about asking for help. Lessons were enjoyable and teachers helped me out not only with my study but also my wellbeing."
Student Casper Abosch

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Course Outline
Year 12
Learners will work with real data sets extending the work they have covered in GCSE Maths, such as the calculation of the numerical measures mean, median and mode, and the practical applications of correlation and regression, including Time Series Analysis in the world of business. Elementary probability theory is also studied, and the Binomial and Normal distributions are introduced. Different methods of sampling are studied, and we also study basic hypothesis testing. Topics which appear in such subjects as Biology, Psychology, Geography and Medicine include Chi-squared Contingency Tables, Spearman's Rank Correlation Coefficient, and the Wilcoxon tests.

Year 13
The work on basic probability is extended to include Bayes' theorem and in addition to revisiting the binomial and normal distributions we also introduce the Poisson and exponential distributions. We test the goodness of fit for various distributions and carry out hypothesis tests for two samples and paired samples. In addition, we consider the industrial and manufacturing application of statistics, including experimental design and analysis of variance.

Learners are expected to undertake 5 hours of work away from the classroom each week.

Assessment
No Coursework
Examination (100%)
Examining Board – Edexcel.

Special Entry Requirements
Grade 5 or above in GCSE Mathematics higher level. In addition, standard A level entry requirements apply - see www.solihullsfc.ac.uk/courses/entry-requirements.

Prohibited Options
Mathematics and Level 3 Mathematical Studies (Core Maths).

What do our learners go on to do?
There is a countrywide shortage of people with strong statistical skills, for example Medical Statisticians, so career prospects are enhanced by taking this course. A number of degree programmes contain significant amounts of statistics. These include Psychology, Biology, Business Studies, Management Science, Medicine, Dentistry, Geography, I.T., Government and Politics, Pharmacy and others.

Cost Implications
You will be expected to purchase a Graphical Calculator (specific model will be given at the start of the course) and some work will be done using computers.

Complementary Subjects or Enrichment Courses
Geography, Psychology, Business Studies, Economics, Biology, Chemistry, Accounting, Physical Education or any social science or humanities course.

Examination Results
In the past two years, this course has seen high levels of achievement:

Year	Pass Rate A*-E%	A*-C%
2023	97%	55%
2024	100%	52%

Contact

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