

EVERYDAY MATHS



You get up in the morning, check the weather before heading out, do you need an umbrella? Sunnies? A coat? How about when you jump in the car or on the bus? Keeping all four wheels on the road when you're driving round corners is pretty important. All of these daily occurrences require mathematical knowledge and skills.

New car design and weather forecasts are produced by using some of the most complex and sophisticated computer models. Forecasting weather conditions requires mathematicians to solve complicated equations involving the way air, clouds and water move around the earth and mathematicians use the relationship between the width of a vehicle and the height of its centre of gravity to determine its maximum acceleration around corners.

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Fancy being The Apprentice? Imagine Sir Alan's reaction if you can't work out your profit margins? What would he say if you can't project earning potential by working out the probability of selling performance cars to market traders in East London. (?!*!). Good business requires good maths and mathematics is needed everywhere. It's involved in pretty much every aspect of your day. Mathematics is behind the building blocks of life, it improves your quality of life and is key to every new advance in technology. With maths 'you're hired'!

Where's the maths in that?

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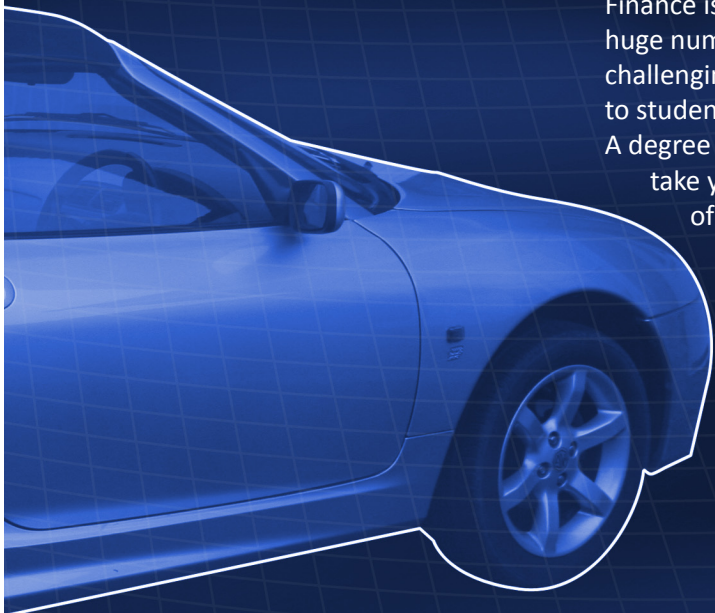
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You're hired!

Firstly though, what about a career in mathematics? Do all mathematicians go into a career in accountancy or banking? Finance is, in fact, just one area out of a huge number of exciting, innovative and challenging career opportunities available to students of the mathematical sciences. A degree in the mathematical sciences can take you anywhere; it can open all sorts of doors, from developing online video technologies to modelling the dangers to protected species. Working on exciting and innovative projects, mathematicians are highly valued and an essential element of any successful team.



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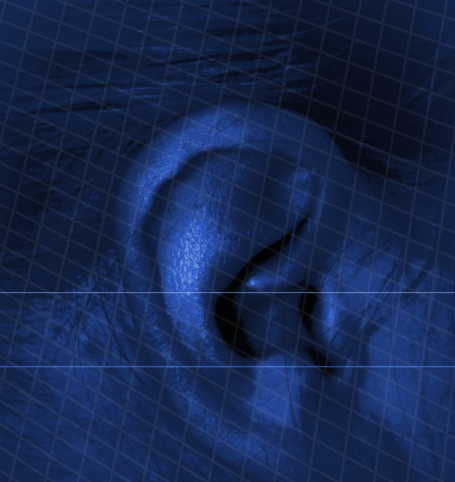
Maths vs the human ear

Ever thought about oceanography, the environment or climate change? How about new medicines and medical technologies, computer games or music technology? They all require mathematics and mathematicians.

Take music technology, mathematicians use computers to search for patterns and periodicities to untangle a mass of information so we hear the music projected as if it is played live. Computers are not finely tuned like the human ear, they cannot pick up rhythm, beat, pitch or melody. Programming computers to play digital music is essentially a complex mathematical problem.

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Want to save the planet?

Climate change is something that affects each and every one of us. To prepare for the effects of global warming, mathematicians and scientists study models of sea ice behaviour in order to predict how the climate will change. Robin Hankin, an Uncertainty Analyst at the National Oceanography Centre in Southampton, is committed to creating a better understanding of climate change by studying the uncertainty in climate prediction models. Robin, a mathematician, works alongside engineers, biologists, chemists and physicists to study all aspects of the oceans. Robin says 'There are a wide variety of careers open to mathematics graduates and this is one of the many reasons I chose to study this fascinating subject.'



Robin's colleague at the Centre, Louise Duncan, agrees. Having graduated with a first class Honours in mathematics, Louise works as a research assistant in the area of Ocean Circulation and Climate variability and enjoys the variety and challenges that each day brings in the Centre or at sea. 'My maths background provides an excellent base for oceanography research.'

Mathematicians play a crucial role in the diverse teams who work on the development of new technologies: finding cures for debilitating illnesses, solving all manner of problems which affect the world around us – many of which are obvious, however there is so much more maths which is not so easy to see.

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A cure for ...

Research methods and statistical techniques enabled us to learn that smoking cigarettes causes lung cancer – a statement which we now accept as common knowledge. However, not so long ago, there were posters advertising the ‘benefits’ of smoking. (There are none!) Mathematics and statistics are central to most medical research, essentially helping people live longer by helping prevent disease. Ruth Coleman, a Medical Statistician at the Diabetes Trials Unit at the University of Oxford uses her mathematical and statistical knowledge to analyse data from clinical trials, looking at all aspects of diabetes as a disease. Ruth says ‘My degree in applied statistics developed my computer skills a great deal. Studying for an applied degree has also turned out to be incredibly useful, as many companies require experience of handling real data, along with a good knowledge of statistical computer packages.’

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Don't be average, put the money where your maths is!

12,89900

Many employers recognise the value of training in logical thought, handling data and numerical skills. The skills you acquire from studying for a higher education qualification in the mathematical sciences gives you a firm foundation for a stimulating and successful career. Read more from Robin, Louise and Ruth and many other mathematicians about the exciting work they do at www.mathscareers.org.uk.



Recent research found that graduates in mathematics have the lowest levels of unemployment and earn approximately 25% above the average graduate salary. There's maths in that!

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Where's the maths in that?

Ever considered what your kettle has in common with your computer? How about the connection between cars and the mobile phone technology? Answer: Maths.



How does a kettle know when to stop boiling the water? Thermostats use mathematical logic to process the information that's supplied, triggering an off switch when the water temperature reaches 100°C , boiling point.

Computer games have become incredibly intelligent over the last few years – characters move around their virtual world, interacting realistically with their environment. Software component designers use complex mathematics to design these real-time game applications.



Mobile phone technology depends heavily on such fundamental areas of mathematics as analysis, algebra, and number theory.

The shape of a car is important in calculating how the car stays on the road at high speeds. Mathematicians use aerodynamics calculations to influence the safe design of cars.



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