Mark **McCartney**

Teitl Swydd: *Darlithydd mewn Mathemateg, Prifysgol Ulster*
Cymwysterau: *BSc mewn Mathemateg, MSc, PhD mewn Ffiseg Theoretaidd, PGCE*

Meddyliwch am fyd nofelau, cerddi neu bapurau newydd. Byddai wedi ei gau i chi oni bai eich bod yn medru darllen. Mae medru siarad iaith mathemateg yn agor byd llawn mor fawr i chi.

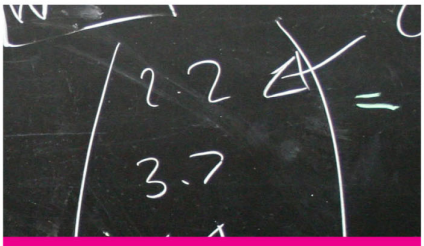
Mae'n fyd sy'n llawn o bethau fel mecaneg cwantwm (sef mathemateg atomau a gronynnau), perthnasedd Einstein (sef mathemateg bydysawdau cyfan), sosio-ddeinameg (mathemateg ymddygiad cymdeithasol), mathemateg ariannol (ar gyfer rhagfynegi'r farchnad stoc), prosesu delweddau digidol (mathemateg sydd tu ôl i'ch camera)... Mae'r rhestr yn un hir iawn, ac mae'r holl lyfrau gwybodaeth hynny wedi eu hysgrifennu mewn mathemateg.

Rwyf yn dysgu mathemateg mewn prifysgol, ond nid i fyfyrwyr sy'n astudio am radd mathemateg yn unig. Mae myfyrwyr sy'n astudio pynciau fel gwyddoniaeth gyfrifiadurol a pheirianneg hefyd angen gwybod rhywfaint o fathemateg, felly rwyf yn dysgu amrediad eang o fathemateg i amrediad eang o bobl.

Mae fy niddordebau ymchwil yn cynnwys modelau mathemategol o lif traffig. Rwyf yn ceisio mynegi'r broblem trwy set o hafaliadau, ac yna meddwl sut i ddatrys yr hafaliadau. Weithiau, golyga hyn bapur a phensel ac weithiau mae'n golygu ysgrifennu rhaglen gyfrifiadur. Yna rhaid i mi feddwl p'un a yw'r atebion yn gwneud synnwyr ffisegol - a yw traffig yn gweithredu go iawn fel mae fy model i'n dweud y dylai? Ac os mai 'na' yw'r ateb, yna sut alla' i newid fy model i'w gwella?

Rwyf wrth fy modd gyda'm swydd. Rwyf yn cael dysgu mathemateg, a chwarae o gwmpas gyda hafaliadau a datrys problemau. Mae dwy ochr y swydd yn medru bod yn her, ond hefyd yn werthfawr iawn.

I fod yn ddarlithydd mathemateg, rhaid i chi wneud PhD sy'n dair blynedd bellach o astudio ar ben eich gradd gyntaf. Ond y peth gwych am fathemateg yw, oherwydd ei bod yn agor drysau ym mhob man mewn gwyddoniaeth a pheirianneg, mae cael gradd mewn mathemateg yn agor nifer o ddrysau gyrfa hefyd. Felly hyd yn oed os nad ydych yn cyrraedd yr un lle â mi, mae llawer iawn o gyfleodd yn dal i fod ar gael i chi.



"Mae dwy ochr y swydd yn medru bod yn her, ond hefyd yn werthfawr iawn."

Mark **McCartney**

Job Title: *Lecturer in Mathematics, University of Ulster*
Qualifications: *BSc Mathematics, MSc, PhD Theoretical Physics, PGCE*

Think of the whole world of novels, poems or newspapers which would be closed to you if you couldn't read.

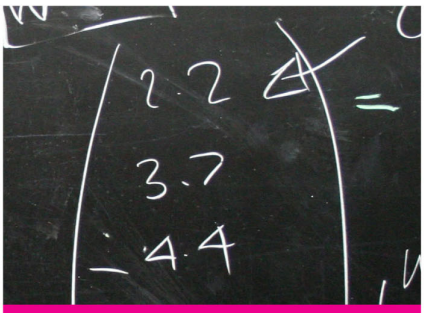
Being able to speak the language of mathematics opens up a world which is just as big. It is a world filled with things like quantum mechanics (the mathematics of atoms and particles), Einstein's relativity (the mathematics of whole universes), socio-dynamics (the mathematics of social behaviour), financial mathematics (for predicting the stock market), digital image processing (the mathematics behind your camera)… The list is a very long one, and all those books of knowledge are written in mathematics.

I teach mathematics in a university, but not just to students reading for a maths degree. Students studying subjects like computer science and engineering also need to know some mathematics, so I actually teach a wide range of maths to a wide range of people.

My research interests include mathematical models of traffic flow. I try to boil the problem down to a set of equations, then think about how to solve the equations. Sometimes this means good old pencil and paper and sometimes it means writing a computer program. I then have to think about whether the solutions make physical sense – does traffic actually behave in the way my model says it behaves? And, if the answer is 'no', then how can I change my model to make it better?

I love the job I do. I get to teach maths and play around with equations and solve problems. Both sides of the job can be challenging but they are both very rewarding.

To be a maths lecturer, you need to do a PhD which is a further three years' study on top of your undergraduate degree. But the great thing about mathematics is that, because it pops up everywhere in science and engineering, having a maths degree opens lots of career doors. So even if you don't finish up where I did, there are still loads of opportunities.



"Both sides of the job can be challenging but they are both very rewarding."