






Actuarial Mathematics and Financial Mathematics

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Welcome to the first edition of the e-bulletin for Mathematics School Teachers. Please feel free to pass on to any of your colleagues with an interest in the area, or to pupils who might be thinking of an Actuarial or Financial career.

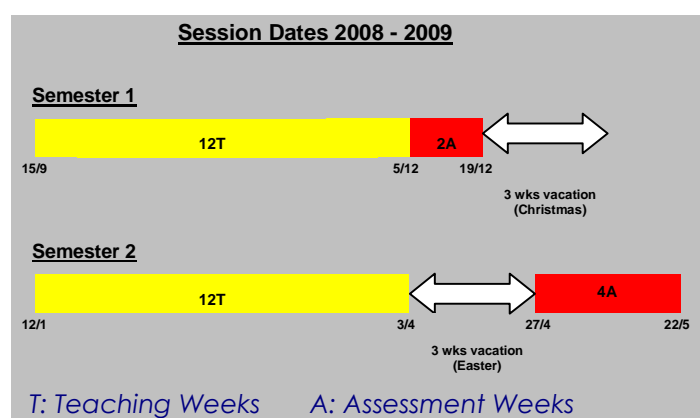
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Actuarial Science Course Developments

Heriot-Watt will be introducing a new structure in a few months time. We're changing our academic year from three terms to two semesters, running for 30 weeks from mid-September to the end of May. This change has given course planners the opportunity to refresh some of the material offered in their programmes, so we thought you might like to know what new features are being introduced by the Department of Actuarial Mathematics and Statistics.

As you are probably aware, this department was the first of its kind in the UK and we have an excellent track record in both teaching and research. We're taking on board the increasing demands of the industry that, right from the outset of their course, students should be given challenges that will allow them to build up a range of more general personal qualities as well as high quality academic abilities. To this end, we've developed a new "Professional Development Planning" module for first



year students that will run alongside our standard units in probability, statistics, calculus, algebra and economics. The new module will encourage students to become involved in team-working activities, learn specific techniques in standard computer packages that will help them in an office situation and hear what it's like to work as an Actuary or Financial Mathematician from those actually possessing such roles.

We have three undergraduate courses all leading to BSc (Hons) – these are [Actuarial Science](#), [Financial Mathematics](#) and [Statistical Modelling](#). The Actuarial Science course is fully accredited by the UK Actuarial Profession, meaning possible exemptions from many of the professional exams. For more information, please visit www.ma.hw.ac.uk/ams.

[Formerly called BSc Statistics, the third course mentioned above has been rebranded as "Statistical Modelling" and now includes some new modules to make it more relevant to the needs of industry.]

The Times Good University Guide Rankings – Mathematics in the Top 20

In the Times Good University Guide 2009 just published, Mathematics at Heriot-Watt University is ranked at number 18 in the UK. We obtained a particularly high score for our graduate prospects.

Careers News

Graduates from Heriot-Watt's Actuarial Science course have an excellent record of securing jobs in well-respected companies. Even before they have sat their final exams, many of our students this year have won positions as trainee actuaries or in the finance sector in general. Here are some recent examples with their comments about our course.

Scott: I think Edinburgh is a great place to study because of the strong actuarial base within the city – there are a lot of big life offices and consultancy companies here. Even before I graduated, I was offered a job with PricewaterhouseCoopers Edinburgh office to work on, amongst other things, audits for large insurance companies. Having experience of working in teams, both at university and by playing hockey, made a real difference to me being offered the job.



Sheila: I'm starting as a Pensions Consultant for Watson Wyatt next month. My course really prepared me because it's such a specialised degree and so I've learned a lot of really relevant information. For example, we studied modules in Business Awareness so that we know a bit about how the industry operates and can therefore start our jobs being one step ahead!

George: I really enjoyed Heriot-Watt and I became actively involved in the University's Actuarial Society. This really helped me develop skills that will be useful for the rest of my life.



Jessie: I'm an Actuarial Analyst at HSBC in Edinburgh. I chose this course because I was considering a career in finance, but I wasn't entirely sure of what I wanted to do. I liked the fact that the course features a broad overview of finance and economics. I gained exemptions from eight professional exams which has saved me about two years of studying! I've passed my first exam and am currently awaiting the results of two more.

You can watch interviews with some students on our website, www.ma.hw.ac.uk/ams. This also lists more advantages of studying with us, including details of our industrial placement and study abroad schemes.

What is Financial Mathematics?

Alongside the well-established degree in Actuarial Science, Heriot-Watt offers a unique undergraduate degree course, Financial Mathematics.

The course in [Financial Mathematics](#) is unique because it focuses on developing an understanding of financial markets in a mathematical sense, in the way a physicist understands nature or an engineer understands technology through mathematics. A key difference between Financial Mathematics at Heriot-Watt and other finance, economics, science or engineering courses is that the degree is based on understanding randomness rather than classical, deterministic, mathematics. Since being able to manage uncertainty is a key skill in many careers, not just in investment banking but in almost all businesses and many branches of science and technology, a scientific understanding of

risk and uncertainty is an excellent starting point for careers ranging from scientific research to stock market trading.

Heriot-Watt, being the only UK university that offers this type of undergraduate degree (other universities offer Financial Maths at MSc level only), hosts the UK Research Council's Academic Fellow in Financial Mathematics, Dr Tim Johnson. One of Dr Johnson's responsibilities, as an Academic Fellow, is as a Schools' Science Ambassador to explain probability, how it has developed and its financial and non-financial applications, to school students (he has CRB clearance to work in schools).

If you are interested in Dr Johnson visiting your school, contact him directly at t.c.johnson@hw.ac.uk.

Actuarial Awards

Heriot-Watt students and staff in Actuarial Science have been particularly recognised this year in end of term awards ceremonies. For a while we have been home to a very strong Actuarial Society, but because of its exceptional work during this year, it was nominated by the student body as "Society of the Year". One of the main activities of the group during the last twelve months was to organise a conference featuring well respected speakers from the actuarial field. This was an excellent and highly professional event and really showed off the skills of the students organising it; because of this, there were two further awards, one for "Event of the Year" and the other to its president, George Bakoloukas who was named "Leader of the Year".



A fourth award, for "Teacher of the Year", nominated by graduating students, was made to statistics lecturer, Dr Jennie Hansen. Jennie is an enthusiast of group-work and initiated the current tutorial arrangements in our statistical courses which have brought a noticeable improvement in students' understanding of the material. She also claims to remember the name of every student she has ever taught and proves it on occasion when she meets former graduates in the street and asks if they remember the formula for the Poisson distribution!

For more information about our staff, many of whom are actuaries themselves, visit www.ma.hw.ac.uk/ams

Maths Masterclass

The Department of Mathematics will be running the Maths Masterclass again in Autumn 2008. The event is run jointly with the University of Edinburgh and takes place on Saturday mornings. Information will be circulated to teachers in due course.

We hope you enjoy your summer break.

Department of Actuarial Mathematics & Statistics