



Michel Destrade

Michele Destrade is a Professor of Applied Mathematics in NUI Galway. He spends lots of time lecturing, writing scientific journals, and trying to solve extremely complex equations.

Job title

Professor of Applied Mathematics

Company

NUI Galway

Describe a typical day in your role.

There are two types of days: those with lecturing (i.e. teaching to large classes of students) and those without. In NUI Galway there are two semesters of 12 weeks for lecturing, and during those I teach and do research (and some paperwork) while during the remaining 52-24=28 weeks, I'm a full-time scientist.

Typically, I arrive at work at 9 am, take a one-hour break in the middle of the day, and go home at 6pm. Most of the time it's just me and my paper/computer, calculating and writing. Not so exciting to look at! I'd say I spend 80% of my time at my computer, trying to discover new things or coming up with new ideas. I also collaborate with others (scientists in Ireland and abroad, and my PhD students) and we write scientific articles. Even outside of these hours I keep thinking about some stubborn equation or problem that doesn't want to be solved. I often have ideas while cycling or walking or travelling or falling asleep (thankfully I remember them in the morning!).

What are the main tasks involved in your job?

My main task is to write scientific articles for international journals. It's a long process! I have to come up with an original idea, test it in theory, then test it with computers and experiments. If the idea is original and confirmed by the experiments, I write it as an article which I then submit to a journal who will send it for (anonymous) review to other scientists. If they find it of worthy scientific value, it is then published. It can take years from beginning to end!

I often interact with experimental scientists, such as engineers, physicists, biologists, doctors and surgeons. I even worked with Marie Cassidy the State Pathologist for a while, trying to figure out how much force was required to pierce skin. That was super exciting!

I also have other scientific responsibilities such as being an editor for several scientific journals, writing grant proposals and administrating the successful ones, mentoring final year Undergraduate students, summer interns, PhD students and postdoctoral fellows, going to conferences to present my work and discover that of others, etc.

Beside doing proper science, I also deal with email, paperwork, preparing and delivering lectures, writing and grading exams, visiting schools and taking part in outreach activities such as this one, or FameLab, or Bright Club where I had to develop a stand-up comedy routine (look it up on YouTube)!

What's your favourite thing about being a lecturer?

The contact with my fellow scientists and with students, and the intense satisfaction of solving a maths equation, in research as well as when teaching. I still get a kick out of it, and I can't believe it's my actual job.

What are the main challenges?

Challenges I enjoy

Coming up with new scientific ideas all the time. Staying focused for hours, days, months and sometimes years on a problem. Learning and understanding new results and new techniques. Writing the results in a clear manner, that will be understood by the readers. Lecturing to large classes. Facing the general public in outreach activities.

Aspects of my job I enjoy the least

The administrative part: having to go to meetings, sitting on committees, taking the minutes, writing reports, compiling data, that sort of things. But it has to be done!

Who or what has most influenced your career direction?

I went to university with the aim of being a physics teacher in secondary school. But during my Masters I realized I liked research a lot, and that scientific research was in fact quite accessible. I missed it when I was teaching in secondary school the following year and then decided to go on to do a PhD and see what opportunities would arise. My advisor at UCD (the late Professor Michael A. Hayes) and my family were extremely supportive and had a major influence on my career choice.

Does your job allow you to have a lifestyle you are happy with?

Yes I am very happy with my job and wouldn't want any other. I am also keenly aware that it is a very rare job, as there are only a handful of Professors of Applied Mathematics in Ireland. As the number of PhD graduates is increasing rapidly, while the number of permanent positions stays the same, there are not that many jobs available in the university system. But there are many other opportunities for STEM PhD graduates (biomedical industry, Research & Development, financial and pharmaceutical sectors, etc.); their unemployment rate is very low!

What subjects did you take in school and did they influence your career path? What was your favourite?

Maths, Physics, Chemistry, Biology, Literature, History, Geography, English language.

The first two had a big influence! I was good at languages and literature, and it stills helps me to this day when I write scientific articles or articles for the newspapers, or grant applications.

What aspects of your education/experience to-date have proven the most useful for your job today?

Of course studying maths and physics has proved the most useful for my job, but it's not all that is required to become a good applied mathematician.

Although I abandoned the teaching career path, the training I received then, and the one-year teaching experience I had, came in handy for lecturing in university. If you can teach secondary school pupils, then teaching university students is a piece of cake!

Also, being good at literature and languages has been a surprising bonus, because even in STEM we have to write a lot.

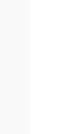
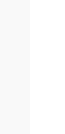
What advice would you give to someone considering this job?

You need to really enjoy solving a maths problem! When I managed that in secondary school, I always got an intense satisfaction, and I still do to this day. That's the only way to keep going. If you are perpetually seeking to relieve that sensation, then you can go very far in acquiring the skills and diplomas required to become a scientist.

As I said earlier, there aren't that many permanent positions in university, so I would always advise my students to acquire other skills than just maths. They should be good at writing, at oral presentation and interviews for example. Being fluent in computing and/or statistics and/or data analysis is an excellent skill on a CV, which opens up many roads.

What kinds of work experience would help someone looking for a position similar to yours?

Any type of experience is good. To enter a good undergraduate degree and then a good postgraduate programme in science, it's important to show that you are into science! That includes taking part in science-related activities such as summer science schools or later, summer internships, joining the Science Society in college, taking part in science/coding online courses and competitions, etc. But nothing is written in stone and it could be that you develop a taste for maths late in your education. It's never too late to join the science squad!



I would always advise my students to acquire other skills than just maths. They should be good at writing, at oral presentation and interviews for example. Being fluent in computing and/or statistics and/or data analysis is an excellent skill on a CV, which opens up many roads.

