QUANTUM TECHNOLOGY SCHOOL

Careers Case Study

Name: Tom Queen

Job title: Laboratory Technician

Typical day: No two days are the same. During term-time, I primarily work with second-year students, usually around 180 per year. I set up and maintain practical experiments, do regular safety inspections before equipment is used, and do repairs where necessary. The equipment involves high-voltage supplies, radioactivity, and lasers, so safety is absolutely paramount. I deal with IT queries, administering the department's virtual learning environment, processing exams and other forms of assessment. I also train academic staff and postgraduates on how to use and demonstrate lab equipment safely and effectively.

What put you on the path to your current job: When I realised that I did not want a career in academia after graduation, I sought out jobs in the public sector where the focus would be on making a difference rather than making profits. I got to know the technicians as a student, as they were the people who were there to help us every day, and one advised me that a vacancy would be coming up soon. This wasn't the path I had expected, but it was not an opportunity to pass up!

> **"You also get to see the practical application of students' knowledge, and seeing them when they graduate gives you an immense feeling of pride..."**

Best thing about the job: We are broadly autonomous, and left to work without excessive supervision but with experienced line management. The

annual leave, sick pay, and other policies are above average for the sector. You also get to see the practical application of students' knowledge, and seeing them when they graduate gives you an immense feeling of pride to have been even a small part of it.

Things that are not so good about the job: There often aren't the resources we would like, such as enough staff or time, to deal with the daily variations in workload. Everyone pulls together, but it can be quite stressful - all the more reason to get more technicians!

About you outside of work: (i.e. what do you like to do when not working, does your career choice enable a work-life balance you're comfortable with, etc): In addition to my job I am active in my trade union, to try and improve the good things I've mentioned and tackle the bad things! I also run clubs and gigs, collect vast quantities of records, and am halfway through a second undergraduate degree in Humanities with the Open University. The work-life balance is usually quite manageable, it is rare that we are ever required to work beyond 35 hours a week.

Starting salary: Depends on the role. When I started it was £17,500 but for many positions you could start at £22,000 with annual increments.

Minimum qualification needed for role: Typically only HNCs or Advanced Highers, but if you have the experience and can demonstrate your competence that can also suffice.

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Careers Case Study

Name: Kirsty Jones

Job title: Medical Physicist

Typical day: There are lots of different specialties within medical physics such as radiotherapy, nuclear medicine, MRI, diagnostic radiology, radiation protection, ultrasound and instrumentation. The role can be very different depending on the specialty and the department. I specialise in Nuclear Cardiology. My job involves reporting nuclear cardiology scans, processing images, implementing new techniques and technology into the department, radiation safety, testing equipment, research, teaching, programming and working as part of a multi-disciplinary team.

What put you on the path to your current job: I became interested in medical physics after taking a medical imaging class during my undergraduate physics degree. Applying physics to healthcare seemed like an interesting and positive way to combine my skills and interest.

"There's a lot of variety in my job which I love, and there's always something new to learn"

Best thing about the job: There's a lot of variety in my job which I love, and there's always something new to learn. I also find the work very rewarding.

Things that are not so good about the job: There's not really anything I don't like about the job but it can be frustrating working for the NHS where there is limited funding.

About you outside of work: (i.e. what do you like to do when not working, does your career choice enable a work-life balance you're comfortable with, etc): I enjoy yoga, swimming, snowboarding,

hillwalking, and I'm also doing a part-time PhD.

Starting salary: ~£28,000

Minimum qualification needed for role: Honours degree (2:1 or above) in physics

The NHS have a 3 year healthcare scientist training scheme. The first year is an MSc in Medical Physics, followed by a year of placements in different areas, and the final year focuses on one specialty.

QUANTUM TECHNOLOGY SCHOOL

Careers Case Study

Name: Rebecca Douglas

Job title: Trainee Patent Attorney

Explanation: Patents are legal documents that protect inventions. They usually describe the invention in lots of detail, using lots of scientific and legal language. Patent attorneys write the patents making sure that they include all the information necessary to describe the invention properly and they also liaise with various patent offices while the patent is being examined.

Typical day: Days can be very varied. In a typical week, however, I'll usually have at least one meeting with a client to discuss their inventions, I'll spend some time writing legal documents to protect the inventions and will write letters to various patent offices. I use my degree every day to help me to understand how things work and to explain them. It helps to be able to ask detailed questions and sometimes clients will invite me and my colleagues to their labs or offices so they can demonstrate their new technology. In addition, I'm a trainee and my background is physics, but I never studied law, so I'm now spending a lot of my time studying so that I can pass my professional exams.

"…when an inventor comes up with something new and we start working on it, it makes it feel like you're getting to see the future before everyone else."

What put you on the path to your current job: I loved science and research but I didn't want to spend all my time in one narrow field. Because all areas of technology are constantly developing, by becoming a patent attorney I can learn about something different and new every week.

Best thing about the job: The inventions have to be kept very secret, at least until the patents are published. So when an inventor comes up with something new and we start working on it, it makes it feel like you're getting to see the future before everyone else.

Things that are not so good about the job: There are a lot of deadlines and sometimes things can get very hectic trying to meet them. Good time management is definitely an essential skill for this kind of work.

About you outside of work: (i.e. what do you like to do when not working, does your career choice enable a work-life balance you're comfortable with, etc): I find the work-life balance to be good but this can be dependent on your own discipline, as well as the habits of your colleagues at the firm your with. During the run-up to exams I need to spend a lot of my own time studying but I see that as an investment of my time that will pay off later. The rest of the time, I like science communication and gardening, I run a couple of book groups, and I go to the theatre with friends.

Starting salary: £28,000 (as a full-time new trainee)

Minimum qualification needed for role: Any science degree

QUANTUM TECHNOLOGY SCHOOL

Careers Case Study

Name: Alison Taylor

Job title: Executive Editor, The Optical Society (OSA)

Typical day: I currently manage a portfolio of scientific journals and am part of the management team for a not-for-profit scholarly society publisher. There's a lot of writing and editing involved, but not in the way you might think from the job title! I started out coordinating the peer-review process and making decisions on what research papers to publish, and have since moved over to the business side of publishing. On any given day I could be doing one, or many, of the following.

- Meet with an Editor-in-Chief and the journal team by phone to talk about journal status, editorial strategy, and active projects like feature issues.
- Review the latest journal metrics or gather new data for analysis.
- Edit marketing or promotional text about the latest research we've published.
- Prepare background information for a program strategy discussion with our governance committees.
- Discuss what the next steps should be in a publishing ethics case.
- Write up a recently decided policy or process change.
- Correspond with an author/reviewer/editor about an article in progress.
- Lead a team meeting on the launch of a new product or project.
- Attend a scientific or publishing industry conference.

What put you on the path to your current job: I did a PhD because it was hard, and because I didn't know what else I wanted to do when I finished my first degree! I never intended to become an academic, so a

colleague who knew that I enjoyed writing pointed out an ad for a scientific editing job. It seemed like a great use of my qualifications; a way to help move science forward without having to spend all my time in the lab or focused on one topic.

Best thing about the job: The broad exposure to cutting edge research and the opportunity to work with many of the leading researchers in the field.

Things that are not so good about the job: Working with volunteer editors and committee members takes patience and plenty of customer-service-type skills. It's very rewarding to work for a scholarly society where the mission is to serve the member community—you just need to keep in mind that the pressures and culture are different than in a commercial business role or in a university department.

"…a scientific editing job […] seemed like a great use of my qualifications; a way to help move science forward without having to spend all my time […] focused on one topic."

About you outside of work (i.e. what do you like to do when not working, does your career choice enable a work-life balance you're comfortable with, etc): I love to travel so it's great that I have some opportunities to do that in my job. Going for a run early in the morning to explore a new city is a great way to clear my mind and feel refreshed before my meetings start. Working with the global community of researchers can mean urgent emails popping up at all times of the night and teleconferences occasionally get scheduled at unearthly hours of the morning, but for the most part it's possible to keep regular office hours, and telecommuting is a possibility.

Starting salary: $70-75,000 (less for non-PhD level roles)

Minimum qualification needed for role: PhD, although many roles in scientific publishing only require a BSc.

QUANTUM TECHNOLOGY SCHOOL

Careers Case Study

Name: Douglas Murray

Job title: Actuary

Typical day: An actuary uses skills in mathematics, statistics and economics to quantify and manage long term financial risk and typically work in insurance or pensions.

My role as a pensions actuarial consultant is typically centred around advising pension schemes on the level of contributions required to meet a future pension promise, and the way its assets should be invested to maximise its return on investment for a given level of risk.

The type of work you do varies as you progress in your career. In the early years, you will spend a lot of time carrying out complex calculations, generally spreadsheet based or using specific software.

As you become more experienced you spend more time in front of clients explaining the results of your analysis in understandable terms and advising on strategy. This involves assisting pension scheme trustees (whose role is to protect the security of members' benefits by ensuring they will receive the pension they were promised) and companies (who will be focussed on managing the cost and risk associated with their pension schemes).

"An actuarial role appealed because it gave me the opportunity to apply these [mathematical] skills in an everyday setting."

What put you on the path to your current job: It was one of the first jobs in the A-Z directory that required strong mathematics skills! I always enjoyed trying to solve complex problems having studied physics up to PhD level at university. An actuarial role appealed because it gave me the opportunity to apply these skills in an everyday setting.

Best thing about the job: For me the job is the best of both worlds. I really enjoy the challenge of having to creatively solve a difficult problem and put my maths skills in to practice. But even more so I enjoy having to explain my analysis to clients in a simple to understand way and to help them take the right decisions. It means I get to meet lots of interesting people too, and get exposed to a wide variety of different type of work.

Being an actuary tends to score highly in polls of "most desirable jobs".

Things that are not so good about the job: The exams are really not for the faint-hearted. There are 15 professional exams before you qualify as an actuary, and it takes a number of years to qualify (typically 5 or more). This means having to balance work life while studying in the evenings/weekends which is a real challenge when your friends/partners are out enjoying themselves.

Another challenge is that as I work in a consultancy and have a number of different clients, inevitably they always seem to want work at the same time! As a result of this (and the exams) it could not be described as a 9-5 job, but there are also quieter spells too.

About you outside of work: (i.e. what do you like to do when not working, does your career choice enable a work-life balance you're comfortable with, etc): Outside of work I love music – I play guitar and turn my hand to a variety of similar folky instruments - mandolin, ukulele, banjo etc. They say that mathematical ability and musical ability are closely connected, but I am very much more an "enthusiastic" rather than talented musician!

I'm also football daft and like to get into the country at weekends to go for long walks.

In my experience actuaries are quite a sociable bunch - you will come through the ranks with like-minded people and you will find most offices have a busy social calendar.

Starting salary: Typically £25-35k. Most companies offer salary increments with each examination success

Minimum qualification needed for role: Typically 2:1 degree in a numerate discipline.