



# WHY IT MATTERS... CHEMISTRY



Loughborough  
University

## Dr Beth McMurchie

### R&D Applications Specialist

I believe chemistry matters generally because chemistry research is helping shape the future in energy, crime prevention and many other areas. My degree matters to me because it led me to my current career. My Doctorate (PhD) was in chemistry, but with a forensic focus. I collaborated with the Design School and the School of Sport, Exercise and Health Sciences. I focused on improving the methods forensic officers already employ to find more evidence at a crime scene.



For me, my degree subjects were relevant to my career, however there are many things I learnt throughout my degrees that also now help in my job. The more general health and safety I learnt throughout my time in laboratories during my degrees now allows me to work safely in my own laboratory.

Doing my PhD improved my time management skills and my ability to plan my own work efficiently. Doing research in the final year of my Masters in Chemistry and throughout my PhD has also taught me how to plan a good project, and what to do if something doesn't go as planned.

<b>Post 16 Education</b> A Levels Maths, Chemistry, Biology & Psychology	<b>Higher Education:</b> MChem Forensic and Investigative Chemistry at UEA PhD 'Forensic Evidence Enhancement using Physiological Aspects and Processes'
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### Why did you choose Chemistry?

When I applied for my undergraduate degree, I knew I was very interested in forensic science, but wasn't sure exactly what kind of job I eventually wanted to do.

I enjoyed chemistry at A Level, and when I found out you can study a core chemistry degree but with forensic modules integrated, I decided that was right for me. Forensic and Investigative Chemistry offered many optional modules pre-selected and forensic science based. I was able to take modules designed for Biology and Law students which allowed me to understand how my chemistry knowledge could be used in a forensic context.

I really enjoyed my masters project at the end of my undergraduate degree, and this led me to wanting to apply for a PhD position. When I found my PhD advertised at Loughborough University, it seemed perfect for me, again combining my forensic and chemistry background.



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### Beth's experience as a student

I really enjoyed my time at Loughborough University, maybe why I haven't moved very far now!

At the interview for my PhD position, I was introduced to Richard, one of the current PhD students. After getting my PhD position, I worked with him throughout the first year of my PhD, five years later and we now work together for Foster+Freeman!

Studying for a PhD can feel quite lonely, as it is your individual work, and everyone has a slightly different time frame, unlike undergraduate where you're all studying for the same course, at the same time. Despite this, I made some amazing friends throughout all years of my PhD who definitely kept me going.

### Career

I am a Research & Development Applications Specialist for Foster+Freeman, a forensic innovation company.

I synthesise and pack the chemical DEVELOP which is used in the brand new RECOVER process to visualise fingerprints on metals, even after they have been washed. I also conduct forensic research both with the RECOVER process, but also with other fingerprint reagents and procedures.

I had worked with Foster+Freeman throughout my PhD. The RECOVER system was launched as I was writing up. Whilst Foster+Freeman do all their own in-house manufacturing; they did not yet have a laboratory facility suitable for producing DEVELOP.

I was hired as my combined forensic and chemistry background allowed me to set up the new lab space, and work on both the chemical synthesis required whilst also undertaking forensic focussed research.

**Beth's advice:** Up until now, most people have followed very similar paths through school, that's all about to change and that is fine! You have to do what is best for you. It's also fine if you don't know exactly what you want to do yet. Think about what interests you, there will be lots of types of jobs that you haven't even heard of, I didn't know a job like mine even existed until I met people from Foster+Freeman.

**Loughborough University offers undergraduate degrees (BSc and MChem) in**

Chemistry, Medicinal and Pharmaceutical Chemistry, Natural Sciences, Chemistry and Computing.