

UROP: Undergraduate Research Opportunities Programme

A Personal Perspective by a student who had just completed the second year of an undergraduate degree in Materials, and embarked on an UROP research experience in the summer of 2015 under the supervision of a member of staff in the Energy Futures Lab.

Placement Title: Fabrication of electrodes for oxide fuel cells

My motivations for doing UROP in general and this research experience in particular:

I have always enjoyed the more practical side of my studies which has made me interested in going into research. I had never worked in a lab for such an extended period of time (or on such a big project) so I wanted to see if I would truly enjoy research. As such, UROP was a more accessible way to gain insights into the workings of a postgraduate lab and gain work experience at the same time.

This specific placement interested me because I have always enjoyed electrochemistry and although fuel cells are covered in our lectures, I felt like I should challenge myself by delving deeper into the subject.

How I secured my research experience:

My supervisor advertised this UROP placement and I applied by emailing him back with my CV. He then invited me to a short informal interview, where he gave me a tour of the labs and judged my interest and competence by asking me a few questions about how I deal with different aspects of working in the lab.

Preparation I undertook before my research experience commenced:

I was instructed that no special preparation was required, but before the start of my placement I read a few of my supervisor's previous papers in the field and of course read through my lecture notes on the relevant subjects. The application for funding was preparation in itself as I had to do some research to have enough information to prove the importance of the project.

Training and other orientation undertaken at the beginning of my research experience:

At the beginning of the placement my supervisor gave me a few papers to read on the subject. Throughout the placement I was taught to use various machines and techniques relevant to the project such as screen printing, tape casting, impedance spectroscopy and more.

The skills and experiences gained or enhanced from undertaking my research experience:

I would say that the most basic but important experience I gained from this placement is spending 8 weeks in the lab, 5 days a week, 9 to 5. It is completely different from isolated (or even extended) labs which I have experienced in the first two years of my course. It was wonderful to confirm that I really enjoy working in this type of environment.

Through the placement I have become accustomed to many techniques and machines which will make me more confident in further lab work. Although some of the skills I have learnt are very specific, many of them are very general and will be useful in whichever field I choose in the future.

My integration into the research environment

The whole team was very welcoming. They were always ready to give me advice when it was needed, but my supervisor also encouraged me to make my own judgments regarding the direction I was taking with the lab work. It was a very relaxed and encouraging environment to work in.