University of Edinburgh, School of Chemistry

By: George Georges, Class of 2019
Location: Edinburgh, Scotland, UK
Work Responsibilities

• Learning how to conduct laboratory research
• Performing $^1$H NMR spectroscopy of pig liver bile
• Investigating functions and significance of major metabolites
• Comparing healthy bile to reperfused bile using statistical methods like principal component analysis
Daily Work Routine

• Here I am standing in front of the Joseph Black Building, which is the Chemistry building at the University of Edinburgh.

• I walked to work each morning from my flat about 40 minutes away (I chose to live in the city centre), and I spent my day reading papers in the office or performing experiments in lab.

• After work, I’d walk back home, make dinner, and relax or go for a quick jog over at The Meadows Park in Morningside.
Rewarding Aspects

• Meeting and befriending my labmates.
• Improving my understanding of NMR spectroscopy.
• Becoming more familiar with TRUE laboratory research (i.e. how it differs from organic chemistry teaching lab).
My First NMR Experiment

- NMR Experiments were run on a 600 MHz spectrometer, which gives an excellent signal-to-noise ratio.
- The School of Chemistry has 5 NMR spectrometers, AND they are available for use 24 hours per day!
Impact of Lab Work

- Motivation of project: Liver disease is the only rising cause of death in the UK.
- My project helped elucidate metabolic changes in pig hepatic bile after reperfusion of the liver.
- My work complemented the research of my mentor, who investigated liver tissue through Raman spectroscopy.
- In the future, this work can be extended to a human model of the liver to devise methods for improving liver transplant viability.
Working in the Lab

• After the first week, I spent most of my time between the lab and the NMR room.

• In lab, I prepared buffers, NMR samples, and TLC plates, and I chatted with my labmates who were working on other projects.

• I quickly realized how lab work necessitates a sense of independence and responsibility, as well as an exploration of scientific curiosity!
Influence on My Future Plans

• I plan to major in Chemistry, with a certificate in Applied & Computational Mathematics.

• Lab work was a great experience, but it felt tedious at times, so I’m not sure if I plan to pursue research after graduation.
  • I likely would have enjoyed a more quantitative or inorganic chemistry project more.
  • Chemistry major will afford me with more opportunities to decide how I feel about laboratory work.

• I really enjoyed the data analysis aspect, so I may pursue applied mathematics or computer science in graduate school.
Social Events With My Labmates!

- My labmates and I went out for group social events every few weeks.
- Here we are having dinner at Vittoria’s, a great Italian restaurant on George IV Bridge in Edinburgh.
Thoughts on Overall Experience

- I learned a lot about Scottish culture, explored the beautiful Highlands in the north, visited museums, and saw a bunch of Scottish cities.
- I made incredible friends in my lab group, with whom I still keep in touch.
- I visited several other countries in Europe during my trip, including The Netherlands, Belgium, England, and France.
- I had the best summer of my life so far.