

Summer Internship Report 2017

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Hometown: Spokane, Washington



**Chemistry Research Assistantship
Sewanee, Tennessee**

Provide an overview of the organization/research project and a summary of your responsibilities, tasks, and/or projects.

My research project was the synthesis and characterization of organic-inorganic conjugate dyes designed for solar energy harvesting. I worked with conjugates of organic rylene dyes and metal-binding dyes such as 1,10-phenanthroline. I started with preparing the starting material and analyzed that substance; then I tested the ability of the substance to bind metals such as platinum.

During your internship, what did you accomplish or how did you make a difference? In what ways did you grow in your professional and technical skills?

I made progress on my research project, and while I didn't get the hoped final product, I successfully made the other products and completed the reactions up to attaching the platinum, which is the final step. Through my work, I learned several chemistry techniques and how to operate chemistry equipment. I gained skills in spectroscopy (NMR, UV-Vis, and IR), reflux reactions, silica filtration, testing solubility, and thin layer chromatography. Also, I learned how to use a rotovap, a sonicator, and a schlenk line.

Describe a problem that you helped to solve at your internship. What skills or knowledge from your education at Sewanee helped you address the problem?

I had to figure out how to purify one of my reactions because for the next step of the process I needed the sample pure to prevent other byproducts from being made and needing more purification. I used knowledge about solubility learned in Chem 150 to test different solvents and find one that would only dissolve one of the two substances present in the sample. With this knowledge, I was successfully able to separate the two substances and continue with the next reaction.

In what way were your teamwork skills strengthened?

My research was mostly independent, but I received help and guidance from the professor I was working with, so I learned how to properly communicate with a mentor to guide research, and how to communicate my work so that the research could progress with guidance. When I didn't know what to do to purify a sample, or what the next step was, I could communicate that, so that I could receive the help I needed to progress.

How did your internship affect your career plans?

Through my experience this summer, I found out that research is something I could see myself doing in the future as my career, or at least as part of it. I gained valuable insight about graduate school in chemistry, and perspective of what graduate school may be like if I chose to attend. My research experience this summer gave me an idea of what a future in chemistry might look like and be like.

In what ways did your internship cause you to encounter people of different backgrounds from your own? What steps did you take to communicate effectively with such persons? What did you learn from such persons' perspectives?

This question is not very applicable to my summer experience since I worked in a lab, so I did not encounter very many people.

Words of thanks to your internship funding donors:

I really appreciate the opportunity to complete research; it was a great learning experience. I was really happy to be able to spend my summer doing research because I am interested in going to graduate school, and I got to experience what that may be like, or what a career in chemistry may be like. I really appreciate having the opportunity to do that, especially after my freshman year, when I wouldn't have been able to get this experience anywhere else. I really enjoy science and it was great to be able to continue to explore that interest over this summer. Thank you again!

Words of advice for future interns (housing, transportation, etc.)?

You can cook almost everything in the microwave