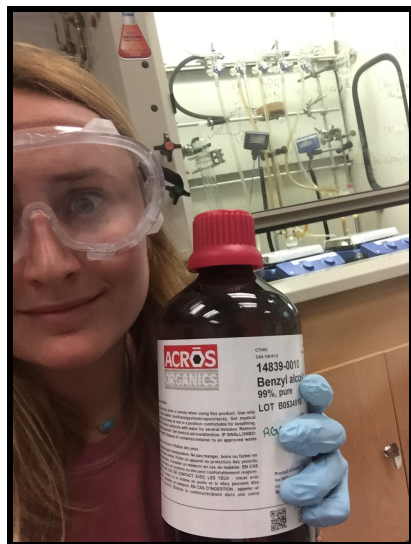


Summer Internship Report 2017

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Chemistry Research Assistantship Sewanee, Tennessee

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

What I attempted to do in my research was to use transition metal complexes to synthesize amides via catalytic dehydrogenation amidation. Ru-diphosphine complexes were synthesized, isolated, and characterized. I synthesized different catalysts including compounds with different counterions to vary the catalysis conditions in order to find out what works best. I also attempted to isolate a stable Ru-H starting catalyst several times in order to avoid having to add a base to the catalysis reactions. In addition to this, I also attempted to synthesize various ligands in order to use in my catalysis reactions. I was responsible for doing my own dishes, keeping records of what procedures I followed, and presenting results to my professor.

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?

Over the summer, I was able to create catalysts and perform counter ion exchanges in order to run multiple catalysis reactions using ruthenium based compounds. I made a difference in the lab because I kept my area clean which made working easier and more efficient. I grew in my professional skills by networking. As my dad always says, it is not what you know, it is who you know. For example, I now know a good majority of the chemistry department, which is useful since I may major in it. I also learned how to do chemistry techniques such as distillation, separation, and filtration.

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?

One problem that I faced while completing my research was the unreliability of some of the papers that we attempted to use. After attempting to replicate their procedure multiple times, we were unable to produce the results; if we were somehow able to get something similar to the desired product, the compound would be impure and therefore we were unable to use it moving forward. I was able to recall that through one of my classes I had been educated on the resources available to me through Sewanee's library and was able to find a more accurate and reliable procedure to follow.

In what way were your teamwork skills strengthened?

My teamwork skills were strengthened through working closely with two other people over the summer. By working with others, I was able to effectively complete tasks faster than I would have alone. Working closely with others taught me that it is generally easier to share responsibilities in order to be more productive. For example, I worked with another student in the lab and together we were able to clean the dishes faster when we worked together, thus allowing us to be more productive later. Also, teamwork was useful when trying to solve problems in the lab, such as searching for chemicals.

How did your internship affect your career plans?

By doing research over the summer, I found out that I actually enjoyed chemistry and wouldn't mind majoring in it. Majoring in chemistry would expand my future career options since I plan on doing something in the medical field. This experience allowed me to discover this interest in chemistry, which was something I would have previously never considered, and attempt to plan my future.

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 was not relevant to me or my experience considering I worked with one other student and a professor from Sewanee.

Words of thanks to your internship funding donors:

I thoroughly enjoyed doing the research, and I appreciate the funding given to make it happen. I enjoyed what I was doing and learned a lot. This experience would not have been possible without you. I would like to thank you for giving me the option to find my interests and dislikes and finding something I am potentially interested in pursuing a career in.

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

A car would be useful so you can get food and prepare to learn how to budget. You do get a stipend; however, you won't be offered a meal plan so you will have to buy your own meals, which is expensive. Also, fans will be necessary since an air-conditioned dorm is not an option and it gets very hot in the summer.