

## RISE Program Account

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So I was going to a foreign country over the summer, “Big deal...,” I thought to myself. I had been to the nearby countries Mexico and Canada before and considered it nothing more than a similarly planned vacation with some work mixed in. Little did I know that as soon as I boarded on the plane leaving my home country I was thrown into an exciting and adventuresome chapter of my own life. This summer internship became one that would help me meet interesting people and make new friends, learn about my field of interest, and realize future goals for myself in the academic world.

Somewhere in my mind I had a picture of what it meant to be working in a chemistry lab in Germany. Having never been to Europe, let alone the country I was embarking to, that picture was seriously flawed. As I remember, it involved rolling hills, sausages, and cheese (oh and of course, beer!). In fact, I imagined little about chemistry at all now that I think about it. Upon arriving in my host institution (the university at Köln) I was brought back to a wonderful reality. The university appeared quite clean, neat, sophisticated, and up to date. Much of the instrumentation and apparatuses rivaled those I had seen at universities in the United States. Luckily, professors and Ph.D. Students were more than willing to train me on the intricacies of the useful hardware. Overall I was extremely impressed with nearly every facet of the German academic institution I became part of.

Research itself varied a lot from what I had experienced previously in the states. Germans seemed willing (and eager) to contribute to one another’s work by providing needed reagents or starting materials, offering advise on references, or pointing out potential problems with reaction schemes. The advantages to this cooperative system seemed two-fold: Students received valuable input from others on what they could do better or how others could help, and students were able to practice usage of their vast knowledge of synthesis by scheming up ways to help others. Most talks were in English so I was able to understand what was going on, and the help/input given. I know that I definitely benefited greatly from the help of my Ph.D. and the assistant professor she worked under as far as guidance during my project. Strongly cooperative research is surely a great strong point for German research institutions.

My research, in particular, caught my interest right away. I was able to synthesize several test compounds for my Ph.D. student’s analytical tests of her own synthesis projects. I always felt as though I was doing something important towards a greater whole project, which motivated me to work harder and learn more during my months in Germany. I found it particularly interesting when unexpected answers were received along the way. Perhaps a yellow powder was supposed to be separated off, but under my conditions an orange needle-like crystal was created. I was then tasked at using various procedures to find the identity of the compound I had made, and propose what had happened if it wasn’t the target product. This process exposed me to a wide variety of methodology and techniques I was previously not well learned in. Above all else research helped me to get experience in applicable organic chemistry and visualized what I would be doing if I chose graduate school as my future path.

On a typical day in Köln I awoke around eight, made myself ready for the day, and got on my bike for work. My Ph.D. student supervisor was kind enough to borrow

me her bike for the summer months which made commuting a short 15-20 minute bike ride. I arrived, was let into the building, and began reviewing the previous day's NMR analyses and reviewing pertinent literature for the day's work. I usually planned the reactions for the afternoon, weighing everything out and setting up the required apparatus, before going to lunch at around noon. I usually ate lunch at the Mensa center right next to the building I worked in on campus with my fellow co-workers. Some days we decided to dine at local restaurants in the area, sampling various German cuisines. After eating, I headed back to lab and finished setting up the reaction which was usually ran at least overnight. On my downtime, I usually was found looking up more literature articles or reviewing from an organic chemistry text book. It helped that everyone was more than happy to explain everything to me and assist me with any questions that I may have about the theory of the project. I usually worked until six or seven at night and then cleaned up and headed back home on my bike. The days were long, but very fun with interesting conversations about chemistry, German culture, and life in general.

Highlights of my stay were probably too much to count, and I constantly am realizing even now many memorable events that I seemed to glance over while working in Germany. Probably one of the best experiences was having a German roommate in Köln. I was able to learn a fair amount of German and have some good times with him while learning a lot about the German way of life. I feel I am more accepting of other cultures and peoples in general through this experience in particular. Also, being able to take part in problem sessions with the chemistry department graduate students was an invaluable highlight of the trip. At times I seemed to even forget that I wasn't yet a graduate student and became totally engrossed in the learning experience going on around me. Finally, I loved just walking around a city that spoke a different language. Every corner and street sign seemed to be a new adventure or mystery to discover and figure out. It quite literally made me feel like a kid again in the utter wonder brought on upon by the whole situation.

Germany as a whole is a very interesting mix of cultures, languages, and societies. In general, people seemed more laid back about unimportant things like appearance or fashion trends. This was nice, considering I was used to the college wardrobe of old blue jeans and a bowling shirt. On the other hand, Germans seemed very business oriented and hard working. I was expected to put in an acceptable amount of hours in each day, and most worked more in a day than I had seen Americans work in a whole week. At first this was hard to get used to, but it became apparent that most Germans like their work and can deal with working long hours to accomplish something important to them. Germans seem very open to conversation, and seem exceptionally knowledgeable about the outside world. In comparison, Americans seem pitifully closed minded and uninterested in other cultures and peoples. For example, my roommate had been to well over 20 countries in his life thus far, knew most of the leaders of the European Union countries, and knew all the people running in the U.S. election. I was hard pressed to come up with just the prime minister of Germany, let alone any of the other governing bodies there.

Germany was definitely I life changing, eye-opening experience for myself. I developed a passion for travel, a desire to continue education in chemistry, and a new appreciation of diverse friendships. I know through this internship program I not only had a good time, but also took much more than souvenirs home with me.