

SPOTLIGHT: THE UNDERGRADUATE RESEARCH EXPERIENCE

What is your current position and how did you get to where you are?

I am **Silvina “Silvi” Di Pietro** and I am currently a 5th-year Ph.D. candidate pursuing a doctoral degree in environmental chemistry at Florida International University (FIU) in Miami, FL. My dissertation oral defense is scheduled for the end of March 2021. I am also a Department of Energy (DOE) Fellow, working as a graduate research assistant at the Applied Research Center (ARC) in FIU. Currently, I assist in development of ammonia gas injection for uranium remediation at the DOE Hanford Site in Washington State. To obtain this position, I applied for the research assistantship fellowship upon being accepted to FIU’s chemistry graduate program.



What made you decide to do research as an undergraduate student?

While I was doing my undergraduate degree in chemistry, I became interested in research so that I could immerse myself deeper into the scientific field and learn practical skills. Because I wanted to enhance my knowledge in analytical and environmental chemistry by being “hands-on”, I decided learning techniques beyond the required laboratory curricula was paramount in order to become a better scientist. Ultimately, my desire was to learn how to think as a scientist.

As an undergraduate researcher, were there particular incidents that stand out?

Yes! When I first discovered that my university’s Honors College was offering an alternative study abroad program based on service and research (also known as research-service learning, RSL) to the Peruvian Amazon, I instantaneously knew it was for me. As an adventure-seeker and future scientist, this program would encourage me to develop my own research project in a unique environment: the largest tropical rainforest in the world! Funded by the Department of State, I was awarded an international exchange scholarship (Benjamin A. Gilman scholarship) that provided financial support to accomplish my goal of studying abroad. By spending four weeks at the Madre Selva biological station in the heart of the Amazon, my project involved examining and assessing the quality of water available to residents of indigenous communities while working side by side with members of the tribe. These types of experiences are certainly not a traditional and typical academic and work setting. Professionally, it reassured me of my profession as a scientist and personally and academically, it broadened my horizons.

How did undergraduate research experience play a role in your career choice?

Undergraduate research allowed me to discover the primary roles of a scientist. During both my one-month study abroad program to the Peruvian Amazon and six-month independent undergraduate research study at my professor’s environmental bioinorganic lab, I had to develop basic steps that played an immense role in my graduate career. In my opinion, these are: (1) understand the “big picture” of the problem or question at hand, (2) do extensive preliminary research and literature review of the topic under investigation, and (3) have a strategical procedure and an organized plan on how to tackle the problem. The main driving factor to the aforementioned list is curiosity. This is the main “ingredient” or key component any scientist needs. Since I am moved and triggered by curiosity, this way of thinking was ultimately the career direction I decided to take – feel useful and purposeful when tackling scientific problems.

Any final thoughts?

If undergraduate students are majoring in any STEM field, I strongly encourage them to partake in any type of research, whether it is via volunteering, undergraduate research with their professors, or applying to a designated Research Experiences for Undergraduates (REU) program. The skills gained via undergraduate research are all numerous and invaluable. Even if the student no longer pursues a STEM degree, the lessons learned and way-of-thinking last a lifetime.

