

CAREER PROFILES Options and Insights

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Degree: When, where, what, and what in?

I earned a bachelor of science degree in chemistry from Hampton University in 1999. After leaving Hampton, I traveled west and earned a master of science degree in organic chemistry from the University of California, Los Angeles. I worked in the pharmaceutical industry for two years following that degree as a quality assurance/quality control chemist for two generic drug manufacturers. I knew those positions were not what I wanted long term, and I soon continued looking for opportunities to further my education. I had an early love for marine science, especially during high school where I had an influential environmental science teacher. I was elated to learn about the graduate program in marine science at the University of South Florida (USF) from one of my Hampton classmates. I left industry to pursue my interests in helping to develop in situ colorimetric sensors to study nutrients and the carbon dioxide system in seawater. I could not have imagined that the choice to follow my old passion would take me on an amazing journey. During my time at USF, I participated in several cruises in the Gulf of Mexico and one to the Arctic. I earned my PhD in chemical oceanography in 2013.

Did you stay in academia at all, and if so, for how long?

I dabbled in academia following the completion of my doctorate degree. I did not have a position in place post-graduation, so made the wild decision to challenge myself by teaching chemistry as an adjunct faculty member at four different

schools in the Tampa Bay region—all in the same semester. I literally taught seven different classes at four different campuses. After accepting a postdoc offer from the National Institute of Standards and Technology (NIST), I paused teaching to focus on my new role as a research chemist. Ironically, I am back in academia as an adjunct faculty member at Georgetown University, teaching “Introduction to Environmental Metrology” for a new master’s program called Environmental Metrology & Policy (EMAP). The EMAP program is part of my official duties and is a collaboration between Georgetown University, NIST, and the US Environmental Protection Agency.

How did you go about searching for a job outside of the university setting?

While looking for jobs, I applied to every opportunity that fit my research interests. I found opportunities on mailing lists from various professional societies and groups and positions posted by my college. Although I have always been interested in academia, none of the positions that I applied for worked out. One of my mentors suggested that I look for federal fellowships offered through the National Research Council Research Associateship Programs (<https://sites.nationalacademies.org/PGA/RAP/>). One listed at NIST was an ideal fit for my background. At the time, NIST was expanding their capabilities for assessing the traceability of carbon dioxide and pH measurements in seawater. The person who would become my postdoc advisor had even read one of my papers and had attended a meeting with my doctoral advisor. The position was a natural fit.



Is this the only job (post-academia) that you’ve had? If not, what else did you do?

Yes, this is the only job post-academia that I have held. I was fortunate that my postdoc advisor was transitioning to retirement when I arrived. While I worked on my postdoc project, I also trained on other aspects of his position. After his retirement, I was equipped to take over some of his former projects, and my postdoc position was later converted to a full-time federal appointment.

What is your current job? What path did you take to get there?

My current title is Research Chemist at NIST. I have maintained this role since I started my postdoc there in 2014. NIST is the US national metrology laboratory and is responsible for the distribution of over 1,300 Standard Reference Materials (SRMs). My lab is based in the Chemical Sciences Division, which is part of the Material Measurement Laboratory. I work as an electroanalytical chemist, responsible for certifying pH SRMs and other standards, such as providing certified values for chloride ion in human serum. We maintain high-quality measurement capabilities and in doing this, we participate in international interlaboratory comparisons on a regular basis.

Over the years we have developed partnerships with oceanographic researchers funded by NOAA. I recently became a member of the Interagency Working Group on Ocean Acidification, where I serve on a small committee working to create a sustainability plan for ocean carbon dioxide reference materials. In addition to this, I have teaching responsibilities during the spring semester. Prior to teaching for EMAP, I also had the opportunity to teach a short course on pH metrology at the University of Cádiz in Spain. My position is a nice balance of laboratory work, teaching, advising, and policy.

What did your oceanographic education (or academic career) give you that is useful in your current job?

My oceanographic education is foundational to informing our independent research projects. My knowledge of chemical oceanography and some of the challenges associated with measuring the carbon dioxide system have helped us to frame valuable metrological research questions. Courses I took in ocean policy and observing systems give me context for understanding the role of the federal government in ocean management and the connectivity of bodies that manage ocean observing. A lot of these groups are now stakeholders that inform us on the development of oceanographic reference materials.

Is there any course or other training you would have liked to have had as part of your graduate education to meet the demands of the job market?

Looking back, I see how helpful it would have been to take more programming and data science classes in tools like R, ArcGIS, GitHub, and Python. In my position, we generate tons of data, and it is essential to know how to efficiently process the data.

Is the job satisfying? What aspects of the job do you like best/least?

This position is absolutely satisfying! I enjoy the fact that I have multiple oppor-

tunities to stay connected with the oceanographic community. I truly feel that the work we are doing to improve the state of reference materials in oceanography is vitally important and will help to sustain our confidence in the data that so many labs around the world are generating. I also appreciate the balance between lab work at NIST and embracing my love of teaching. I feel privileged to be a part of the unique EMAP program and to serve by educating students in environmental metrology. One of the things I like least about the position is administrative paperwork. We work under a quality system that requires constant updating of documents and continual reviews.

Do you have any recommendations for new grads looking for jobs?

My recommendation to new grads is to stay flexible in your search. From my experience, although there are numerous opportunities for working in both industry and government, professors/advisors tend to be more familiar with academic positions. It is also important to stay engaged in your network by attending scientific meetings, being involved in professional societies, and participating in working groups. Many of these groups are willing to involve early career scientists in their planning to bring new ideas and energy. 🌐