



WHAT CAN YOU DO WITH A BACHELOR'S DEGREE IN CHEMISTRY?

By Ula Chrobak



If you're unsure of what to do with a bachelor's degree in chemistry, you're not alone. Lori Spangler, an ACS career consultant, talks to many students who are worried they have few job options. Students are well aware that teaching and working as a laboratory chemist are both options, but there are not-so-obvious paths that may be appealing, say several ACS career experts.

The world of chemistry is so vast that your problem might actually be narrowing multiple options down rather than dealing with too few options. "This is why I love chemistry so much," says Jahari Soward, a managing partner with NPursuit Career Partners and ACS career counselor. "It touches everything."

If you're wondering what else you can do with a bachelor's degree in chemistry, here are five options to consider.

This article was adapted from "What You Can Do with a Bachelor's Degree in Chemistry?" which was originally published in inChemistry on September 21, 2020.

APPLICATIONS OR DEVELOPMENT SCIENTIST

Behind many of the processes, products, and instruments chemists use are technical staff. Application scientists offer hands-on help and information on how to use a particular instrument, service, or reagent. They may also assist customers with buying products, prepare training materials, and visit labs to make installations and repairs. This position often requires regular travel.

Ivona Sasimovich, a process development chemist for International Flavors & Fragrances Inc., tests new flavor compounds, creates process guides for production, and troubleshoots with factories when they are having issues in producing the flavors. "It's always interesting and exciting and you get to experiment a lot," she says.

Sasimovich loves the variety of her job, which requires lots of experiments to refine flavor-making processes. It's a good fit for someone looking for regular challenge—and unafraid of having to fail a few times before solving a problem, she says.

PATENT EXAMINER

Intellectual property is a growing field, and there are many opportunities that don't require a law degree. As a patent examiner with the federal government, you review new proposals to see if they have the novelty characteristics needed to obtain a patent. These experts compare patent applications to existing technology and prepare reports on their findings.

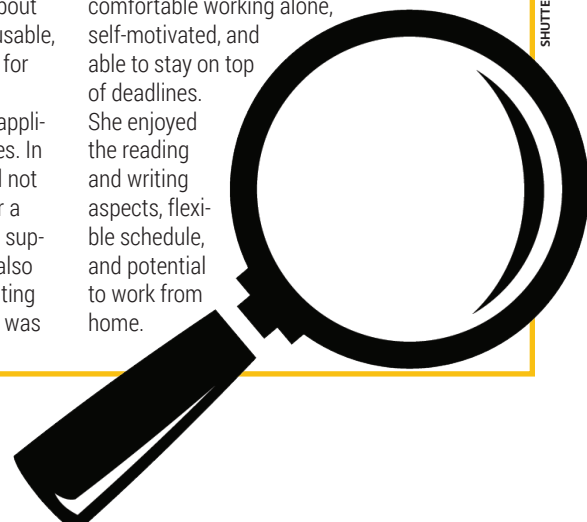
Stephanie Springer, a former patent examiner who performed the job for 10 years, says that you don't need specialized training to take on the job. Examiners should be savvy in searching science literature and patent publications, and they must be thoughtful about how each application is or is not novel, usable, and nonobvious—the three main criteria for patents.

Springer's main focus was reviewing applications for compounds with medical uses. In this context, a new medicinal compound not only needs to be truly novel to qualify for a patent, but the application also needs to support that it's useful. Sometimes, people also apply for patents on repurposing an existing compound for a new use. In that case, it was

Springer's job to determine if that new purpose wasn't obvious. Another consideration is whether or not an invention is "enabled," which means you can't claim something unless you have a viable way of producing it. In other words, "you can't claim time travel," says Springer.

What Springer liked most about the job was the problem-solving aspect of it. "I always thought of applications as puzzles," she says. "You end up taking everything apart [from the application] in your head. That was my favorite part—trying to connect different dots."

Springer says the job is a good fit if you're comfortable working alone, self-motivated, and able to stay on top of deadlines. She enjoyed the reading and writing aspects, flexible schedule, and potential to work from home.



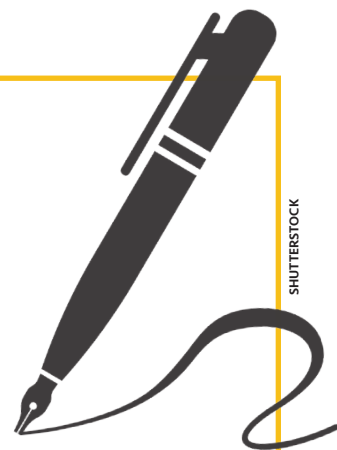
SCIENCE WRITER

If you love chemistry, but prefer the pen to the pipette, there are numerous options in science writing. Companies, nonprofit organizations, and universities employ communications specialists to make written and multimedia content and outreach materials for the public. There are also opportunities for technical writing. Every label and how-to manual for chemistry-related products has a science writer behind it.

You can also bring your chemistry expertise into journalism, working as a science reporter at a publication

or as a freelancer. Brianna Abbott, a health reporter for the *Wall Street Journal*, says her chemistry degree has been useful in her work. Her familiarity with chemistry and the laboratory environment has allowed her to more quickly grasp information, do more in-depth analysis, and made it easier to connect with researchers.

"If you're the type of person who likes talking about your research more than going into the lab, maybe you're looking for science communication," says Abbott. It's a good fit if you like writing and constantly learning new things.



A CHEMIST— IN YOUR FAVORITE INDUSTRY

"Don't get fixated on pharma and biotech," says Soward. Chemistry is everywhere, and if being a chemist in the medical industry doesn't excite you, there are countless other areas to consider.

There is the personal products industry, creating soaps, shampoo, toothpaste, and more. You can be a colorist, formulating paints and dyes for various applications. You can work in the food industry refining flavor and sensory profiles of food additives. There's also paper, rubber tires, adhesives—just about every product in our lives has chemists involved in development and testing.

Some avenues are particularly surprising. For example, art museums employ chemists to clean art, using meticulous techniques that won't damage delicate artifacts.

You shouldn't rule out positions just because of the title, says Soward. "I've seen people turn away opportunities because of the word 'technician,'" she says. Even a position that may seem mundane on the surface could have a lot of engaging duties. In her first job out of college, Soward was a research technician with the Centers for Disease Control and Prevention. "But I was really doing analytical work," she says. "I would have missed out on that had I just said I don't want to do research."

Soward suggests focusing your job search on keywords that match the area you want to work in and the skills you're interested in using, rather than focusing on a particular job title.

It's worth taking on a job that doesn't quite match your end goal, says Spangler, because you never know what other opportunities may exist with a particular employer. "Truly, the beauty of companies and industry—and I tell this to bachelor's and Ph.D.-level scientists—is that you have no idea how many different jobs are inside that company until you get your foot in the door."

Don't be afraid to ask for advice. If you see a career you're curious about, reach out to people in that field. "The best thing to do as a student looking at a potential career is to talk to those who have that career," says Jim Tung, an ACS career counselor working in business development for Lacamas Laboratories. "Asking people questions is a really great way of learning about jobs and cultivating your network."

Ula Chrobak is a freelance science journalist. When she's away from her desk, she's often climbing up the cliffs and boulders of Colorado's Front Range.



ENVIRONMENTAL HEALTH & SAFETY OFFICER

Safety is crucial to the operations of any research facility, and having a chemistry background is helpful for understanding the risks and best practices of various chemicals and instruments. As an environmental health and safety officer, you prepare plans, conduct training, inspect workplaces, and file required documentation.

Debbie Decker spent 27 years working in environmental safety at California State University, Sacramento, and the University of California, Davis. She was responsible for preparing chemical hygiene and emergency action plans consistent with state occupational safety standards. She inspected laboratories and led training sessions on protocols, such as how to evacuate a building when the fire alarm sounds.

This job is best for people who are adaptable and good communicators. "There's a balance there," Decker says. "Sometimes you need to get tough, but it's that communication that matters. It's the soft skills."

Although chemical safety officer positions are available both at institutions and in industry, Decker says that recent graduates may have better luck in industry, as university hiring pools are often packed with Ph.D.-level applicants.

Applicants with bachelor's or master's degrees can better their chances by enrolling in a hazardous materials handling certification program.