American Chemical Society AMA: I'm Lisa Balbes, Freelance Technical Writer/Editor and ACS Career Consultant here to discuss nontraditional careers for chemists. Ask me anything!

AmerChemSocietyAMA [1] and r/Science AMAs[1]

[1]Affiliation not available

April 17, 2023

Abstract

Hi Reddit! I am Lisa Balbes, a long-time Technical Writer/Editor and a volunteer Career Consultant with the American Chemical Society. I am here to discuss chemistry careers, nontraditional careers for scientists, and making career transitions. To give you a little background, I earned my Ph.D. in organic chemistry from the University of North Carolina at Chapel Hill, and my undergraduate degrees in chemistry and psychology from Washington University in St Louis. I spent several years as a computational chemist at Research Triangle Institute. For the past 23+ years, I have been running my own business, providing technical writing and editing services for organizations including Washington University Medical School, Bausch and Lomb Surgical, SigmaAldrich, Stereotaxis, and the US FDA. I addtion to my professional experience, I have been an American Chemical Society volunteer career consultant since 1993, providing career management advice and information to literally thousands of scientists worldwide. I am the author of "Nontraditional Careers for Chemists: New Formulas in Chemistry", published by Oxford University Press in 2007. In 2012, I received the E. Ann Nalley Award for Outstanding Volunteer Service for the ACS Midwest Region, and in 2015 I received the Howard and Sally Peters Award from the ACS Division of Chemistry and the Law. I also volunteer with the Boy Scouts of America on both the Greater St Louis area Boy Scout STEM Committee and the national STEM/Nova committee. In 2015, I was the staff advisor for a week-long STEM Trek for Venturers at the Summit Bechtel Reserve in West Virginia, and have taught chemistry to thousands of youth in a tent on top of a mountain. I love sharing the world of science with youth, and opening their eyes to the possibilities. The ACS Career Consultant Program, an ACS member benefit, gives members access to a consultant to help guide you through job searching, career transitions, resume writing, and more. Take a look at this video I was featured in to learn more about the program. I have long felt that chemistry background prepares you for much more than just a laboratory career. The broad science education, analytical thinking, research methods, and other skills learned are of value to a wide variety of employers, and essential for a plethora of types of positions. By understanding both yourself and the employment market, you can make informed decisions about potential careers, and identify paths that match your needs. Possible career paths include chemical information, patent work, technical writing, education, human resources, sales, marketing, and much more. Knowing what you are good at, what you enjoy, and how to turn that into a career, is essential for success in today's world. I'll be back to answer questions at 1:00 PM ET (10 am PT, 5 pm UTC). Feel free to ask me anything about chemistry careers, nontraditional careers, and making career transitions. EDIT 1:00 PM: I'm here! Looks like I have lots to read, and I will start typing answers. Looking forward to some fun discussion! EDIT 2:06 PM: Wow, that went fast. Thanks for all the great questions! For more information about the ACS Career Consultants program, please visit http://www.acs.org/content/acs/en/careers/career-services/ccp.html Best of luck in your career endeavors!

the WINNOWER

REDDIT

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AMERCHEMSOCIETYAMA R/SCIENCE

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READ REVIEWS

WRITE A REVIEW

What sort of Academic careers are there for chemists? Is it just restricted to teaching? Are there courses to help those who teach chemistry teach it better?

CORRESPONDENCE:

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Also, high 5 the team that wrote the ACS O-chem exam. I passed O-chem because my grade was largely based on my score from it. Thanks.

UtMed

There are lots of academic careers - Lecturer, adjunct, manage laboratories or instrument facilities….See http://www.acs.org/content/acs/en/careers/college-to-career/chemistry-careers/careers-in-academia.html for some ideas and profiles.
Journal of Chemical Education is a great sources of teaching resources. Division of Chemical Education http://www.divched.org also has lots of good resources on this topic.

What are your thoughts on chemical engineering?

InfamousBro

I think it's an interesting field, and I wish I knew more about it. It's a great combination of theoretical and practical work, for those who enjoy both sides. Professionally, there are many fewer ChemEs than there are chemists, and their salaries are usually slightly higher, but there is also a smaller job market for them. AICHE (http://www.aiche.org) has some great resources, including a meeting coming up next month in Salt Lake City.

I'm currently on track to go to grad school next fall for my PhD in chemistry, but I was wondering if you see utility in obtaining an MBA somewhere down the road? From conversations I've had, this is not an all too common track, but I think having both the scientific acumen that comes with a PhD and the business acumen from an MBA could really do well to catapult an idea in the industrial sector. For context with regard to field, I'm broadly interested in the chemistry of gene expression, stem cells, and regenerative medicine.

SpacemanSpliffy

I remember seeing an article awhile back that only an MBA earned early in your career, from a top school, will pay for itself financially. From talking to people who have done this, they say the biggest benefits are learning the language of business, and making connections with business professionals (both others in their classes, and faculty and speakers during their class time). If this intrigues you, you could always start by taking a class or two in the evening, and see if you like it. You also need to think about what kind of career you ultimately want, and if an MBA would be helpful in that role.

Hi Lisa, thanks for doing this AMA! I am a graduate student and maybe it's the 3rd year slump but I find myself growing more and more concerned that I'm doing all this work to get a PhD I'll never use. So the prospect of nontraditional chemistry careers is very interesting. I've been doing a lot of outreach and education with the public lately and I find myself really enjoying coming up with ways to share science with non-scientists and not-yet-scientists of all ages. I'm pretty sure my PIs response to this would be "of course it's more fun than bench work but outreach should be in addition to a research career." So my question is, is there a way to take my PhD and do outreach full time? Who employs those types and what skills would I need to be a strong candidate?

highenergycompound

The fact that you're doing it already, and successfully, is the first step! There are opportunities for full-time jobs, for example with science museums or non-profit organizations, but it is a small niche. Many teachers at PUIs and community colleges do a lot of outreach activities, and there are some faculty

whose research is into better ways to teach/share chemistry (teaching to chemists, sharing with the general public). What organizations are sponsoring your outreach now, and are there opportunities there? What about the companies from which you purchase your outreach supplies?

Hi, chemical technician here. While chemistry is my career choice, I've always kept computers as a hobbie, which has been helpfull at my current job.

I think too that studying chemistry is not restricted to typical lab work, specially now with all kinds of software helping us everyday.

So my question is, do you think chemical engineering is a career that is focused on integrating various disciplines such as chemistry and IT or that there is a better choice for a career integrating those two?

Thank you for this AMA, I'm looking forward to get your book, Is there a ebook available?

hecconte

As Polla13 said, computational chemistry is the traditional field that combines chemistry and IT. Using computers to develop models of compounds and systems have been done for a long time (that's what my post-doc was), but now we have much more data to use in creating and testing those models. Chemical information is the bigger field that includes comp chem, and how to use "big data" is a very hot question now - especially with all the biological (and business!) data that's being collected. How do we turn that data into useful information? Not to mention electronic laboratory notebooks, using collected data to improve products and processes, and much more. I'm sure there are many modeling applications in ChemE as well, I'm just not quite as familiar with them. Have you tried talking to some ChemEs about what they use, and what they'd like you to invent for them next?

Sorry, but to my knowledge my book is not available in an e-version, but I your school library may have a copy. The 2nd edition is planned to have an e-version, as soon as I find time to finish updating it.

What would you change about undergraduate chemistry education to better prepare students for the current job market?

KanyeWestNileVirus

Good question! If I ran the world…. ☺ Actually, IME the one that that makes the biggest different in whether or not undergrads get a job upon graduation is whether or not they had a job while an undergrad. It could be an internship or a summer job, but having spent significant time in an industrial setting, and understanding the language and how things work, is the best way to help your career. Not only have you proven that you can do it, but employers know that you know what you are getting in to (not to mention the opportunities to build relationships with fellow professionals). Many internships/summer jobs are really extended interviews, and lead to permanent offers upon graduation. And if you try an internship while an undergrad, and decide you don't like it, you've learned something and can re-direct your professional efforts in a different direction with no harm done.

As far as changing the educational system itself, I'd love to see more opportunities to learn about career options, and what career paths might be right for you, in addition to the technical information and skills you learn in class. I am seeing more of this, usually as seminars and workshops put on by student groups, as students become more aware that it's up to them to find something that will work for them.

Hi, thanks for doing this. My program in university is very interdisciplinary, with a good mix of biology,

chemistry, and physics. I was never able to pick one science over the others and I've always wanted to be a Jack-of-all-trades scientist. Can you recommend any career paths that have a strong mix of different disciplines?

King_InTheNorth

The first one that comes to mind would be something in public policy - a broad background would be helpful when researching new topics for regulatory and other governmental bodies. It would probably also be helpful in intellectual property, though they tend to specialize over time. Rather than type of career, you might think about size of company - generally, the smaller the organization, the more of a generalist they will need you to be, so the more your diverse background will be valued.

What's the strangest alternative career path you've seen a chemist take? I was told by a professor of mine that he had a student go I to accounting after graduating. I'm curious what directions you'd point someone who really enjoys chemistry but isn't necessarily looking to do research for the rest of their life.

phobiac

There are all sorts of interesting careers - probably the oddest I've come across is the person who makes her living weaving materials with specific electrical properties, mainly for military applications. Though supply chain management is another one I'm exploring now...See the earlier answer to twinsrule1991 for a list of places you can read about all sorts of nontraditional careers, and ways you can start researching them.

On a lighter note, any plans for a Mole Day celebration this Friday?

phonemonkey669

I will be attending the ACS Midwest Regional meeting at the end of this week, teaching chemists about all the possible career pathways. I'll finish off National Chemistry Week by taking 50+ Boy Scouts into an excipient manufacturer, taking over their labs and helping the youth earn their chemistry merit badge. Thanks for asking!

Thanks for doing this AMA. My question pertains to those Chem Majors that want to avoid Grad School for the most part and don't enjoy lab work that much. I love Chemistry and I love talking about it with people, but I find lab work stifling. Any opinions on what could be out there for me? Thank you!

twinsrule1991

There are an almost infinite number of jobs that involve chemistry, but don't involve working at a lab bench all day – probably more that you haven't heard of than that you have heard of. A few places you can start looking are listed below. If you like talking to people about science, maybe something involving science education, public policy, science outreach, intellectual property....

ACS College to Career http://www.acs.org/content/acs/en/careers/college-to-career.html

AAAS ScienceCareers http://sciencecareers.sciencemag.org especially http://sciencecareers.sciencemag.org/career_magazine/career-profiles

Professional Societies and resources on specific career areas http://balbes.com/Careers/resources.html

Some job titles http://balbes.com/wordpress/?p=129

Books http://balbes.com/Careers/books.html

Chemistry majors who became famous in other fields http://balbes.com/Careers/majors.html

How to make a career transition https://acscareers.wordpress.com/2010/06/15/change-your-career-in-six-easy-steps/

Currently finishing up PhD and feeling burnt out on benchwork. Seems like that is the only way to get a foot in the door in govt/industry. What other pathways are out there? Or do you need to put in that time first?

femtosec515

Starting as a bench chemist is one of the "easiest" ways to get into industry, but is certainly not the only one. What have you done so far in your career that you are most proud of? What things do you really enjoy doing? Teaching others? Discussing potential applications of new technology? Project management? Technical writing? It will take some thought, but if you start thinking about what you like to do, what you are good at, and what others ask you to help with, you can start looking into ways to make that a career. For example, if you determine that explaining technical things to a non-technical audience is what really excites you, a career in science writing might be worth exploring. Or if you like discussing the latest, most exciting innovations, there are many ways to get into intellectual property - which has no bench work at all.

Hi Lisa,

I'm just starting my PhD in chemical physics and will likely be working in a theoretical lab. In your experience, what fields have you seen theoreticians in (other than academia).

TsaraNoga_

Certainly academia, and probably some in government. IMHO, there's not a lot of room for theory in industry, as they need to have things that have practical applications and make money.

Do you have any insight into how to get into the science advising/advocacy field?

I'm doing my PhD in chemistry right now, but after I would love to work with politicians (and the general population) with the goal of explaining important scientific discoveries and why they're important as well as suggesting what kinds of research we need to be funding.

chemicalcloud

Are you talking about public policy? If so, there are several fellowships that will pay you to work in DC for 2-3 years, doing just that. Most people who do these make enough contacts to continue, if they choose to do so. See http://www.aaas.org/page/fellowships and http://www.acs.org/content/acs/en/policy/policyfellowships.html and https://www.asbmb.org/Advocacy/Fellowship/.

I was going to study chemistry for undergrad, but then I changed my major and graduated with a bachelors of science in nursing.

However, now I wish I stuck with my chemistry degree, because I'm interested in drug research and development.

Would I have to go back to school for a second bachelors degree in chemistry and then go on to a PhD?

HelpNewRN

If you wan to earn a PhD in chemistry, I suspect you could do that from a BS in nursing. You might have to take a few additional courses, but probably not a whole second degree. I would talk to the admissions office at a few of the grad schools you are considering, and see what they say. If you're working in a chemistry job now, that would certainly help as well.

Current EHS Supervisor (BS in Biology and Chemistry and MPH in Occupational and Enviro Health) here wanting to know more about the need for CIHs in the occupational health arena in the near future. I currently have a CHMM and aspire to have a job where I telecommute to an "office" from my home and travel to sites to do actual hygiene assessments, which I think is a possible idea, however, it has been difficult finding these types of positions. Is there a typical genre of employer that hires CIHs, since it seems most companies have third parties do this rather than have on-staff industrial hygienists? Thanks for any reply.

jimbrownstillsucks

What about working for one of the third-party companies? Just like many other industries, anything that is a non-core function is being outsourced. The work still needs to be done, it's just not being done in-house. Contracting agencies are growing quickly, though many people still don't think of them when seeking employment. Once you have a significant amount of expertise and a large professional network, you could even think about going out on your own – either solo, or starting your own assessment company.

Hello, thank you for doing this, I am a recent chemistry graduate having a hard time looking for work in my field, do you have a contact phone number as I do not feel comfortable posting my entire resume on reddit. I have a few questions I'd like to ask you.

phatboye

If you have questions that are specific to your own personal situation, I would encourage you to seek out an ACS career consultant. This is a group of about 60 ACS members who volunteer to share their expertise and experiences with other ACS members, free of charge. The consultants receive annual training in career-related issues. Any ACS member can search the database and find someone who has the background they are looking for, and ask that consultant to review their resume, practice interviewing skills, give advice on how to deal with a difficult boss or make a career transition, or ask any other career-related questions. Most discussions take place over the phone or via email, but career consultants are also available in person at all ACS national and regional meetings.

http://www.acs.org/content/acs/en/careers/career-services/ccp.html

As someone that is currently working on their M.S. in Biology and working as a Quality Control Chemist for a polymer manufacturer, I feel somewhat pigeonholed into lab work as my career. This is especially true due to current pay trends I am seeing in scientific fields and competition for the jobs that do have reasonable pay rates. What areas of the country and job markets should STEM majors

look into in order to find more and higher paying jobs in areas of research and development?

ieg879

There is probably more density of opportunity, as well as higher salaries, on the East and West Coast, when compared to the center of the country. However, those areas also have higher cost of living, and different lifestyles. When considering career options and major life decisions, make sure to include all the relevant short- and long-term factors, not just absolute value of salary. Sometimes things like benefits or better preparation for the next step in your career path can make a lower-paying job actually be a better option in the short term.

Hi Lisa,

Thanks for this AMA. I completed my PhD in organic synthesis in June of this year from a top tier program. Prior to completing my doctorate, I worked as a medicinal chemist at a large pharmaceutical company. The thing is, I don't want to go back to laboratory work. I enjoy working outdoors and doing field work. I am also known as a very good writer and I do enjoy writing quite a bit. Are there any potential career pathways that you may be be able to recommend based on my strengths and interests? Thank you so much.

kicktothefinish

Technical writing is the obvious one. Especially with a background in pharma, you should look at http://www.amwa.org - the American Medical Writers Association. They have a great section on their web site for people who want to get started in this field. That doesn't include the outdoor part - unless you take your laptop and write in the park? :-) Maybe something where you go out into the field and collect samples, then write reports about what you found? Will think about this some more.....

I read your book!

I was wondering why you did not include engineering jobs into the mix. I recently earned a minor in chemistry but switched universities to one with a biomedical engineering program. I know it might take more training, but most of my coursework is applicable to this new major.

Tookshine

Thanks for reading! I hope you found it useful. I limited my profiles to people who had an undergraduate major in chemistry, who were currently working in non-lab, non-professor jobs. I interviewed between 75 and 100 people, and from those selected the variety that are in the book. You are right that there are not many engineers, I had not thought of that (I tried to balance geography, gender, ethnicity, age.....) I am working on the second edition now, and if you have other profiles to suggest I would love to have their contact info.

[deleted]

[deleted]

See the earlier answer to twinsrule1991 for a list of nontraditional careers and places to start researching them, and the answer to phatboye for how to find your very own career consultant.

Hi Lisa,

I will be finishing my undergraduate degree in the spring. I am holding off on graduate school as I would like to gain some working experience. I have no oppositions when it comes to job types, I just want something exciting and valuable. Any suggestions?

Edit: I suppose you could say I am fearful of not finding a job come graduation. I have been working on an organic research project for about a year now (my favored area), and enjoy the writing process of chemistry. I guess what I am looking for are other options besides working in a lab that will open me to the possibilities in the field.

xtylerryanx

If you are going to graduate in the spring, now is when you should start researching jobs. Attend career fairs on campus, see if your university has a career office that can put you in touch with alumni, and ask them about what they do. If writing is a strong suit, and something you enjoy, put together a portfolio and look for positions that involve technical writing (or medical writing, if your background is more biological). Read all the job postings from companies in the city in which you want to live, and see what kinds of things they are looking for that appeal to you. While bench work is the traditional path, there are many, many others. Technical sales? Writing marketing materials? intellectual property?