

American Chemical Society AMA: I am Allison Campbell,
President of the American Chemical Society. Ask me anything
about the importance of sharing science and my priorities for ACS!

AmerChemSocietyAMA ¹ and r/Science AMAs¹

¹Affiliation not available

April 17, 2023

Abstract

Hi Reddit! I'm Allison Campbell, President of the American Chemical Society. Currently I am the Associate Laboratory Director of the Earth and Biological Sciences Directorate at Pacific Northwest National Laboratory (PNNL). A physical chemist by academic training, my research has focused on biomaterials. My research focus is on the role of proteins in biomineralization. During my time in the Materials Science Department at PNNL, I have co-invented a process inspired by biology that allows us to grow bioactive calcium phosphate layers onto the surfaces of artificial joint implants. By mimicking bone, this innovation can extend the life of the implant and reduce implant rejection. I hold a PhD in physical chemistry from the State University of New York at Buffalo, and a BA from Gettysburg College in Gettysburg, PA. I have been a member of the ACS since 1985 and in that time have become a member of the National Academy of Sciences Chemical Sciences Roundtable and was named an AAAS Fellow in 2013. One aspect of science I'm most passionate about is promoting science education and sharing scientific information. As often as I can, I share my personal enthusiasm for science with young students and participate in a number of hands-on education programs. As ACS President I feel it's so important that all us chemists out there should share with the public what chemistry is and how it helps society. This means we need to get as good at science communication as we can. I also feel it is greatly important to foster common principles and practices among the global chemistry community. You can read about these and my priorities as ACS President in my Chemical & Engineering News statement "Pedaling the power of chemistry." Ask me anything about my ACS priorities of sharing the value of chemistry and building its global principles and practices. You can also ask about my research in biomineralization. Note that as a scientist employed by a federal laboratory, I am bound by the Hatch Act and therefore may not engage in questions of a political nature. Unfortunately, I have to sign off at 9am PST. Thanks for all your questions.

[REDDIT](#)

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AMERCHEMSOCIETYAMA [R/SCIENCE](#)

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Ask me anything about my ACS priorities of sharing the value of chemistry and building its global principles and practices. You can also ask about my research in biomineralization.

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Hi Allison!

I have a question of a different nature. Several years ago the ACS would give out coffee mugs with an element printed on it for every year you were a member. Recently, however, this practice was limited to only the first 6 years of membership (hydrogen through carbon). I would love to make a complete periodic table of mugs, but now this goal seems no longer possible. Why were the mugs discontinued? I'd be more than happy to pay an extra \$5 in membership a year just so I could get a new element mug.

[rseasmith](#)

The element anniversary mugs are wildly popular with members. Your request is one that we hear fairly frequently. We have only had mugs through Carbon for 6th anniversary. There have been

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discussions of adding additional years, but we haven't nailed it down yet. Thanks for your comment and stay tuned!

Hi Dr. Campbell! How, in your opinion, should science education be changed in our society today? What have you seen that works and what doesn't? Thanks for your time!

[Tamatone](#)

Personally, I think we need to bring more of the soft skills into what we are teaching. Students need to learn the fundamentals of our science, but also how to effectively communicate (both written and verbal). I personally think we need to teach team based approaches to solving problems and show how multidisciplinary teams can very effectively tackle large problems.

There are far fewer academic careers available than the number of young scientists who desire and deserve them. Do you think there is anything that can be done at a systemic level to address this imbalance? What can an organization like the ACS do to help?

[IHTFPhD](#)

I hear this question a lot. It is important to remember that the ACS does not create jobs in the academic or any other sector. What it can do is help members understand all the career options available to chemists. The ACS also offers resources like the career navigator, Chem IDP, etc. to help members with the changing job market.

The ACS also works to highlight the vital role for science funding at the federal level.

My question relates to the future and our children. My son is in a STEM program in High School and I am reticent to share with him my feelings regarding majoring in Chemistry in College. I rec'd my BS Chemistry years ago from an ACS certified school program and found that I couldn't live off the salary as a chemist as I made a bit above minimum wage (I worked for a local medical/forensic lab and also worked in a bio start-up). I don't want him to live from grant-to-grant or for him to have to move to another country to work in manufacturing, either. Thoughts?

[Tyrannusverticalis](#)

Personally I think STEM education is wonderful whether the person works in a STEM field or not. It helps with critical thinking, problem solving. STEM education opens the door to many many possibilities. I tell kids that they should follow their passions, chemistry might not be for him ultimately, but a STEM background will serve him well.

Hi Dr. Campbell, thanks for doing this AMA!

What are your thoughts on the value of new forms of media (YouTube, Twitter, Facebook, and yes, reddit) on science communication?

Related to this question, how do you think scientific organizations can ensure discourse on these platforms remain rooted in scientific fact? We've seen a lot of evidence that social media can amplify misinformation and I'm curious if you have any thoughts of how to combat the spread of scientific mistruth online.

[superhelical](#)

Great questions. Whether we like it or not, social media is here and we need to adapt to it. I am finding that more and more, people are looking about what papers are trending on twitter for example as evidence of a "hot" paper. I personally am learning how to use social media more effectively.

But as you point out, it can easily spread mistruths. It is up to us each individually to help stop the spread of non facts, and call out those that do. We also need to continue to teach young people how to research information and verify what they are reading online.

Hey Allison! I was wondering if you could explain the basic process of how the ACS exams are created, and whether or not the standards have been gradually getting harder to promote a more educated public?

[bolharr2250](#)

ACS exams are created by a group affiliated with our Chemical Education technical division (<http://uwm.edu/acs-exams/about-us/connection-to-american-chemical-society/>), which operates independently. I can share your feedback with the division, though.

Given the current public climate of critique of science, often without the knowledge to give an educated critique, how can scientists and science-supporters help broaden the impact and support of science?

[imgEEKyNotCool](#)

Great question. I think we need to bring our stories to life and show how what we do makes the world safer, cleaner, healthier etc. We need to both demystify and humanize science. This is one of my presidential initiatives and one I think is vital to our success

Hello,

I'm trying to get my daughter involved in science. She's a gifted student with a talent for math. My main issue is that she thinks science is lame. I'd love the opportunity to get her into a professional environment around people with a passion for both math and it's real world applications. However I have no real clue how to do that. Would you have any advise? Is there a way we could get a scientist or two to come out and talk to a class? Maybe a lab tour?

Is there a program to encourage young people (mainly teenagers) to take mathematics more seriously. Is there a program that shows them that science isn't all sadness and that it does, in fact have real world applications that enrich our lives and make the improbable possible?

-Thanks

[JoeMorgan76](#)

Happy to help. Here are a few things that you can show your daughter that she may find interesting.

ACS's [Reactions videos](#) are a fun way to learn a little more chemistry about interesting products or topics. The point is that chemistry is in every part of our lives.

ACS also produces [ChemMatters](#), a magazine for high school students. Patti Galvan (p_galvan@acs.org) from ACS would be happy to mail a few issues to give to your daughter. There is something nice and inviting about a glossy magazine format. With a mailing address, I'll also send some information for her to give to her physical science or chemistry teacher.

ACS also has a College to Career website (<https://www.acs.org/content/acs/en/careers/college-to-career.html>). It's useful to see the wide range of things people with chemistry degrees can do.

What ethical and moral guidelines should chemists use when developing innovations and what role does chemists have in testing and mapping the negative effects of their work?

[TopparWear](#)

I believe that as chemists we we have a professional obligation to ensure that our work follows local, state and federal law/guidelines for protection of our environment and the communities we live in.

Hi Allison, thank you so much for taking the time to do this AMA!

What can we do to improve science communication given that there are instances where scientific findings are sometimes misinterpreted or misunderstood by the general public? Also, what advice can you give to young students who are interested in science but feel discouraged (because of lack of access to good scientific training, lack of confidence, or even financial constraints) in pursuing a career in a field of their choice?

[AudiWanKenobi](#)

I think we have to tell our stories in ways that relates to the person we are talking with. Check out the Alan Alda Center for Communicating Science. <http://www.centerforcommunicatingscience.org/alan-alda/>

As far as helping young people with science. I was discouraged early on, struggles with science. My mom and dad just kept telling me to stick with it and work hard.

Here are a few other resources for you.

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So you talk about the importance of "sharing science" but charge non-ACS MEMBERS 40\$ to rent an article for 48 hrs, that seems a bit hypocritical. So all of your journals are full of science funded by different agencies, peer reviewed by volunteers, yet the ACS charges you to publish in their journals? I think the ACS needs some transparency in their book keeping. The 115\$+ membership fees, journal article extortion, and publication fees can't all be going to cheaply hosted regional conventions and element mugs.

[feynmanfineman](#)

When I speak of sharing science, I am talking about sharing our stories of science with policy makers and the general public. In my opinion, these groups must understand the important nature of our work so that they can support policy or legislation that enable federal funding for science, help drive our

economy through innovation etc.

Hi Allison, implant rejection from biofilm formation is a big issue in the medical industry, what in your opinion is the most promising upcoming antibacterial strategies for implant environments?

[Gwuc](#)

I know, I have two implants myself and fortunately no infection. In all honesty, I am not current on the literature in this area. But I tend to favor approached that work to prevent or treat infection locally versus systemic prophylactics or treatments

I too am interested in increasing chemical literacy. My question is about the means to do so.

What is the best way, in your opinion, for a layman to promote chemical literacy among their peers?

What about for someone with a STEM degree?

What about for someone with a chemistry degree?

[bystandling](#)

Check out the Alan Alda Center for Communicating Science.

<http://www.centerforcommunicatingscience.org/alan-alda/>

Hi Allison, thanks for taking the time to do this. I am a synthetic organic chemist with a keen interest in science communication, particularly interested in trying to get the work the chemistry community carries out better communicated to the public and young students.

I was wondering what your thoughts are on the fact that chemistry gets far less exposure in the public domain compared to biology and physics, and has in turn penetrated popular science considerably less?

Do you think this is due to many chemical breakthroughs being only understood by/immediately relevant to other chemists? Or do you think there are other issues that could be tackled that would enable chemistry to be communicated on a larger stage?

[cbt95](#)

I think we need to do a better job and telling our stories so that they resonate with the person we are telling them to. Check out the Alan Alda Center for Communicating Science

<http://www.centerforcommunicatingscience.org/alan-alda/>

Hello Dr. Campbell, what is your outlook on the future of publicly-funded science research, particularly in the chemical sciences?

[chipette](#)

I am cautiously optimistic. Basic science is something that both parties have historically supported.

Do you remember when you realized your passion for chemistry? What was your a-ha! Moment?

What additional projects will you be working on in the future?

What advice do you have for women who want to join the science community?

[paperdolls45](#)

I will be honest, I struggled in school and college chemistry. It really wasn't until PChem that it started to click for me. But my Ah Ha moment was when I got to grad school and realized I could combine my passion for improving the human condition through chemistry that I really became jazzed about what I was doing.

I am not working on any individual science efforts currently, as I moved into management some time ago. But I lead an organization that does a lot of chemistry and biology in understanding our earth and its processes like climate.

My advice for women who what to enter into science is to just go for it. There are so many different ways to express our passions via science.

Forwrd: My question comes at the end of a little story. Both the story and the question are not worth reading.

Hi Allison!

I live in a loft that shares a wall with 3 grad students (all past their quals, woohoo!), two of which happen to be chemists. One is a physical chemist who works with gluten-free(inside joke) lasers, I think he studies how molecules behave through spectroscopy? Not exactly sure. The other is an organic chemist who spends his days failing to make molecules that will be used in cell phone displays (seems pretty "corporate" and sellout to me!). The physical chemist is a member of ACS and gets your annual coffee mug. I tried to steal the most recent one but was unsuccessful. The organic chemist is a nihilist.

It's been a blast being their neighbor, learning about the scientific method, examining my own ignorance and trashing undergrads + "industry people" + Science and Nature and heat graphs. (I am an English major who works in tech) They are very generous with their time and patience- I learned about running NMRs with "heavy water"!

One thing I like to do when my friends visit, if one of the chemists is around, is I'll ask my friend (typically a well-paid, college-educated, "business person", sometimes has partner/kids): **what is the difference between an atom and a molecule?** and *much* more often than not, my friends will fumble to answer. The question is asked in a gentle, relaxed setting with no knowledge-shaming afterward. The chemists used to think this was a joke I would play on them, telling my friends not to know/remember the difference before hand, but this was never the case. The case is, as far as I can tell: Average citizens don't know *shit* about even the most fundamental aspects of chemistry. I'm not sure how this makes my neighbors feel, I think mostly they don't care about other people because they live in their labs.

My question(s): What do you think of this story and its implications? Am I pretty cool for taking an interest in the lives and studies of these nerds next door?

[PlumpFish](#)

I have had similar experience with friends. I take that view that it isn't vital that they know the details of chemistry, but is is vital that they know that chemistry matters in their quality of life. That those atoms and molecules are essential components of pharmaceuticals, bio fuels, or light wight materials for example.

Hi Allison, thanks for doing this. My high school chemistry teacher (from 20 years ago) just died and she was the one who got me truly *excited* about chemistry. I always had an affinity for science, but the excitement was so enjoyable.

My question is what do you see is a good path to get kids genuinely excited about science, and how do people like me instill that in their children?

I've got my own ideas but I'm interested to hear yours! Thanks.

[Straydapp](#)

Sorry to hear about you chem teacher. My PhD advisor just died and it was hard.

Here are some fun ACS offerings that you can use to help bring excitement to the young people.

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Hello Allison.

I have a daughter that is a junior in high school and is interested in engineering, but is not sure which type, as she wants to eventually work for NASA/space industry. Would you suggest Chemical Engineering over other paths, and if so, why?

[Luder714](#)

My nephew is in the same boat. What I told him was to ultimately study what makes him excited and work hard. And don't forget the soft skills of how to work in teams and effectively communicate with other. Personally I told my nephew if chem engineering excited him, then that was the field for him.

I'm a student member of the ACS Ave is affiliated club at my university. We are always told to do as much outreach as possible, and we do. But what are you going to do to help these organizations? Everything we do is on our own, but with more help we could do more.

[KaiChymist](#)

Some ACS student chapters do a lot of outreach throughout the year, some balance it with field trips, or career speakers/field trips, and/or social events. ACS's [Office of Undergraduate Programs](#) supports all of these activities with grant opportunities, with recognition through the chapter award program, and with advice and suggestions through our publications like [inChemistry magazine](#) and the [undergraduate blog](#).

ACS local sections also coordinate events for National Chemistry Week and Chemists Celebrate Earth Day, and are full of volunteers who may be interested in supporting your own outreach programs. If you're interested in resources to help you prepare for any kind of outreach you'd like to do – with

children, with local politicians, with the general public – you can read more at <https://www.acs.org/getinvolved>

What's your favourite citation format?

[I Like Canada](#)

Shaw WJ, AA Campbell, ML Paine, and ML Snead. 2004. "The COOH Terminus of the Amelogenin, LRAP, Is Oriented Next to the Hydroxyapatite Surface". Journal of Biological Chemistry 279 (39):40263-40266.

Why do scientists seem to love cycling so much? So many scientists at my workplace are all roadies and gear nerds(myself included.) I'm a couple seconds behind a Hughes investigator on a local climb and can't seem to pass him on that strava segment. Any advice on how to beat his kom and show him who the real boss is :)

[YellowFat](#)

Ah, the age old question. Keep at it. time will come when you show him who is boss. That is what I do when I lose a segment, just go back and keep at it. Or in desperation, a good tail wind helps. :)