N NESACS Committees
Impactful Chemical Sciences Careers
Chemical Sciences Academics Share Their Stories

NESACS Vision Statement
An inclusive, vibrant, empowered community of chemists positively impacting society

Northeastern Section American Chemical Society
Message from the Editor

Dear Readers,

With this summer issue of The Nucleus it makes me all the more happy to have these remarks be one of my few contributions. Usually I end up handling most of the details of each monthly issue, but in this issue the associate editors are doing most of the work in producing this issue. Katherine Brown, Courtney Hazelton-Harrington, and Priyanka Samanta all joined the editorial team last year and have been a great help to me with every issue. One of the great parts of being part of the board of publications is the chance to take on tasks that would not otherwise be part of my own life and career. Although I do now work in product marketing, most of my career has been more in product management and had little to do with editing a magazine or newsletter.

For the associate editors this is as much true and even more so. They all have highly technical educations and jobs and it is a more enriching path that we all can get a chance to be a greater part of the chemistry community through these creative efforts and other aspects of being a volunteer for the Society and our section. I hope that in this issue you will get a better understanding of our various members of NESACS through the efforts of the associate editors. Whatever the way forward for we take with The Nucleus or our own careers, these articles will serve to enlighten the greater contributions of our membership to the chemistry community of NESACS and is therefore a useful effort on the editors' part.

I also want to point out our graphic design artist, Adam Katz. I have worked now with Adam for almost three years and he has been a great asset in letting me get through each year without feeling overwhelmed by the amount of work it takes to finish these issues. I can just gather the materials and photos and send it over to him with some limited instructions on how each issue should look. He has a great understanding of what is needed and produces a beautiful product each time that has as a professional look as any high-end magazine. As long as he is around, NESACS will have a modern feel and give us the image that we seek in promoting our section.

Most assuredly and sincerely,
The Editor
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Interview with ACS Chair of the Board of Directors and Director-At-Large: Wayne Jones

Wayne E. Jones Jr., is Provost and Vice President for Academic Affairs and Professor of Chemistry at the University of New Hampshire. He earned his BS from St. Michael’s College in 1987 and his PhD in inorganic chemistry from the University of North Carolina at Chapel Hill in 1991. Following post-doctoral work at the University of Texas at Austin he joined the chemistry faculty at the State University of New York at Binghamton serving in numerous leadership roles for 24 years including founding director of the Center for Learning and Teaching (1996-2008) and interim dean of Harpur College of Arts and Sciences (2012-2013). He moved to the University of New Hampshire in 2017 to serve as the Dean of Engineering and Physical Sciences, becoming Provost and Vice President for Academic Affairs in 2018. An award winning researcher and teacher in inorganic and materials chemistry, he has been recognized as a fellow of the American Chemical Society (2010) and a Member of the National Academy of Inventors (2020). He was also recognized both the SUNY Chancellor’s Award for Excellence in Teaching (2001) and Scholarship and Research (2017). He has published over 180 research articles, review chapters and patents in the areas of photoinduced electron and energy transfer in macromolecular systems including molecular wires, electrically and thermally conducting nanomaterials, photovoltaics in organic/inorganic hybrid materials, photocatalysts for degredation of toxic agents and fluorescent conjugated polymer sensors. His work has been supported by over $18M in grants from DOD, NIH, NSF, and NASA along with numerous other federal, state, and industrial partners. An active volunteer leader in the American Chemical Society for over 25 years, Wayne has served at the local, regional, and national level in ACS leadership roles. He is currently Director at Large and chair of the ACS Board of Directors, serves on several national task forces and committees, and serves as a Strategic Planning Retreat Facilitor for the Society.

How long have you been involved in the ACS community, and what prompted you to become involved?
I first became involved with ACS when I was an undergraduate and graduate student researcher. I became active in ACS governance when I was elected chair of the Binghamton, NY local section in the late 1990’s, and subsequently, I became the councilor for the local section where I served for 16 years.

In what roles have you served within the community, and what is the nature of your current role?
I have had the pleasure of serving on and chairing several national committees, including the Local Section Activities Committee (LSAC), the Membership Affairs Committee (MAC), and the Committee on Committees (CONC). In addition, I have been active on the board of the Northeast Regional Meeting (NERM), including serving as general chair of NERM in 2006 and 2016. I currently serve on the ACS Board of Directors and I am the chair of the board for 2024.

What do you think are key opportunities for the ACS organization in future? Are there certain strategic initiatives that you are currently supporting?
ACS has thrived for over 100 years by focusing on members and supporting chemistry and the chemical enterprise. Our local sections and technical divisions are key to our governance success and we need to find new ways to support them by rethinking meetings, particularly local and regional meetings, and by supporting the many great outreach and engagement activities to get young students involved. New initiatives that I have been happy to be involved in have focused on professional development as found now in the
ACS Institute. These resources give all members the opportunity to develop professionally on their own time and in areas that can advance their career. Finally, I am committed to supporting new and creative approaches to engaging the chemical industry and other members that are not employed in the academic sector. There are lots of opportunities there, but we need to find new ways to meet those members or potential members where they are.

**Has your involvement in the ACS community made an impact in other areas of your life?**

ACS has been a wonderful place for me to grow professionally. This includes my network of colleagues across the country and around the world. Perhaps more importantly, it has also been a place for me to develop skills in presenting and writing, and leadership. ACS has helped to make me a better professional.

I also met my wife through ACS, which I probably should have listed first.

**What advice would you give to younger chemists in the ACS community?**

The chemistry profession and society today are more transient and transactional than ever. The time when you would have one employer for your whole career is gone. The ACS community is a network of professionals that can help you transcend all stages of your career, from your education to your first job, through multiple employers and career shifts, and into retirement. My advice is to embrace new opportunities to learn and share your science, and to embrace this ACS community that will help you develop professionally in ways that you may not even know you need yet.

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**Computer-Aided Drug Design Approaches for the Win**

An attractive field of research in drug discovery is the use of computer-aided drug design (CADD) techniques. Extensive modern-day development and use of CADD techniques have helped expedite the drug design process, reducing the chances of failure of late-stage drug candidates. Two CADD approaches, structure-based drug design (SBDD) and ligand-based drug design (LBDD), combined with wet-lab techniques are extensively used to search for chemical compounds with drug-like properties. Minimizing drug development cost and time, CADD methodologies have provided an atomic level understanding of structure-activity/structure-property relationships.

The use of machine learning approaches and the power of generative modeling have carved an excellent path in the modern-day drug discovery space. In addition to machine learning techniques, several multiparameter optimization (MPO) model algorithms have used molecular properties to predict pharmacodynamic (PD) and pharmacokinetic (PK) properties of lead compounds and have aided in the speeding up the drug discovery process.

Follow Priyanka’s exciting work in this space, Click Here, and learn more on how CADD techniques are revolutionizing the drug discovery landscape.
Community is about bringing people together through social connection, establishing belonging founded upon shared interests, and providing individualized support to promote growth and cultivate diversity.

NESACS committees are significant contributors to the NESACS community. With a range of resources available, NESACS committees unite and support members throughout their careers, both industrial and academic, practicing and retired. NESACS committees are run by passionate people looking to make a meaningful difference, and the chairs and participants of each committee demonstrate a continued commitment to the community through their respective contributions to the variety of available outreach and networking events, and other annual celebrations.

Included in this issue are several committee spotlights that were graciously supplied by a current committee chair. Seven NESACS committees are featured, including the Young Chemists Committee, which supplies early career chemists with the tools needed to establish their unique career path, and the Chemical Education Committee, which supports high school students with research experiences and college preparation. The chairs speak about memorable accomplishments and upcoming events, as well as the impact that NESACS involvement has had on their personal and professional lives, and discuss their diverse interests, backgrounds, and expertise.

Member spotlights include:
- Owen Grimm, Young Chemists Committee
- Sourav Ghorai, Professional Relations Committee
- Anna Sromek, Women Chemists Committee
- Steve Lantos, Chemical Education Committee
- Doris Lewis, Government Relations Committee
- Ray Lam, National Chemistry Week Committee
- Raj Rajur, Medicinal Chemistry Group
- Aya Kelly, Chemical Biology Committee

Throughout these features, one message is resoundingly clear: new volunteers are always welcome to join, and there is no shortage of opportunities for members interested in getting involved in the NESACS community.

VOLUNTEER! ARE YOU IN?

ACS members are

- **Invaluable** resources in their community
- **Invested** in the advancement of chemistry
- **Inspired** in the advancement impact
- **Involved** locally, regionally, nationally, and globally.

I Want to VOLUNTEER » I Want to DONATE »
NESACCS Committee Spotlight:

Aya Kelly – Chemical Biology Committee

Aya Kelly, Aya Kelly, a chemical biologist at Bristol Meyers Squib, is a long-time member of NESACCS, previous co-chair of the Young Chemists Committee, and the newly stated chair of the Chemical Biology Committee.

What is your primary mission for the Chemical Biology group?

Our goals of the chemical biology group are to encourage the advancement of Chemical Biology in its all branches and promote the field of chemical biology in industry and academia with emphasis in the northeastern section.

How did you become involved in this committee?

There are limited formal forums, or “homes” within ACS that focus on chemical biology, as the discipline is inherently interdisciplinary and expands across multiple technical divisions. As Boston / Cambridge is a prolific chemical biology research hub, the NESACCS Chemical Biology Group provides an excellent avenue for celebrating the technical excellence within the northeastern section as well as fostering the sense of community amongst chemical biologists in our local section. Having relocated from the Eastern Cetral Illinois section, I was looking for ways to get involved in the NESACCS chapter and the vibrant chemical biology research community in the area. I reached out to a fellow NESACCS member how I might be able to do that and she directed me to this group to achieve both.

Can you share a success story or notable achievement of the Chemical Biology Group that you are particularly proud of during your tenure as the chair? (As a newly stated chair, you can answer this as goals for the future)

The main event for Chemical Biology Group, Chembio in the Hub, annually bring 220+ participants together for an in-person one-day symposium that highlights industry and academic research. With excellent speakers, the symposium always showcases cutting-edge science, facilitates invigorating discussions and connects local chemical biologists. As part of the organizing committee, the symposium has been my highlight of every fall, and as a newly stated chair, I am committed to ensure its successful execution. In the coming years, I would like to expand our programming to provide opportunities for trainees and early career chemical biologists in the northeastern area to present their research. We are open for any suggestions on how we can serve the chembio community more, so please let us know if the readers have ideas!

How has the group adapted to the changing landscape of scientific research and communication? How does the group foster networking and collaboration among its members, both regionally and nationally?

We planned a networking event called Chembio in the Pub in June 2023. We leveraged the busy summer conference season, when many conferences brought chemical biologists and enthusiasts across the country to the Boston area. With over 200 attendees, this was a very successful event to bring the greater chembio community together, and we hope to organize this annually.

Are there any upcoming projects, events, or initiatives that members or those interested in chemical biology should be on the lookout for?

We will have the annual “Chembio in the Hub” symposium in September, and the date and speaker line will be announced at the “Chembio in the Pub” social event in the summer.
Doris Lewis is Chair of the NESACS Government Relations Committee. Past NESACS activities include being NESACS Chair (2000) and ACS Councilor. She is Professor Emerita of Chemistry at Suffolk University and an ACS Fellow. She is currently an associate member of the ACS Committee on Technician Affairs.

**How long have you been involved in the ACS community, and what prompted you to become involved?**

I've been an ACS member for quite a long time. When I was a graduate student at Tufts, my research advisor, Bob Stolow, came to my desk and said it was time I joined ACS. Of course, I did so, and I regularly read the issues of JACS that I received as a member. I'm told this doesn't happen as often these days, and I congratulate those young chemists who figure out for themselves the tremendous professional and networking opportunities they gain from ACS.

I became active in ACS as a young professor at Suffolk University, as I was then the advisor of an active student chapter. This began one day when I walked past a room with a pianist providing music for a social gathering. When I asked what was happening, I was told that this was a party being held by the French Club under the auspices of student activities. All students paid student activity fees, and student organizations could apply for funding for activities. My students were eager to form an ACS chapter when we discussed the possibilities, and my students won many recognition awards at the national ACS meetings.

**What is the nature of your role in the Government Relations committee?**

As chair of the government relations committee, I coordinate our activities and encourage and support our members in contacting their legislative representatives.

**Can you speak to the various events that the committee coordinates, and is there an especially memorable moment, event, or achievement that you'd like to share from your time serving on the committee?**

As a member of the ACS Committee on Chemistry and Public Affairs (CCPA), I learned a whole new skill set, visiting the offices of senators and representatives in Washington and attending briefings on current legislation, and I am delighted to share what I learned. In Washington, I met the recipients of ACS policy fellowships and learned of the numerous policy fellowships coordinated through AAAS. These fellowships offer substantial stipends and placement in congressional government offices and are the gateway to careers in science policy. For some time now, I have given presentations on policy careers at the fall NSYCC careers event, and now I can share news about the science policy careers of our past NSYCC members.

Members of the Government Relations Committee meet with our Congressional representatives in their offices to represent science policy issues supported by ACS. A recent visit to the office of District 4 House Representative Jake Auchincloss was especially memorable. Harvard professor Heidi Vollmer-Snarr brought her students, who presented their well-researched positions on pending legislation related to science policy. We knew Jake Auchincloss was supportive of science research but were surprised when he told us that his A in AP chemistry was one of his proudest moments. He was genuinely interested in the students’ research and spent considerable time with us. This is consistent with my past experiences with Congressional visits. Younger chemists are surprised at the warm reception they receive as constituents and as accessible representatives of science research.

**What are key opportunities for the committee in future? Are there
certain strategic initiatives that you are currently supporting?
The passage of the CHIPS and Science Act into law in 2022 indicated strong bipartisan support for U.S. research and innovation. However, Congress must now continue their efforts by ensuring funding for the many aspects of the law. A major ACS policy initiative supports science funding in the current budget process. We support this ACS initiative through the ACS online program Act4Chemistry (now Quorum) and in our congressional visits. Our Massachusetts representatives in Congress do not need to be convinced of the importance of science research funding, but they do need to be supported in their efforts in a difficult legislative environment. Some NESACS members have recently expressed interest in outreach to the Massachusetts legislature, so that is one of our priorities for our upcoming meetings.

What do you find most exciting or rewarding about your work with the committee?
I have found that meetings with Congressional representatives are unfailingly interesting, and introducing others to the experience is tremendously rewarding.

Has your involvement in the ACS community made an impact in other areas of your life?
As other ACS member volunteers will affirm, we think in terms of what we give to others and learn that we gain much more than we expect. The skills and experience we gain are valuable career-building assets and the friendships we gain become more meaningful over the years.

What advice would you give to other individuals who may be interested in getting involved in the Government Relations committee?
I encourage ACS members who might be interested in supporting ACS science policy initiatives to join us on the NESACS Government Relations Committee. From online letters to in-person Congressional visits, you can find a way to make an impact that meets your schedule and your interests, and you can help other members with your own ideas for policy outreach. As a starting point, do feel free to get in touch with me as the committee chair. ACS also has excellent informational and training materials online, making it easy for members to become involved in science policy.

NESACS Committee Spotlight:
Raj Rajur – Medicinal Chemistry Group

Raj Rajur, Founder and CEO of CreaGen Inc and the founder and BOD of C2I Accelerator, has been involved in the NESACS Medicinal Chemistry group since 2004. In 2021, Raj served as the section Chair of the NESACS.

What is your primary mission for the Medicinal Chemistry group?
The mission of the medicinal chemistry group is to advance knowledge and understanding of drug discovery research by organizing world class quality symposia.

Our meetings provide our attendees with access to top quality science presenters and offer unique networking connectivity with thought leaders in the scientific community.

How did you become involved in this committee?
I used to attend the NESACS medicinal chemistry meetings often held at Boston College, where
I was doing my postdoctoral work. These were my go-to meetings; I always wanted to volunteer but did not know who to contact. After my postdoctoral studies, I joined ArQule, where I had the opportunity to meet with Patrick Gordon and Michael singer, who were active members of NESACS. Michael always suggested I attend the NESACS meetings and participate in the section's activities. Patrick Gordon invited me to one of the monthly meetings at the Cambridge Holiday Inn. He introduced me to the medicinal chemistry chair, Pam Nagafuji, who was finishing her term and looking for a successor for the group. In 2004 I took that opportunity to become the program chair and the following year as the Chair of the medicinal chemistry group. Since then, I have been enjoying the volunteer work. It allows me to interact with scientists working in various fields of drug discovery and is an excellent opportunity to network with them. With the help of volunteers, I have organized multiple symposia covering cutting-edge research in different fields of medicinal chemistry.

Who can be a member? How can individuals who are not currently part of the Medicinal Chemistry Group get involved or benefit from its activities?

Any individual who has interest in medicinal chemistry and drug discovery research can become the members of the medicinal chemistry group. Individuals who are not currently part of the medicinal chemistry group can become a member of NESACS and contact one of the organizing committee to be part of the group.

The benefits involve networking with industry leaders during seminars and symposia, suggesting potential speakers and topics for the seminars, help in organizing the seminars.

Can you share a success story or notable achievement of the Medicinal Chemistry Group that you are particularly proud of during your tenure as the chair?

One of the most rewarding and exciting achievement during my tenure as the chair is the establishment of an Annual Advances in Chemical Sciences Symposium series to bring eminent academic and industrial speakers under one roof to share cutting-edge research in new methodologies, catalysis and drug discovery research. This event provides me an opportunity to collaborate with other professionals in the field, share my expertise and knowledge, and contribute to the group’s mission of advancing knowledge in drug discovery research.

This all-day annual signature event always includes a Nobel laureate as the keynote speaker. The event is mainly supported by local biotech and pharmaceutical companies and brings together more than 250 attendees and 20 exhibitors. The exciting part of this opportunity is it allows attendees to connect with other individuals who are passionate about the subject and provides great networking opportunities. The other rewarding aspects of this opportunity are to give back to the research community, make a positive impact and connect with like-minded individuals.

How has the group adapted to the changing landscape of scientific research and communication? How does the group foster networking and collaboration among its members, both regionally and nationally?

However, I can provide some general strategies that many scientific groups and organizations employ to adapt to changing research landscapes and foster collaboration:

Since 2020, our group has been utilizing the online platforms for communication and collaboration, such as virtual meetings, webinars, and forums. These platforms have enabled our members to connect, share research, and discuss scientific advancements, overcoming geographical limitations. We have also used social media such as LinkedIn to facilitate networking and foster collaborations.

Are there any upcoming projects, events, or initiatives that members or those interested in medicinal chemistry should be on the lookout for?

On April 26, 2024 we had the 12<sup>th</sup> Advances in Chemical Sciences Symposium. This day-long symposium focused on Medicinal Chemistry, Organic Synthesis, and Methodology, and featured eminent scientists from industry and academia. The keynote speaker was Brian Kobilka from Stanford University. Save the date of April 25, 2025 for the 13<sup>th</sup> Advances in Chemical Sciences Symposium, feature keynote speaker Jennifer Doudna from the University of California, Berkeley. For more information on upcoming events, please check [www.nemedchem.org](http://www.nemedchem.org).
NESACS Committee Spotlight:
Sourav Ghorai – Professional Relation Committee

Sourav Ghorai is currently a Senior Scientist in Medicinal Chemistry in the biotech/pharmaceutical sector. He has been volunteering for the NESACS since 2023, and is serving as the Professional Relation Committee Chair for the 2024-2025 academic year.

What is your primary mission for the Professional Relation Committee (PROF) group?
Primary mission of the Professional Relation Committee (PROF) is to support and foster professional development among chemistry professionals through professional development activities.

How did you become involved in this committee?
After moving to Boston, I joined the Northeastern section of the American Chemical Society (NESACS) and started attending the local events and meetings. Through these events, I met many NESACS key members, and came to know that the NESACS Professional Relation (PROF) Committee has been inactive because the Chair position of this committee has been vacant for many years. From attending these events, I saw great value in this division and became highly interested in helping in the further establishment of this particular committee.

Who can be a member? How can individuals who are not currently part of this Committee get involved or benefit from its activities?
Anyone from the Northeastern Section of the American Chemical Society can be part of this committee. If interested, one can reach out to the chair of the PROF committee, Sourav Ghorai (sghora92@gmail.com) or to the NESACS administrative coordinator (admin@nesacs.org). One also can reach out to other committee members; members will be able to guide/direct the interested volunteer to PROF. Our events are focused on professional development, so these events offer opportunities to develop new professional development skills, and also foster networking and collaboration with like-minded professionals.

Can you share a success story or notable achievement of the PROF Committee that you are particularly proud of during your tenure as the chair?
We recently organized a webinar on “How to present complex material clearly” on Jan 23, 2024. We invited a career coach and leadership mentor, Brian Korgh, as our speaker. Brian has helped hundreds of technical experts create and deliver compelling presentations over the past decade. We received a registration of 80 members for the event. The webinar was extremely helpful for the audience who struggle to convey complex science to their fellow colleagues/scholars, and it was a great success for the committee. Based on the interest of attendees, we shared presentation slides with the attendees.

Are there any upcoming projects, events, or initiatives that members or those interested should be on the lookout for?
There is no scheduled event at this moment. But the committee is planning to organize more of in-person or online events in Fall 2024. Keep an eye at the NESACS website for more details as we plan out our next initiatives: https://www.nesacs.org
NESACs Committee Spotlight:
Ray Lam – Chemical Education Committee

Ray Lam is currently an associate professor at Massachusetts Maritime Academy (full professor come September), and he serves as the chair of the National Chemistry Week committee.

How long have you been involved in the ACS community, and what prompted you to become involved?
I have been volunteering with NESACs events since 2013. It all started when I was an adjunct faculty at Emmanuel College. My department chair, Dr. Christine (Chris) Jaworek-Lopes, was the National Chemistry Week (NCW) chair back then. I casually asked one day whether there was anything that I could help with for NCW and that’s how I started volunteering at outreach events. A year or two later, she was looking for someone to pass the NCW torch onto, so that she could be involved with other positions at NESACs, and I thought I’d give it a shot. Chris showed me the ropes & taught me how to organize the events. It was around that time that she got very sick. Chris never let her health issues get in her way, and she remained positive, courageous, and passionate about outreach programs right up until her unfortunate passing. It was with a heavy heart that I took over organizing NCW and have been doing that ever since.

What is the nature of your role in the National Chemistry Week committee?
My main role is to remain in communication with our museum partners to secure a date and venue for our events. I also advertise our events through various channels, including our NESACs newsletter (The Nucleus), radio shows such as Science Friday, and local newspapers. Plus, I recruit volunteers, design and order the T-shirts for our events (in addition to ordering other supplies), manage the budget, and write monthly reports to the board of NESACs.

Can you speak to the various events that the committee coordinates?
In recent years, we have been organizing events at Boston Children’s Museum, Museum of Science in Boston, and the Discovery Museum in Acton. Typically, we hold our events in the month of October, depending on the availability of our museum partners. In any given year, we would have around 50-80 volunteers from our local high schools and colleges. In terms of activities, we draw inspiration from the ACS NCW website, and of course our museum partners also have a vast knowledge on successful hands-on activities.

Is there a particularly memorable event from your time serving on the committee that you’d be willing to share?
I distinctly remember our first in-person event after Covid, when everyone was just beginning to come to museums again. I overheard a young museum visitor, whom I saw at our NCW activities table earlier on, talking excitedly with his parents, screaming “I love chemistry!” That makes all the work and stress worth it.

What do you find most exciting or rewarding about your work with the committee?
The excitement in our young visitors’ eyes, when they get their hands-on experience at NCW, is priceless.

Has your involvement in the ACS community made an impact in other areas of your life?
Believe it or not, I’m a total introvert. Chairing an outreach event and being in constant contact with multiple museums, volunteers, and advertising channels has helped me work on my social skills. Time management and dealing with unexpected situations are certainly skills that I have developed since I started organizing NCW events.

In what ways do you think the committee’s work has had the greatest impact on the NESACs community?
NCW as an outreach program...
serves hundreds of visitors every year, providing hands-on activities to engage the public. Our audience ranges from preschoolers to retirees. When I say our events are suitable for visitors of all ages, I really mean it. On top of that, our volunteers from local high schools and colleges get to interact with the public, sharing their love of science and developing valuable communication skills.

What advice would you give to other individuals who may be interested in getting involved in the National Chemistry Week committee?

Things are bound to go wrong, learn to go with the flow. The event does not need to be perfect for it to be successful. There will be stressful moments, don’t give up. Focus on the big picture, push through. I promise the smiles and excitements on our visitors’ faces are well worth it.

NESACS Committee Spotlight:
Owen Grimm – Young Chemists Committee

Owen Grimm is currently a contract Analytical Chemist at DuPont. He has been volunteering for the NESACS YCC since 2021, and has served as YCC chair for the 2023-2024 academic year.

What is your primary mission for the Younger Chemists Committee group?
YCC’s mission is to address issues faced by younger chemists. Frequently students graduate without a clear idea of what they want to do with their degree. We endeavor to provide younger chemists with the insight and connections to start their careers through a combination of networking events, industry tours, panel discussions with experienced career chemists, and our annual research symposium.

How did you become involved in this committee?
I started volunteering in 2021 as a way to make connections during the COVID shutdown. I had just graduated, and I wanted a way to stay active while looking for my first job. After a few years as YCC treasurer, I was elected to the position of committee chair.

Who can be a member? How can individuals who are not currently part of this Committee get involved or benefit from its activities?
While our programming is targeted towards chemistry students and early career chemists, our events are open to all and anyone can be a member!

Anyone interested can join our mailing list to know when events are upcoming at https://www.nesacs.org/committees/northeastern-section-younger-chemists-committee-nsycc

If you want to join our executive board and help plan our events, we have our elections in April.

Are there any upcoming projects, events, or initiatives that members or those interested should be on the lookout for?
Our major events each year are the Career Symposium and Research Conferences:
The Career Symposium is a series of career building workshops and engaging panel discussions on graduate school and career paths. Attendees will hear from professionals from various career paths, gain valuable insights into careers in chemistry, and expand their professional network with established professionals and their peers.

At our annual Northeast Student Chemistry Research Conference (NSCRC), undergraduate, graduate, and post-doctoral scholars will have the opportunity to share their work in a relaxing atmosphere with their peers. The day-long event features student poster and oral research presentations, awards, and catered lunch. The conference is also an excellent way to encourage students to network and get feedback from their peers.
NESACS Committee Spotlight:
Anna Sromek – Women Chemists Committee

Anna Sromek is currently a Deputy Director of the Center for Drug Discovery at Northeastern University. She has been a member of NESACS since 2009. In 2020, she served as Chair of NESACS. Currently she serves as chair of the Women Chemists’ Committee.

What is your primary mission for the Women Chemists Committee group?
My primary mission is for women chemists to achieve parity in the sciences, parity in the workplace, by supporting networking and professional development opportunities, and by keeping a conversation on this issue alive. We want to accomplish this by hosting a variety WCC sponsored events and programs to serve our members through a variety of workshops, seminars, and networking events. We want to increase our local and regional membership engagement and outreach, and we think we can make a bigger impact by collaborating with other local groups that have overlapping interests, such as groups focusing on women scientists and underrepresented groups.

In this regard, we have recently begun collaborating with the Boston EWOC chapter. Last year, we co-hosted the Global Women’s Breakfast at Sanofi. This year’s theme was “Catalyzing Diversity in Science”. We took this as an opportunity to focus on intersectional diversity in the sciences. It is important to keep in mind that we can’t only focus on gender identity without also considering other ways we are different, including racial and ethnic identity, sexual orientation, age, or family status.

How did you become involved in this committee?
I was elected as a councilor for NESACS several years ago, and I wanted to have a role in the national WCC committee. I was able to join WCC in 2019 as an associate, and I am currently a full member. Our local WCC was chaired by Carol Mulrooney until 2022. When Carol became the chair of our section, I was nominated to step in as chair of our local WCC. As long as I’ve been part of NESACS, our WCC held many excellent events for our members. There was a panel on wage disparity (Stem the Pay Gap) organized by Carol, Mariam Ismael, and Mindy Levine, which drew a very large audience and drew attention to the fact that this issue has always existed and in spite of some progress, continues to exist. There was the Catalyst series at Blueprint, which was organized to promote women in chemical sciences, and featured notable speakers Dr. Kathy Lee, Professor Corinna Schindler, and Dr. Geraldine Harriman. There were collaborative WCC and DEIR workshops led by Carol and Lori Ferrins, on impostor syndrome and implicit bias, to name a few. These events were eye-opening. Judging by the response and attendance, the subjects resonated strongly with our members, and the formats were accessible and welcoming to the attendees. It was great to see the issues that affect us being addressed openly, and it was validating to see women chemists being celebrated for their achievements.

Who can be a member? How can individuals who are not currently part of this Committee get involved or benefit from its activities?
Everyone with an interest in WCC and its mission is welcome to join and participate in planning and attending our programming. We do not limit membership or participation to women only. We view this as a part of the overall goal toward equity and parity in the sciences.
Can you share a success story or notable achievement of the Women Chemists Committee that you are particularly proud of during your tenure as the chair?

My time as chair has been short, but it is still difficult to pick a single most memorable event during my time as chair. The first notable event was the WCC EWOC networking luncheon at NERM in 2023. It was sold out- we had about 200 attendees, and a lot of talking and exchanging LinkedIn contacts took place- a lot of networking was taking place. This year, the joint EWOC-WCC networking event at Lily P’s in January had a great turnout. GWB2024 was also successful–the event featured Dr. Bonnie Bertolaet, Director of the Science Club for Girls; Dr. Dorothy Phillips, ACS President Elect, Dr. Natalie Lafranzo, ACS Board Member and member of LINUS, and Dr. Jason Tedrow, Global Head of Process Chemistry at Sanofi. The mission was strongly supported by Sanofi, who graciously hosted the breakfast. I am excited by the events to date and I look forward to seeing the same kind of energy and momentum for all of our events.

How has the group adapted to the changing landscape of scientific research and communication? How does the group foster networking and collaboration among its members, both regionally and nationally?

WCC was able to pivot to a hybrid or virtual mode when COVID hit. The virtual format worked well for the workshops on impostor syndrome and implicit bias. Virtual meetings are convenient for quick discussions and planning sessions as well. However, I think we prefer to have networking and other events in person, because it is easier to make connections organically when we are together than when we meet virtually.

NESACS and national WCC fit together: NESACS WCC focuses more on the local membership, and national WCC leads the larger agenda and has greater outreach to all members. For example, NESACS WCC may be involved in a local, in-person event for 20 to 100 attendees; national WCC organizes events at national meetings, and plans an annual webinar for all members. National WCC provides guidance and support for regional and local WCC as well, sets the overall mission, vision, and goals, recognizes efforts of local section WCC, publicizes and promotes events on a national down to a local level. National WCC also has many resources and awards for members that would not be feasible on a local level.

Are there any upcoming projects, events, or initiatives that members or those interested should be on the lookout for?

We will continue co-hosting quarterly networking events with EWOC in the Boston area, and we will continue to collaborate with other local committees on programming that benefits our members. Please share your thoughts and suggestions- we want to serve our members more effectively, so we need to know what you want us to do for you!
NESACS Committee Spotlight:  
Steve Lantos – Chemical Education Committee

Steve Lantos has worked as a chemistry teacher at Brookline High School in Brookline, Massachusetts since 1985, and has served as a chairperson of the NESACS Education committee since 1995. Steve has also served in other roles within NESACS, including chairperson and coordinator for the NESACS National Chemistry Olympiad.

How long have you been involved in the ACS community, and what prompted you to become involved?

I became involved with NESACS in 1988 when Wally Gleekman asked me to write the local section’s ‘Ashdown’ exam competition and lead the administration of the exam to high school students.

My involvement at the sectional level in the 1990s then led to my participation at the national level in the early 2000’s, during which I served as a chairperson of the US National Chemistry Olympiad (USNCO) laboratory task force (2000-2011) and created laboratory practicums for the national exam held annually.

More recently, I participated on the grading team, and I am currently serving as a mentor (2011, 2024) for the annual USNCO study camp, which aims to prepare our top 20 students and select our top 4 students for the competition at the IChO (International Chemistry Olympiad).

What is the nature of your role in the Chemical Education committee, and what events or outreach does the committee coordinate?

I currently serve as the Chair of the High School Education Committee. The committee is responsible for advertising and administering the local section Ashdown Exam competition, after which the top scorers are invited to the annual May Education Night awards. The top 5 scorers are presented with awards, including certificates, books, and cash prizes.

In addition to overseeing the annual chemistry exam competitions and giving annual awards to students for their success in these competitions, we also recognize teachers with awards for their contributions to NESACS.

What are key opportunities for the committee in future? Are there certain strategic initiatives that you are currently supporting?

One on-going goal is to promote increased high school participation across the section. This year, we boast the highest number of registered participants from over 40 secondary schools throughout NESACS for the Ashdown Exam (160).

What do you find most exciting or rewarding about your work with the committee?

I owe much to ACS over my career as a teacher. I’ve greatly enjoyed the many opportunities to annually honor successful students and their teachers. Honoring student and teacher success through our annual awards is a tribute to our profession as educators.

Has your involvement in the ACS community made an impact in other areas of your life?

Absolutely! My involvement with NESACS and ACS has been the most fulfilling and rewarding professional development. ACS has provided unquestioned support for NESACS, offering educator workshops and seminars, and hosting guest speaker and honoring our students.

What advice would you give to other individuals who may be interested in getting involved in the Chemical Education committee, or NESACS generally?

I encourage anyone who is interested to get involved!
It may be 250 years later in Boston, but you’ll still see excitement in the whites of Pittcon attendees’ eyes!

Prepare by following these orders:

• Assemble at the designated rendezvous point promptly (BCEC March 1, 2025).
• Suit up in appropriate attire for the mission.
• Deploy to the show floor to assess our exhibitors’ technology arsenal.
• Familiarize yourself with the battle plan (conference schedule) using LabSci by Pittcon app.
• Engage in reconnaissance (attend talks, workshops) to gather intelligence.
• Collaborate with fellow troops to maximize effectiveness.
• Execute maneuvers (participate actively) to achieve objectives.

Your dedication and expertise are crucial to achieving victory in the pursuit of scientific advancement. Move out with precision and purpose, and together, we shall conquer new frontiers of knowledge!

Join the Scientific Revolution at the 76th Pittcon!
Round the globe, Ph.D. students and post-doctoral scholars in chemical sciences vying for positions in academia face a competitive job market. Success in a faculty position might include a record of high impact publications and impact as a teacher and mentor, funding of grant proposals and many other attributes. Scientists from pioneering institutes in chemical sciences in the United States share the lessons they learnt from their journey of becoming successful research academics and the dos and don'ts that led their career trajectories to what they are today. This piece will provide a perspective to young Ph.Ds. and post-doctoral fellows on what to focus on and what to avoid while making their way into academia. Some scientists share their stories on the following pages.

How to Succeed in Academia: Greg Drozd

Greg Drozd is an Assistant Professor of Chemistry at Colby College in Maine. He held postdoctoral research positions at Columbia University, UC Berkeley, and the University of Pennsylvania, after receiving his PhD from Carnegie Mellon University.

What is the most important factor from your Ph.D. or post-doctoral time that helped you?

This is tough to answer. I was able to take advantage of the diversity of ideas surrounding me. My research group was really part of a much larger consortium, spanning several departments. As chemist, my view on science was greatly broadened by working with engineers of various disciplines (chemical, mechanical, civil, policy oriented), as well as chemists in a range of areas (atmospheric, computational, environmental/aqueous). For someone who would end up at a liberal arts college, I think this gave me the ability to adapt both my teaching and research to my students. I also think it made me able to shift my research in new directions, when either my own interest or my situation would require it.

Out of high impact publications, strong letters of recommendation, successful grants and teaching qualifications, which is the most crucial, according to you, and why?

From these options, I’m going to select strong letters of recommendation. But in truth, I think finding the right group/advisor is what is most likely to lead to fulfilling most of these criteria. If you consider a good relationship with your advisor to lead to a good letter, then most of these other items will follow. With the right advisor comes the right project and the motivation to
complete it thoroughly. You could think of “how do I get a good letter” as a single goal that puts these other items into perspective. Your advisor will be impressed by your insight and hard work towards a good project that naturally leads to a high impact paper. It’s also important to consider what “high-impact” might mean. A high number of citations may not always be the key metric. In a researcher’s field, fundamental work that is recognized as leading to highly cited work may be more highly valued. So, to return to the overarching focus on a strong letter, the advisor will be able to recognize and promote the value of the fundamental work better than say, Google Scholar.

Concerning funding, proposal writing is more often the realm of post-docs, but again, as one pursue their path, they need to be thinking about what key skills they want to learn from their advisor, and proposal writing is something to consider and worth asking about when looking for a post-doc advisor.

**Do you think the length of your post-doctoral training had an impact on your academic career?**

I held 2, sort of 3, post-doc positions over a period of 6 years between my PhD and academic position. In an interesting twist, two were held simultaneously. This was made possible by securing, in large part, my own funding. I don’t know that I would recommend such a long period. The length of my post-doc probably did help because I had more work output over the longer period. When I started a post-doc, there was some sort of norm that was 2 years. I don’t know that this notion of a “normal 2-year” length still exists. For many collaborative projects, a large amount of data analysis spread over several research groups can require a lengthy period, perhaps 2-3 years after the experiments (or field mission) are completed, and that can make publications rather delayed.

One factor contributing to the length of my post-doc period was that intended projects did not happen for reasons outside of my control. Due to instrument availability, the initial proposed project simply did not go forward. I had to re-calibrate expectations for my research and what kind of experiments I was going to do. I also had to create a new project, or projects, as it turned out to be. In combination with some personal reasons, I did not feel completely ready for the academic market after my first 2 years of post-doctoral research. My second post-doc position was relatively unrelated to my first in terms of content. That work relied on close work with the state of California, and some bureaucratic issues delayed that project, again lengthening my post-doc.

The result of my post-doc period was a broad base of knowledge in my field. I had studied oil spills, vehicle exhaust, quantum chemistry of ozone reactions, cloud chemistry, and climate effects of atmospheric aerosol. This reflects the change in focus initially, and then working on a less-than-cohesive set of projects, although all individually were very interesting and important. My first publications as a young faculty member were inspired by the projects that I didn’t plan.

I might try to sum up the issue of length of post-doc in saying: the earlier you can focus on a project you are passionate about, the less time you’ll need to feel confident as a researcher and put in a strong application for a tenure track faculty position. When life throws you a curveball, you may just need more time to get where you need to be for the academic job market, and you should expect the curveballs.

**What character trait would you say is most important to make it to academia?**

Resiliency. You won’t make it through the process without needing to pivot at some point, and pivoting may look like failure. Whatever you want to call the bumps in the road, whether failure or “opportunities for change,” you need to be able to take them in stride as best you can. I had more pivots than I would have liked, but they gave me a lot of experiences to draw from while I tailored my research to working with undergrads at my current institution.

**What are the major don’ts?**

Don’t burn bridges. Science is collaborative, and closing off connections is not a good way forward. You never know when a scientific relationship will be important, useful, or necessary. You need tough skin to get through academia. While you forge your career, it can be hard to find a good perspective to fully assess complex situations, but it’s important to not overreact to them.

Don’t forget what really excites you about science. I was told by several mentors that when you propose your research program what matters most is that you are passionate about it. If you stray far from what really excites you, it will likely hurt the creativity of your work.

Don’t reinvent the wheel. Many solutions to problems have already been worked out, whether mathematical/theoretical or
instrumental. A good way to avoid this is by doing the necessary background reading in your field to effectively learn from others before deciding you need to build a solution from the ground up. This is particularly true for data analysis. Be careful in choosing when to write your own scripts, and when to rely on existing programs (i.e. those from the instrument manufacturer). The model set for me was further towards making everything yourself, which is almost always necessary for some part of analyses, but not the full process of taking raw data to what you publish.

Don’t spread yourself too thin. While I was able to work in a wide range of research areas, keeping a certain amount of focus is advisable. Become an expert at something before branching out too far. It seems to me that deep knowledge of a single subject/problem/method unlocks a wider range of applications than you could anticipate. You need to have this deep knowledge to develop intuition for is the next best direction to go with your work.

What lessons did you learn from your career trajectory?

You won’t make it through just by your own hard work. Relying on mentors, friends, group members, and peers for insight, motivation, and advice is very important. That said, it is difficult to effectively engage in useful conversations without a great amount of effort on your own first. I really worked hard as a graduate student, lots of hours. It’s likely that a few more thoughtful conversations about my science would have catalyzed my work. This relates to my previous point about keeping a strong community, because those are the people you might (will) need at some point.

Always be planning. This still doesn’t come naturally to me, but it’s critical. Without plans on short-, mid-, and long-term scales you’ll hinder your progress on any timescale.

As you plan, you’ll also have time to reflect on what you’ve accomplished. This reflection is really helpful for mustering the courage to envision and begin the next project.

How to Succeed in Academia: Penny Beuning

Penny Beuning is a Professor and Chair of Chemistry and Chemical Biology at Northeastern University, serves on the Gustavus John Esselen Award committee for NESACS, is an ACS Councilor representing the Division of Chemical Toxicology, and a member of the ACS Committee on Economic and Professional Affairs.

What is the most important factor from your Ph.D. or post-doctoral time that helped you?

I was fortunate to have excellent mentors, including both my PhD and postdoctoral advisors as well as colleagues and collaborators. They all helped me tremendously, and in different ways. My advisors helped me in preparing for an academic career by helping me define and refine my ideas, helped me practice interviewing, and gave me advice on setting up my laboratory and starting my independent research. Both my PhD and postdoctoral advisors encouraged me to come up with new research ideas and vet them in the safe space of their groups. My postdoctoral advisor even helped me carve out a project that I could take with me to begin my own lab. Collaborators I had as a graduate student and postdoc helped me...
define my research directions (even though I changed fields), and some of them had remarkably keen insights into my potential as a faculty member that I found useful to reflect on.

**Out of high impact publications, strong letters of recommendation, successful grants and teaching qualifications, which is the most crucial, according to you, and why?**

I would advise those preparing for the academic job search to consider the whole package—what do you bring to the position that is special? What is your perspective on your field that sets you apart and on which you can build a career? Yet those ideas extremely well with your network so that when you interview, you will be confident and know that you can contribute something unique to your field. Being able to present a compelling research vision during an interview is important, as is appearing prepared for the position—be sure you have thought about your ideal group size, major equipment needs, your mentoring approach, and be prepared to discuss these issues as well.

**Do you think the length of your post-doctoral training had an impact on your academic career?**

My PhD was in a biochemistry and biophysics group in a Chemistry department, and I intentionally sought a postdoc that was more focused on genetics and microbiology so that I could better understand the cellular implications of biochemical experiments. I learned from that experience that I am fundamentally a molecular thinker and wanted to find a position in either a chemistry or a biochemistry department. Chemistry postdocs tend to be shorter whereas life sciences postdocs tend to be longer, and I was asked about the longer postdoc period. But most people recognize this varies by field and one simple question and answer alleviated any concerns. Second, I am part of a “two-body opportunity” so my PhD and postdoc periods were adjusted to maximize the time I could live with my partner. I was lucky that I had understanding and flexible advisors, as did my partner, who made it possible to minimize the time we spent apart.

**What character trait would you say is most important to make it to academia?**

It is important to strike a balance between stubbornness and flexibility. Your research ideas should be developed enough for you to have confidence in them, and yet you should recognize that others can have valuable input. The alignment of your research goals with your department and university priorities should be something you can articulate. Resilience is key; determine how to make the most out of failure or an unexpected result.

**What are the major don’ts?**

Be positive. In interviewing especially, also in your career in general, be positive and forward-looking. When things don’t go your way, think about how you will adjust, how you will make something out of that. Besides maximizing your effort in research, this teaches your students valuable lessons in resilience and troubleshooting.

**What lessons did you learn from your career trajectory?**

To borrow some advice from a colleague, it never hurts to know people. Building your network is incredibly important and useful throughout your career. At the beginning of my career, I tried to go to a conference every year where I likely would know almost no one, which would force me to meet and interact with people I might not have otherwise. In general, go to conferences and talk to people. Go to the posters. Chance encounters can be crucial. I went to a conference as a postdoc because I had travel funds to spend. I met someone at the last poster session of the meeting doing interesting work and we started a collaboration that resulted in a couple of papers. He introduced me to a colleague who is still a collaborator (and friend!) more than 20 years later! Science is a small world, and building your network can result in meeting incredibly interesting and supportive people who can become lifelong colleagues and friends. Few people are successful going it alone.

**Helpful resources:**

ACS Postdoc to Faculty Workshop (“P2F”): [https://www.acs.org/education/students/graduate/gettingready/academiccareers/postoral-workshop-for-prospective-chemistry-faculty.html](https://www.acs.org/education/students/graduate/gettingready/academiccareers/postoral-workshop-for-prospective-chemistry-faculty.html)

New England Future Faculty Workshop: [https://faculty.northeastern.edu/advance/faculty-recruitment/future-faculty-workshop](https://faculty.northeastern.edu/advance/faculty-recruitment/future-faculty-workshop)
How to Succeed in Academia: Kelsey M. Stocker

Kelsey M. Stocker is an Associate Professor in the Department of Biochemistry, Chemistry, Environment, and Physics at Suffolk University. She is a computational chemist whose research focuses on interfacial phenomena and chemical reactions in the environment.

What is the most important factor from your Ph.D. or post-doctoral time that helped you?

First and foremost, I had excellent mentors in Dan Gezelter and George Schatz as my Ph.D. and post-doc advisors, respectively. They not only modeled excellence in research but also provided invaluable guidance and encouragement at critical points in my academic career. Their example has been instrumental for me when navigating the landscape of academia, cultivating professional relationships, and establishing my identity as a scholar.

Throughout my Ph.D. and post-doctoral positions, I was entrusted with ownership of my projects and the autonomy to make major decisions. This responsibility developed my confidence when navigating challenges and achieving a research goal. It honed my ability to assess and adopt new methodologies, which has been crucial for building and sustaining my own research program.

I also capitalized on the opportunity to expand my skillset through various teaching assistant positions during graduate school and as an adjunct instructor during my post-doc. This experience laid the groundwork for my teaching philosophy and positioned me for success as a versatile academic. Demonstrating the motivation and ability to fulfill multiple roles is a key advantage when entering the academic market.

Out of high impact publications, strong letters of recommendation, successful grants and teaching qualifications, which is the most crucial, according to you, and why?

These are all valuable things to have when entering academia, but a record of success in any of these areas is not enough on its own. For a teaching-focused institution, teaching qualifications may be the most crucial type of experience to have. However, teaching experience without a coherent teaching philosophy is not going to get you very far. You need to articulate a holistic approach to education and student engagement.

Similarly, while a strong record of publications or grants is valuable, it’s equally important to have a plan for how those achievements will contribute to your future academic goals and how they can be translated to different institutional environments.

A single-minded focus on collecting achievements without reflection can lead to burnout and hinder your long-term success. Taking the time to process your experiences and develop your own perspective is essential for becoming a well-rounded candidate and faculty member. It’s about more than just ticking off boxes; it’s about cultivating a deep understanding of your field, your teaching approach, and your place within the academic community.

What character trait would you say is most important to make it to academia?

Intellectual curiosity and a growth mindset are both critical for obtaining and thriving in an academic position. It’s easy to get overwhelmed by the administrative burden of making everything happen and become discouraged by setbacks. If you’re genuinely interested in asking and answering big questions, your intrinsic motivation will make you more resilient and more likely to sustain a successful career trajectory.

What lessons did you learn from your career trajectory?

The biggest lesson I’ve learned is to be open to new opportunities. Every single game-changing role I’ve taken on in my career was one I didn’t feel totally ready for at the time. You shouldn’t say yes to
everything, but be careful not to say no to everything either. Having a solid plan is essential, but being flexible enough to recognize and accept opportunities that align with your goals can move your career forward in unexpected ways.

Get involved in the campus community. One of the most beneficial things I did early in my career was to take on college-level committee service. This type of work provides a wider perspective on the inner workings of the institution and connects you with people from outside of your department. This can lead to productive collaborations and mentoring relationships.

Stay involved with the scientific community. Your department might be large enough that you have colleagues with similar expertise and interests on campus. If not, you need to take the initiative to stay engaged by traveling to conferences or networking with faculty at nearby institutions. Building relationships with researchers outside of your immediate academic circle exposes you to different approaches and methodologies and helps you maintain momentum in your scholarly work.

The transition from a research-focused position like a graduate student or post-doc to a faculty position can be disorienting. Though the expectations will vary by institution, there are competing demands on your time between teaching, scholarship, and service, and finding a balance can be challenging. As a wise colleague once said, “Teaching is a gas – it will take up the space you give it.” With the constant demands of class preparation, grading, and meetings, it’s easy for research and scholarship to take a backseat.

Be proactive by discussing your goals with a colleague and setting up accountability check-ins, or by designating research-only time during the academic year (block it off in your calendar!) so you can maintain a level of productivity during the academic year.

Be mindful about what success means to you. There will always be external expectations to measure up to, but academia allows you to pursue avenues that resonate with your values and interests. Maybe you’ll discover a passion for innovative pedagogy or teaching materials. Maybe you’ll be invigorated by serving in leadership positions on campus. Maybe you’ll be inspired by training undergraduate students in your lab or even hosting an REU in the summer. There is no one way to be an academic, so embrace the opportunity to create your own vision for your career.
A background in chemistry equips you with the skills and training that can translate to a diverse range of careers. In this feature, you will find the perspectives of three NESACS members as they reflect on their professional and academic journeys. Each perspective is a testament to how training as a chemist equips one for success, whether in academia, industry, or beyond.

**Featuring:****

**Heidi A. Erlacher J.D., Ph.D.**
Partner at Cooley LLP

**Natalie LaFranzo, Ph.D.**
Director At Large, 2022-2024 | American Chemical Society
Vice President of Strategy | LINUS
Career Consultant | American Chemical Society

**Ajay Purohit, Ph.D.**
Head of Translational Chemistry at Ratio Therapeutics

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**A Career in Intellectual Property or A Career in Patent Law | Heidi A. Erlacher**

Dr. Heidi Erlacher’s practice focuses on worldwide patent acquisition and strategic counseling for a wide range of clients, including startups, mid-size chemical and biotechnology companies and large pharmaceutical companies. Heidi’s practice spans the fields of chemistry and biochemistry, with particular emphasis on small molecule pharmaceuticals, nucleic acid therapeutics, drug conjugates, organic and organometallic chemistry and biochemistry.

*Please describe what your current job. What motivated you to pursue this field? How did you transition into this field?*

I'm currently a partner in the Intellectual Property section of a Global, AM LAW 20 firm. I manage a large team of attorneys, patent agents and patent technical advisors. We primarily focus on preparing and prosecuting patent applications (this involves patent application drafting and responding to office actions from the United States Patent and Trademark Office (USPTO)), performing due diligence on (e.g., analyzing and critiquing) others’ patents and applications for various financing, licensing or acquisition events involving our clients. We also regularly analyze publicly available materials which were disclosed before our client’s invention “prior art” so as to determine the scope a patent to which our clients would be entitled or determine if our clients would be able to actually use their invention – regardless if they're able to secure a patent for it or not. Another interesting aspect of my work includes counseling clients as they plan for and navigate the drug approval process with the FDA.

I decided on a career in IP law while completing my post-doc. I knew I didn’t want to do benchwork anymore, so I met with a career counselor at Scripps, read books about science jobs outside of academia, and eventually met with a number of patent attorneys in order to learn more about a career in IP law. I’m really detail-oriented and love thinking about science so IP law was the perfect field for me.

I started working in a law firm as a technical specialist right out of my post-doc. I sat for and passed the
patent bar, and began law school all within my first year at that firm.

How do you utilize your expertise in chemistry to navigate the complexities of patent law and effectively advocate for your clients?
In order to properly advise my clients, I need to be able to understand the focus of their company. Being able to “speak their language” – scientifically- enables better communication not only with the leaders a company, but with the bench scientists as well. Interviewing scientists employed at my clients oftentimes requires scientific literacy in order to ask the appropriate questions which will lead to a thorough description of an invention and how it is distinguished from the prior art. Further, having a strong scientific background also allows me to craft the best patent applications for my clients, often navigating the nuances of crowded fields.

Many of my clients are developing small molecule – and nucleic acid therapeutics. Having a background in organic chemistry and having worked with RNA certainly helps me to better understand and advocate for these clients with the USPTO as well as the FDA. But a broad chemistry vocabulary also enables me to better represent companies who focus on antibody drug conjugates, degraders (e.g., PROTACS) and many types of formulations, including those used in RNA vaccines.

In what ways has your chemistry background provided you with a competitive edge in your legal career, especially in areas related to intellectual property?
When I started my career, there weren’t many organic chemists in the field. Because it’s necessary to understand the science in order to properly advise one’s clients, I certainly had an advantage in representing pharma clients because I could speak their scientific language.

For chemists interested in exploring patent law as a career option, what skills or knowledge do you believe are crucial for success in this field?
A background in science is required in order to sit for the patent bar. We receive many, many resumes which meet the scientific requirements. However, to be a truly excellent practitioner, communication skills are most important for succeeding. We constantly communicate, both verbally and in writing, with clients, the USPTO or FDA. Communication with peers and supervisors also cannot be overemphasized. Communication promotes teamwork, another requirement for providing excellent client service. Additionally, in order to be a successful senior practitioner, one must be able to effectively train junior talent.

A Career in Translational Chemistry

Ajay Purohit is the current head of Translational Chemistry at Ratio Therapeutics. As a drug development professional with a strong scientific background and experience in managing complex projects and in leading and creating global alliances, Ajay Purohit has 20+ years of experience in developing tools for drug discovery and development. He has also served as a member of the NESACS Board of Publications since 2015.

Please describe what your current job. What motivated you to pursue this field? How did you transition into this field?
I am the Head Of Chemistry Manufacturing and Controls (CMC) at Ratio Therapeutics. At Ratio we develop small molecules for treatment of cancer using targeted alpha and or beta radiation therapies.

I pretty much fell into the radiopharmaceutical field. After earning my PhD, I started looking for a job in the industry and did not have a preference as to the type of work I wanted to do. I received an offer from DuPont Pharmaceuticals at the medical imaging division
located in Billerica. The medical imaging division discovered and developed radiopharmaceuticals and imaging diagnostics with several marketed products. During my first 8 years I worked at the bench as a medicinal chemist synthesizing small molecules to be developed into positron emission tomography tracers for detection of cardiovascular diseases. Two of the programs that I worked on moved into Ph 1 clinical trials and with that I transitioned into a radiopharmaceutical process development role. This is when I first handled radioactivity, mainly 18F for optimization of radiochemistry for clinical trials and beyond. This experience further lead to a role in the Biomarker group at Biogen for the development of small molecule tracers as imaging biomarkers in drug clinical trials.

**In what ways do you apply your knowledge and chemistry expertise to bridge the gap between research and practical applications in industry?**

In my CMC role, while I do not do bench work any more, I use my chemistry knowledge gained during my PhD and during the course of my career to lead and manage technical projects with the goal of developing the selected lead compounds for clinical studies. Radiopharmaceuticals are unique in this regard as they have to be manufactured for administration typically on the same day or within a span of few days. While this is an operational role it also involves writing the CMC sections of IND filings for FDA filings and working closely with the research, imaging and clinical (operations) teams to start and accomplish clinical studies. Specifically, from a chemistry standpoint, early on in my career I learnt to not pursue synthesis of a molecule for too long simply because it ‘may’ have high affinity and to move on to other synthetic targets to keep a program moving forward. Toxicity, solubility and stability are some considerations that I also keep in mind as soon as a promising compound/series has been identified.

**How has your experience in research informed your approach to solving real-world problems and developing innovative products?**

When I started my career in the industry in med chem research, I thought ‘research’ as central to any pharmaceutical company mission and success. While research plays an important role, I had little to no appreciation for what it took to develop a molecule discovered in the lab into a product. However, with time I learnt that research is by no means the only way new or innovative products are discovered or developed and that a successful drug or a product has more than just initial promising results (i.e., receptor affinity or in animal models for instance) behind its success. I was fortunate enough to have opportunities in CMC/process development and Clinical Biomarker development & Operations to gain an understanding and appreciation of the enormous effort that is needed in translating early stage research into a clinical candidate and then into an actual drug. To be successful, cross functional collaboration and team work are critical.

**For aspiring chemists interested in translational chemistry, what skills or experiences do you believe are essential for success in this field?**

Gain a complete understanding and or appreciation for the development path and program goals instead of just the chemistry aspects (i.e, synthetic challenges). For instance, are there reliable assays or animal models for testing your compounds in place or do they need to be developed? Talk to your colleagues in process development, DMPK, toxicology and/or clinical research (if possible) to get their perspective and understand how the drug will be developed. In short cross functional communication, collaboration and team work are key. Be prepared for program(s) priorities to change direction (esp in industry) and not take any set backs personally. Conduct research with an application mind set – are you conducting the experiments that will move the program forward vs just for academic curiosity? What are the criteria for your program to be successful? Gain situational awareness - who are the decision makers, stakeholders, who controls resources and what is priority of the project you are working on within the company.
**A Career at the Interface of Chemistry and Business | Natalie LaFranzo**

**Natalie LaFranzo**, (she hers)  
Director At Large, 2022-2024 | American Chemical Society  
Vice President of Strategy | LINUS  
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**Please describe what your current job. What motivated you to pursue this field? How did you transition into this field?**

When I finished my graduate studies, I knew I was ready to leave the bench. I wanted to be at the interface of science and business, and be a part of getting new products successfully launched and adopted. Since then, I’ve held nearly every commercial role in small to medium companies, primarily in the life science tools and diagnostics sector. Last year, I made the decision to transition into consulting when I joined the LINUS Group. The company was founded over 25 years ago by a fellow chemist, and their approach to strategy and innovation was inspiring. I’ve been happily supporting a portfolio of clients as they launch and market their own products, and deepening my understanding of how to integrate human behavior and psychology into technical marketing and commercial strategy.

**What specific skills or knowledge from your chemistry background do you find most valuable in your current role in marketing and strategy?**

I have always felt like my technical training plus creativity has provided a unique combination that has enabled my success. Being able to form hypotheses, analyze and digest data, learn about a new technique or technology quickly, and succinctly summarize my learnings are all skills from my chemistry background that I’ve used throughout my career, including now. During graduate school, I loved making slides, posters, and telling the story of my science. Now, this is a big part of my job, which I love! It’s also worth noting that over time, I have had to transition my brain to be less focused on refinement, and more on thinking bigger through strategy and innovation. This is a skill I continue to work on, as it enables me to help our clients see beyond what’s possible today, and what they could build and enable in the future.

**How has your past experience in chemistry influenced your approach to developing marketing strategies or shaping business decisions?**

Ultimately, most of the companies that I work with are marketing to and communicating with technically-trained audiences – often either scientists or clinicians. So, being able to understand how these audiences think, what they expect in terms of data or evidence, and where they’ll be looking to find this information is highly valuable. Yet, contrary to what we’d like to believe, most humans are more driven by emotion than logic. At LINUS, we marry these two together and help ensure our client’s strategy taps into both. It’s a really powerful combination.

**What advice would you give to other chemists considering a career outside of laboratory research, particularly in marketing and strategy?**

Don’t forget to tap into the invaluable ACS resource that are the Career Consultants. Meetings with these folks are free for members, and they can help guide you through a few steps that you’ll want to take. First, you’ll want to understand what specific roles you’re interested in. There are many ways to contribute to the commercialization of science, and each of them leverages different skill sets. If you start looking at job descriptions and want a more personal view, it’s helpful to have “informational interviews” with folks in the type of role you’re leaning towards. You can set these up on LinkedIn yourself, or you can ask for help from your career consultant. Next, start inventoring what skills and experiences you have that align with the role. Communication skills and soft skills are key to highlight. And finally, don’t forget to update your resume to demonstrate that this transition is intentional. You’ll want to make it clear that you’re ready for a role away from the bench, and are eager to jump in!
How to Transition Into Pharma Industry: Interview with Francis Prael

Francis Prael is a Scientist in Cheminformatics/AI at Bristol Myers Squibb. He did postdoctoral work in cheminformatics at Novartis AG, and received his PhD from Vanderbilt University.

An introduction to a biased perspective
Hello! I’m a Cheminformatics Scientist at Bristol Myers Squibb, within the Molecular Structure & Design group. In short, my job is to apply data science concepts to chemistry with the goal of facilitating preclinical drug discovery.

Although it sounds cliché, my job is something that I genuinely enjoy: I think the teams I work with and the problems I solve day-to-day are engaging, and the year-to-year opportunity to help patients is rewarding. I’m sharing my experiences in the hopes that others find it useful for navigating their own careers. To communicate this, I’m going to cover some pieces of advice that, according to my own biased lens of hindsight, have helped me get to where I am.

Advice that’s helped me along the way

Find your niche.
There isn’t just one “industry” and it’s important to find a niche under the giant umbrella term of “industry” that you’d like to build your career. I’m biased, through my background, to think about medicinal chemistry, but there are a multitude of career options available to you. Some of these you’ve probably already thought of, like process chemistry, but others you may have not even considered, like becoming a patent attorney.

A great first step is to find out what’s out there. Do research into which careers a degree in chemistry can lead to – career development offices at universities are an excellent resource for this. Once you get an idea of what’s out there, I would highly recommend informational interviews across the careers you’re interested in. Informational interviews are important for gaining a much deeper and honest understanding of what a career is like, therefore helping you finding a niche in industry that you’d be excited to be a part of.

Doing these sorts of interviews earlier in graduate school helped me realize that I could convert my interest in using the totality of the data available to me to make scientific decisions into a career (i.e. cheminformatics). Moreover, these interviews can help with another essential step in transitioning from academia to industry: networking.

Build your network and find your mentors.
Your network is essential for helping you find your career in industry. To give you perspective as to why, I’ll talk about the context surrounding a typical job posting: a given industry position will garner hundreds of applications. This, coupled with the fact that most hiring managers are doing their full-time job in addition to trying to recruit, means that your application must stand out on a short review. Moreover, even if they had infinite time, it’s very hard to gauge the quality of the candidate from a few pieces of paper – this is where networking is important.

Building your network through internships, conferences, collaborations, publications, etc. helps a lot during the job search process. Virtually every reference on a resume will give a positive view on the candidate, so they aren’t very impactful. However, if the hiring manager can reach out to people at the intersection of their network and your network, and those people consistently give impartial and positive feedback for you, this can help the hiring manager prioritize your application over the hundreds of others vying for the role.

A small portion of your network–your mentors–are an invaluable resource. Finding people you
can receive support and critical feedback from, for your application and in general, is essential. Often, you must seek out this mentorship for yourself.

Personally, my mentors/network were essential for me landing my first full-time position. They helped me present at a conference, where leadership for my current role was in the audience, which set the stage for my interview and job offer. However, regardless of your network, you will still need to have the skills to get your first job in industry.

**Soft skills: no one is an island.**
In contrast to some academic labs, multidisciplinary teamwork is key in industry. Timelines are short, and the work is fast paced, so the only way to meet deadlines is to work together. Soft skills are essential for this sort of research, and building these will go a long way to helping you establish yourself in industry. Gaining soft skills by collaborating with other labs, especially communicating across disciplines, will be extremely helpful. Being cognizant of this and displaying it on your application materials will help in job applications and interviews. This is not to say, however, that technical skills are not important.

**Technical skills: you still have to be a good scientist.**
Despite the added emphasis on soft skills, technical skills are still essential for your job. As noted above, the job market is intensely competitive, and hiring managers are not going to give a position to someone who is unqualified for the role. So, focusing on developing technical skills that are widely used in industry should also be a priority. If internships are an option for you, I would highly recommend them: they are excellent for building your industry-relevant technical/soft skills, experiencing the priority differences between industry/academia, and to see if industry research resonates with you.

**Be prepared for the interview.**
Knowing what industry is up to will help you during your interviews and help structure your work during your career. Read papers from industry, keep up to date with current events (through sources like C&EN and Endpoints News), and attend (and network at!) industry-facing conferences if you can. When you get your interview, make sure to learn about what the company is up to, and familiarize yourself with the papers/patents of the people who are interviewing you. And, most of all, if it’s on your resume, make sure you’re familiar with it: know your own work backwards and forwards.

Being authentic is also key. For a junior-level position, you will not be expected to have decades of industry experience on the first day. It is OK to say that you do not know something. Also remember that your interviews are an opportunity to see how you think about and approach problems, so showing that you can think through a problem can be just as valuable as knowing niche information about an interview question.

**Closing thoughts**
Getting your first industry job will take a while. I had to submit dozens and dozens of customized applications to land my first internship, and things got subsequently easier after getting my foot in the door. The inherent rejection in putting yourself out there when you’re applying for jobs is emotionally draining. Iteratively improve your application materials with each interview or rejection and ask for feedback from mentors. Many hiring managers will also give you feedback if you request it. It’s easy to get frustrated and disheartened, but do your best not to. If you keep improving and putting yourself out there, you will find that role that you are searching for.
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