

# THE PERIODIC TIMES

STUDENT NEWSLETTER - APRIL 2024



## WELCOME!

BY CO-EDITORS-IN-CHIEF  
PARKER ROSENBLATT AND REGAN TALLETT

Welcome to the April 2024 edition of The Periodic Times: Student Newsletter! We're excited to showcase the myriad of achievements from students, faculty and staff and up to date news on the happenings in the Department of Chemistry and Fermentation Sciences. In this edition, you can find information regarding jobs and internship announcements, student, faculty and club news, an alumni spotlight from our very own Kate Huffman, and so much more! For upcoming graduates, you can explore how to apply for jobs; where to look, application help, and how to prepare for an interview. Be sure to check out this month's special feature for some quirky chemistry jokes. We hope you enjoy it!

CHEMISTRY AND  
FERMENTATION  
SCIENCES NEWSLETTER

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# JOBS AND INTERNSHIPS

BY ALYSHA HOLMES

Are you a student passionate about chemistry or fermentation science? Check out these exciting internship and job opportunities right here in North Carolina!

## NC Department of Agriculture & Consumer Services

Position: Chemistry Laboratory Intern

Location: Raleigh, NC

Website: [NC Department of Agriculture Careers]

<https://www.ncagr.gov/hr>

## BASF

Position: Research Intern - Chemical Engineering/Chemistry

Location: Research Triangle Park, NC

Website: [BASF Careers]

<https://careers.basf.com/global/en>

## Syngenta

Position: Chemistry Research Intern

Location: Greensboro, NC

Website: [Syngenta Careers]

<https://www.syngenta.com/careers>

## Avery Brewing Co.

Position: Fermentation Internship

Location: Spruce Pine, NC (near Boone)

Website: [Avery Brewing Co. Careers]

<https://www.averybrewing.com/careers>

## Novozymes

Position: Chemistry Intern

Location: Franklinton, NC

Website: [Novozymes Careers]

<https://www.novozymes.com/en/careers>

## UNC Health

Position: Chemistry Laboratory Technician

Location: Chapel Hill, NC

Website: [UNC Health Careers]

<https://jobs.unchealthcare.org/>

## Biogen

Position: Chemistry Intern

Location: Research Triangle Park, NC

Website: [Biogen Careers]

<https://jobs.biogen.com/>

## Cree

Position: Chemistry Intern

Location: Durham, NC

Website: [Cree Careers]

<https://www.cree.com/careers>

## New River Brewing

Position: Brewery Intern

Location: Boone, NC

Website: [New River Brewing Careers]

<https://newriverbrewing.com/careers/>

## Ashe County Cheese

Position: Fermentation Intern

Location: West Jefferson, NC (near Boone)

Website: [Ashe County Cheese Careers]

<https://www.ashecountycheese.com/careers>

## Novozymes

Position: Chemistry Technician

Location: Franklinton, NC

Website: [Novozymes Careers]

<https://www.novozymes.com/en/careers>

Don't miss out on these fantastic opportunities to kickstart your chemistry or fermentation science career right here in North Carolina! Apply now and take the next step toward a rewarding future.

# PROFESSIONAL DEVELOPMENT CORNER

BY CLAIRE MASON

*Preparing for interviews and careers can be very overwhelming and intimidating, but the Career Development Center is a great source to help yourself achieve professional success. Services range from resume reviews to mock interviews, in addition to a plethora of online resources.*



## Resumes, Cover Letters, CVs, oh my!

Resumes, cover letters, and CVs are all used in the application process of jobs, but what are they? And how are they different?

**Resume-** A short document, usually one page, that is a snapshot of who you are. Includes a concise description of your academia, work experience, extracurricular activities in addition to your skills and qualifications that make you marketable and desirable for a specific position. Uses power words!! Think short and sweet!

**Cover Letter-** Usually accompanies a resume and is a writing sample. Provides a more personalized and detailed introduction and description of yourself. Explains why you are a good fit for the company and position.

**CV-** Curriculum Vitae is a document that focuses on your academic experiences. It is a full history of your academic credentials, including education, research, presentations, and publications. These are lengthier than resumes and cover letters, someone farther in their career (with more accomplishments/achievements/experience) would have a much longer CV than someone just starting out.

## Job Interview Tips + Tricks

- **Learn about the company;** understand their goals, mission, values, workflow. Familiarize yourself with recent accomplishments/projects. Know what they do and what they are looking for!
- **Prepare answers to standard interview questions.** Find common interview questions and how to answer them. Practice your responses.
- Don't just memorize your answers; you don't want to sound like a robot. Understand what you are saying and why you are saying it.
- Make a list of questions to ask the interviewer. This shows that you are interested in the position/company and came prepared for the interview.
- **Asking questions will help you evaluate if the job is right for you.** Does the job fit what you are looking for?
- Provide **real-life examples** in your responses.
- Anecdotes and examples make you a more memorable interviewee. Using examples shows your experience and skills.
- Avoid talking too much/rambling. Be brief, but precise with your answers. Answer the question without tangents.

## Some Additional Resources

The Career Development Center: <https://careers.appstate.edu>

Handshake.com: <https://joinhandshake.com>

BigInterview.com: <https://resources.biginterview.com/category/interviews-101/>

Indeed.com: <https://www.indeed.com/career-advice>

# CLUB NEWS

BY DORISCEL ZENIL

**Want to join a club within the department? Interested in exploring a different discipline within chemistry?** The Chemistry Club, Forensic Science Club, and Fermentation Sciences Club are awesome ways to make new experiences and meet others with the same interests! Here are some highlights about upcoming club events!



**Chemistry Club** - The club aims to provide a better understanding of chemistry as well as teaching individuals that chemistry is fun! There are several exciting events coming up for the Chemistry Club! On April 4th, they will be hosting a senior student panel to answer questions and give meaningful advice to underclassmen. On April 18th, some professors within the department will compete with each other in a jeopardy style game! On April 25th, a tie dye event will be held where you can tie dye your own shirts or chemistry club t-shirts!

*Meetings are on Thursdays from 6-7pm in GWH 112. For more information about joining, contact President Luke Darney ([darneylb@appstate.edu](mailto:darneylb@appstate.edu)) or check out their Instagram ([@appstatechem](https://www.instagram.com/appstatechem)).*

**Forensic Science Club**- The club is dedicated to promote awareness about forensic science as well as providing different experiments and activities to learn about possible professions and to get hands-on experience about what one might see in different sections of a crime lab. They will be hosting a scavenger hunt of forensic related topic through an episode of "Cold Case Files" on April 4th!

*Meetings are held biweekly on Tuesdays at 6pm in GWH 307. For more information about joining, contact President Kaitlyn Kozicki ([kozickika@appstate.edu](mailto:kozickika@appstate.edu)) or check out their Engage page.*

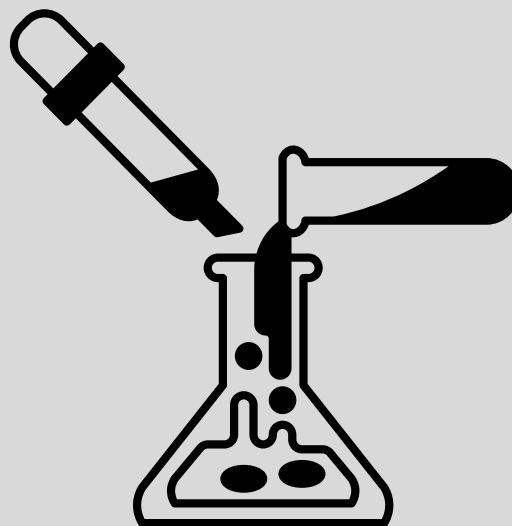
**Fermentation Sciences Club**- *Want to create delicious foods while learning about the chemistry and biology that goes behind this process? The fermentation club would be a great experience to join! They aim to educate by sharing experiences, encouraging creativity, promoting students in science, and spreading knowledge of those who created certain processes. They are still determining activities but will update as soon as possible!*

*Meeting times are still being determined but their Engage page will be updated for any future meetings! Follow them on Instagram ([@appstate\\_fermentation\\_club](https://www.instagram.com/appstate_fermentation_club)) or contact their email ([asufermentationclub@gmail.com](mailto:asufermentationclub@gmail.com)) for more information about joining.*

# STUDENT NEWS

BY CALVIN ARTHUR

**Ever wonder what your classmates are up to?**



**Samuel Alvarado** is a senior chemistry major with a certified chemist concentration. He is a research assistant for **Dr. Jefferson Bates**, for whom he uses machine learning in an attempt to generate a predictive model for the repulsion effects of two electrons on each other in a sphere. I know, a real mouthful. What is especially fascinating about his research is that he is one of the first people in the world to take measurements related to electron behavior in this fashion. “Not having a textbook for the stuff you’re trying to do is pretty interesting,” said Sam regarding this aspect of his work. “Machine learning is brand new, and there’s not really a guide we can look to. You have to do the research and check what states of machine learning will give you a better prediction.”

Sam’s work is especially impressive considering his background when he began his research. As one could probably guess, the research he does draws heavily from **quantum mechanics**; however, when Sam started, he had not taken a single quantum mechanics course. He shared that at first, the work was overwhelming and difficult to understand. “I didn’t understand anything about quantum mechanics, and the little I thought I did was not correct. I relied heavily on Dr. Bates’s guidance.” Since starting, Sam has learned a great deal about quantum mechanics and has achieved a deeper understanding regarding what the results of his research means. Currently, Sam is working on increasing the accuracy of his model to confidently say it predicts electron repulsion effectively. If he does this, he will have effectively helped Dr. Bates to prove that machine learning can be used to make predictive models for a two-electrons-in-a-sphere problem. “[This research] will tell us if the specific model I work with can be predicted by machine learning.” Sam has stated that he feels like he can graduate happily knowing that he has assisted Dr. Bates in determining if an accurate predictive model is possible.



# FACULTY NEWS

BY PATRICK FERRONI



DR BROOKE CHRISTIAN

Congratulations to Dr. Brooke Christian for being selected for the UNC Board of Governors 2024 awardee for Excellence in Teaching on March 14, 2024! This is an outstanding achievement as only 17 exceptional faculty members across the UNC system are eligible to be selected. Each of the winners will receive a well-deserved bronze medallion and \$12,500 cash prize! No doubt, an excellent representation of the talent and overall quality/capabilities of the chemistry department lecturers and lab instructors here at ASU!

**Dr. Brett Taubman is one of the most enthusiastic professors you will ever meet at ASU! That energy was put to good use earlier this year in late January as Taubman was featured in a radio interview to shed light on the lesser-known fermentation sciences programs here at ASU.**

**Most high schools rarely focus on the fermentation side of chemistry and biology, which leads to people not being aware of such courses after graduating high school.**

**Taubman states that it's difficult to get undergraduates just out of high school to enroll in these classes, mainly because they are unaware of their existence. If you're looking for courses that are engaging, these are the classes you want to be in!**



DR BRETT TAUBMAN

# ALUMNI SPOTLIGHT

## CAROLINE DONAGHY



A recipient of the National Science Foundation Graduate Research Fellowship (NSF GRFP) with an undergraduate degree in the Certified Chemistry (BS) track at Appalachian State. With a pool larger than 500,000 students and only 60,000 GRFPs awarded, that leaves a 12% acceptance rate and a big accomplishment for this App State grad. Caroline's research while at App State was multidisciplinary in that it focused on chemistry and physics. To fund this research, she got support from the NIH and obtained a grant thanks to the help of Dr. Brooke Hester and Dr. Megan Culpepper.

Donaghy's work focused on initial flavin transfers on the sulfur-degrading enzyme Dimethyl Sulfide Monooxygenase (DMS). Her work was successfully published in 2020 with her being the coauthor under these two amazing professors. When asked about receiving her reward from the NSF, she said "My application spoke on my experiences of conducting research, mentoring through tutoring...and developing my demonstration-based outreach program - Science is Reaching all Demographics (RAD)." Most of all though, she wanted to drive home a specific point in her response which was her "tenacity to overcome the many hurdles" while obtaining her BS.

Due to her hard work and success with her undergraduate research, Caroline was accepted into various graduate programs and ended up committing to the University of Connecticut (UConn). Here, she joined up with Dr. Alfredo Angeles-Boza who heads a research group exploring the usage of antimicrobial peptides (AMPs). Their main focus was to create better agricultural and farming practices with what are called green pesticides. These aim to protect the environment, pollinators, and marginalized communities of migrant farmers. During her time at UConn, she also became a part of their Joint Safety Team which is a student-led initiative that aims to promote chemical safety in academic research labs. Due to Caroline's hard work, Appalachian State was Nationally recognized as a key benefactor as they were Caroline's undergraduate institution. Caroline went on to receive an Honorable Mention from the NSF in 2021 for her studies in Chemical Structure, Dynamics, and Mechanisms.

# THE FUTURE OF CHEMISTRY

BY RILEY HOFFER

*Chemistry is an ever-evolving field and has undergone rapid change over the past several hundred years. From the discovery of the atom, to the synthesis of complex molecules, chemistry has irrevocably changed the trajectory of human civilization. So, where is it going in the future? Ongoing research across the world indicates the need for further study in catalysis, batteries/energy storage and biomolecules in particular.*

Chemistry is a diverse field that overlaps heavily with mathematics, physics and biology. This guarantees that no matter which sub-field of chemistry you go into, there is always something to be worked on to advance the collective knowledge of humanity!

Catalysts are molecules, usually metals, that increase the rate (but don't change the overall thermodynamics) of a given reaction. The design of catalysts for organic synthesis and other processes is imperative to increase the efficiency of industrial chemical processes.

Ever wonder what keeps your phone, laptop or tablet powered all day long? Lithium ion batteries are among the most efficient types of batteries that are known to the world. In order to transition to carbon-neutral energy sources, however, even more efficient batteries must be developed to store the energy that is created as a result of things like solar cells and windmills.

## DEAR LABBY

Do you have a question or need advice from a fellow chemistry student here at App? Feel free to drop a line on the google form below and let us know how we can help you out.

<https://docs.google.com/forms/d/e/1FAIpQLSfa526nmn6y8EQe7I6cSPI fe9 QY7LVefWs7EPiUWXkoWWDA/viewform>



# Applying for JOBS



## Where to look?

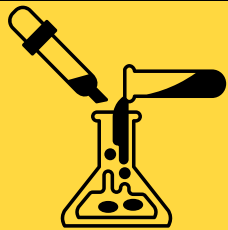
It can be very overwhelming when trying to look for a job on your own so here are a few tips and tricks to help get you started. The first step would be to make a **LinkedIn** profile. LinkedIn is like Facebook but for jobs. You can search for specific jobs/industries and they can also search for you.

In addition, **Handshake** would also be a good resource out your name out there. Handshake is another social platform where you create a profile and you can reach out to companies and companies can also reach out to you.

Both LinkedIn and Handshake are great social platforms where you can upload a professional profile and search for job listings and those jobs can also search and reach out to you. This is a great way to communicate with companies and get your name out into the professional world.

Another place to get assistance when applying for job would be at a career and development center. Luckily for App State students, there is one right on campus! **The Career and Development Center** is a great resource to help introduce you to different career opportunities and help you search who is hiring, where they are located, and what type of industry best fits you and your interests.

**By: Alana Coley**



# Resume Tips

By: Elias Belongia

## ***Resumes should follow a general format***


- A resume should give a brief summary of your relevant experience. The preferred length for a resume is exactly one page but don't feel like you have to restrict yourself and end up excluding important information just to keep it brief.
- You can find plenty of format examples online to use when making your own resume. Common sections to include are education, work experience, skills, certifications, volunteer experience, and research experience.
- Once you have a format, fill in as much information as you can, regardless of how relevant you believe it to be. The goal here is to make a general resume that you can edit for whatever type of job you may apply for in the future.

## ***But be hand-crafted for each application***

- If you have a job you intend to apply for, you would go through your general resume and cut out any information that is not relevant to the position. The best way to determine what's relevant is to research both the position and the company.
- The responsibilities, the type of work, and what the company is looking for in an employee should narrow down what to include.
- For education, you'll want to include the degree you are currently pursuing with your expected graduation date.
- For skills, you should include anything relevant you feel proficient in. For chemistry or other STEM jobs, you may want to include any instruments that you have used in the past.
- Overall, the main goal of your application and resume is to show the employer that you have relevant knowledge and experience for the position that makes you the best fit.

# HELP WITH INTERVIEWS

BY HEIDEN  
KRISTOFFERSEN



Interviews are a great way to make a good first impression to potential employers. And because of this it can help you out a lot to make the most of your opportunity. There are several different things that you can do to prepare and to make sure you leave your mark.

One thing that is very important is to make sure you **know about the company and position you are applying for**. This means doing research on the company, looking at what they do, what their goals are, and what methods they use to achieve those goals. This way you can show interest in what they are working towards. Looking more into the position you are applying to as well will give you information into what skills you may need to brush up on, so you will be more knowledgeable about what is expected from you.

Another important thing is **how you present yourself**. This comes down to how you look, your body demeanor, and how you carry yourself in conversation. Here you want to dress for success along with making sure to have good posture. And make sure to have confidence when you are speaking and don't shy away from any questions or inquiries.

Last but not least make sure you get **practice** to combine everything together. This includes performing **mock interviews**, looking at **common interview questions**, and **recording** yourself practicing. If you want to perform mock interviews, get in touch with your professors, friends, or the Career Development Center, to find someone to help you. There are many ways to practice so you can try to figure out what works for you, but the most important reason is to help you gain confidence to be able to present yourself better. With this you are better prepared to go into that interview, but don't forget to reach out to the interviewer to thank them and display more interest in the position.

***Because when you put your foot in the door, you want to make sure it stays there.***

