

THE PERIODIC TIMES

STUDENT NEWSLETTER - NOV 2024



WELCOME!

BY EDITOR-IN-CHIEF
ZECH PAYNE

Welcome to the November 2024 edition of the Periodic Times! In this student newsletter, you can find information on the Department of Chemistry and Fermentation Sciences. This month, the theme revolves around helpful information regarding academic advising and course planning! Planning your semester schedule and course load can be overwhelming for both new students and soon to graduate students. This newsletter will hopefully provide some guidance to get you through your chemistry degree! The Department of Chemistry and Fermentation Sciences is here to help, so be sure to reach out to your advisors with any questions regarding schedules or information past undergrad. Thank you for reading the Periodic Times November edition!

CHEMISTRY AND
FERMENTATION SCIENCES
NEWSLETTER

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JOBS AND INTERNSHIPS

BY ELIAS GOEBELER

The time is now for fall recruitment!

It's time to brush off your suit, update your resume, and work on your elevator pitch! November has two career fairs coming up; a virtual education career fair on Friday, November 1st, and an in-person fair in Hickory on Wednesday, November 6th. If career fairs are not your thing, check on **Handshake!** Handshake is Appalachian State's career services portal where you can reach out directly to employers looking to hire Chemistry and Fermentation Sciences students. Also listed on Handshake are internships, part time and full time jobs, and other on-campus events. The Career Development Center screens all Handshake listings to ensure they are authentic.



Job and Internship Opportunities

Consider applying to an **NSF-funded Research Experience** for Undergraduates (NSF REU), and getting paid to do research at universities around the country this summer!

Here are a few **internship opportunities** for this coming summer!

There are lots of **jobs posted on Handshake** and here are just a few!

Biomedical research internship at Novartis



R&D Intern at Eastman manufacturing



Patent Examiner at the U.S. Patent and Trademark office



Laboratory analyst at ESML analytical



Find more opportunities on Handshake
<https://appstate.joinhandshake.com/explore>

PROFESSIONAL DEVELOPMENT CORNER

BY ELIAS GOEBELER

Here are some tips and resources to help nail your interview or how you can stand out on your graduate school application!

Interview Tips

Practice, Practice, Practice

The best way to improve your interview skills is to practice as much as you can, whether that's in front of a mirror, a friend, or the real deal. Start practicing now to nail your interview when it really counts!

Concise Answers

Speaking clearly and concisely is very important in both phone and virtual interviews. Work on cutting out filler phrases such as "like", "umm", and "so". This conveys confidence and competence.

Grad School Application

Fee Waivers

Application fees piling up? Save money by obtaining an application fee waiver. Many universities offer them if you demonstrate financial need, or simply email graduate admissions and ask.

Cover Letter

A cover letter is a crucial first impression that the admissions program uses to judge your application, be sure it is tailored to each program, concise, and critiqued by multiple people.

Interviewing

If you make it to an interview, Congrats! Be sure to have a good understanding of the faculty's research interests. Be prepared for questions about weaknesses in your application. Make sure you know how your skills and interests fit in with the programs needs, and be able to clearly communicate it. If your interview is online and you need a safe space, the Career Development Center has [Interview Rooms](#) you can rent out!

Common Interview Questions

Be sure to research common interview questions so you can have a great response in case they come up. [Big Interview](#) is a great resource for this!

Ask Questions

Always prepare personalized questions to ask the interviewer. Questions for the interviewer make you seem interested and knowledgeable about the company.

Resources for a great interview!

Big Interview

[Big Interview](#) is an online platform provided for free by the Career Development Center that allows you to practice common interview questions and techniques online!

Professional Headshots

Stop by the Career Development Center anytime to get free professional head shots taken to upgrade your LinkedIn.

Mountaineer Food Hub & Free Store

Check out the free store on the ground floor of East Hall located in the Office of Sustainability to update your closet with free professional attire for interviews.

Career Studio

Drop by the Career Development Center's [career studio](#) for resume & cover letter development as well as personalized counseling for career development.

CLUB NEWS

BY MAGGIE BEGICK



Appalachian Chemical Society

During the month of November, the Appalachian Chemical Society is planning on exhibiting several fun chemistry demonstrations with some including thermite, spitting fire, exploding balloons, and elephant toothpaste! Meetings take place on Thursday November 7th and 21st in Garwood Hall 112 at 6:00 pm.

Interested in becoming a part of the Appalachian Chemical Society? Visit the club's Engage page via the QR Code to the left and join the Engage group to become a member to stay up to date on club meeting details and news. Anyone and everyone is welcome!

If you have any questions, contact Luke Darney the club president at darneylb@appstate.edu.



Fermentation Science Club

Interested in learning how fermentation can be used in your life to make various delicious foods and beverages? Fermentation Science Club meets on the back side of Mountain Laurel Hall on Mondays at 5:00 pm (meeting dates to be determined).

Visit the Fermentation Science Club's Engage Page at via the QR code to the right and join the Engage group and Discord server for further updates on future meetings, projects, and club semester plans!



STUDENT NEWS

BY CJ DEAL

Answers are paraphrased

Ever wonder what your classmates are up to?

Q: What courses have caught your interest and what experiences do they bring?

A: I'm taking an inorganic lecture and lab, which aligns with my research in Dr. Wallen's lab. This experience has deepened my understanding of coordination chemistry and has been both engaging and hands-on.

Q: What advice would you give students on selecting courses and handling prerequisites?

A: I would advise students to carefully plan their prerequisites and create a clear course schedule, as many classes require specific prior courses. By organizing their courses early, they can stay on track to graduate on time. Choosing classes that genuinely interest them also makes the journey more enjoyable and fulfilling.

Q: How was your experience presenting your research at the SERMACS conference? Do you plan to continue your work?

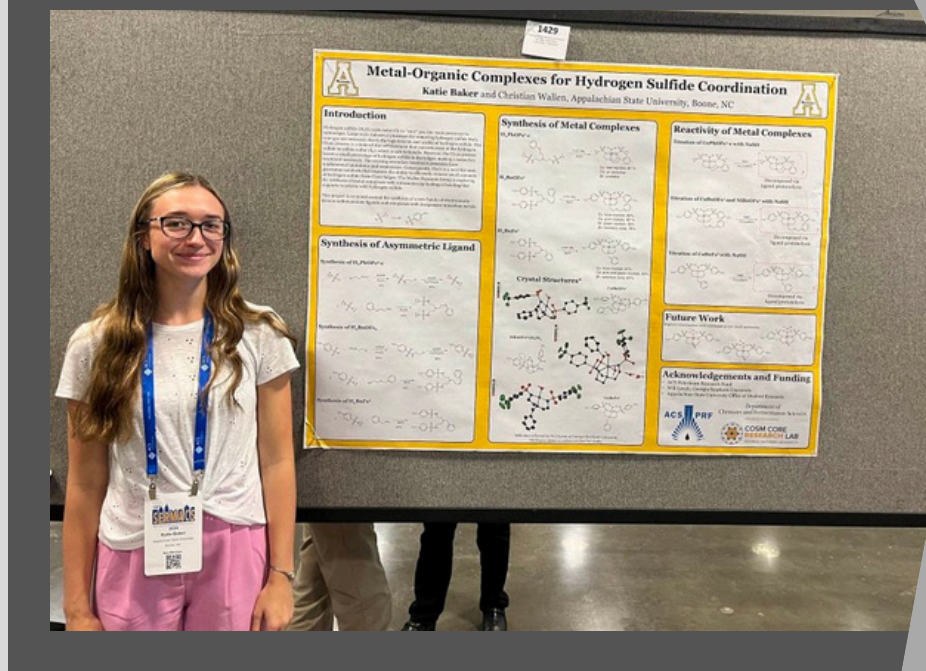
A: Presenting my research at the conference was exciting and informative. I enjoyed engaging with fellow inorganic chemists and introducing our work to others. This experience reinforced my commitment to my research, and I look forward to presenting again in the spring.

Q: What is your research on in Dr. Wallen's research group?

A: Our research focuses on synthesizing a metal complex or catalyst to bind hydrogen sulfide, a toxic component naturally present in sour gas, the precursor to natural gas used for heat and electricity. While the industry standard Claus process efficiently converts about 95% of hydrogen sulfide, the remaining 5% in tail gas still poses a hazard and requires additional removal. This is where our project aims to contribute. We work on synthesizing metal complexes with intramolecular hydrogen bonding to enhance reactivity with hydrogen sulfide. My specific project involves developing a new family of electronically diverse sulfonamidate ligands and complexes with affordable transition metals. Initially, my ligand design focused on electron-rich sulfonamides, while my current ligands feature more electron-withdrawing groups, including an aryl group and CF_3 .

Katie Baker

Senior concentrating in Certified Chemistry



Dr. Christian Wallen

**Assistant Professor
Research Mentor**



FACULTY SPOTLIGHT

BY CJ DEAL

Answers are paraphrased

Q: As an advisor, what would you want students to ask?

A: I want students to feel free to ask whatever's on their mind. They shouldn't think there are "right" or "wrong" questions; the best ones often come from confusion or curiosity. Questions are crucial for faculty, as they help us understand students' thoughts and gaps in knowledge. It's easy to assume students grasp everything, but they often don't. The same goes for advising students who may not fully understand how things work, so asking questions is a great way to gain clarity. Any questions they have are valuable.

Q: What advice do you have for students when planning courses for learning and career readiness?

A: Chemistry is foundational, so our curriculum covers all core material. After fulfilling their chemistry and general education requirements, students can fill extra credits with a minor that complements their studies, such as physics for a solid foundation or math for problem-solving skills. Exploring different interests, like music, can also be enjoyable. Courses like modern physics broaden understanding, and balancing useful with fun courses is key for mental health and well-being.

Q: What advice would you give students starting in chemistry and considering it as a career path?

A: When you first start college, it's tempting to think you need a clear-cut career path and focus solely on the specific job requirements, but this approach is unrealistic. Most people don't know exactly what they want to do yet and that's okay. Without enough life, class, and world experience, it's hard to understand what careers entail. Instead, focus on building fundamental skills in your field, whether it's chemistry, exercise science, or something else. Foundational courses like introductory chemistry or math may seem unrelated to your future, but they're crucial. Developing strong general skills like math, problem-solving, and tools like Excel prepares you for any applied skills you'll need on the job, as employers often teach those specifics. So, get comfortable with essential software, even explore advanced features, and embrace basic skills you can translate into any future job.

Q: What are some of the most rewarding aspects of teaching or mentoring any of these students?

A: For me, it's all about the students. Despite the challenges of the job, interactions with students are incredibly fulfilling. They often come in with little knowledge of chemistry, but their curiosity and desire to learn are inspiring. Watching them progress over four years, especially those who are my advisees or research students; is rewarding. Many start with no idea of what a PhD is, drawn in by a fun high school class, and as they discover the possibilities in chemistry, their excitement grows. While I haven't yet seen long-term alumni success stories, witnessing their growth in just a few years is amazing. I love introducing them to chemistry, which is relevant to everyday life, and I want them to leave with a lasting enthusiasm for the world around them.

Q: What do you enjoy doing outside of academia? And do you have any hobbies or interests intersect with your teaching or research?

A: I have a variety of hobbies and interests that I enjoy outside of work. I've been into singing and music in the past, though I don't do as much of it now. I love outdoor activities like disc golf and Ultimate Frisbee when I get the chance. I also brew beer, which, while not directly related to my research, does connect with my job since our department includes a fermentation program. Sometimes, I even interact with fermentation students, who occasionally take my classes. I've enjoyed learning about brewing from a more scholarly perspective, rather than just as a beer enthusiast. On my "nerdier" side, I'm an avid gamer and currently the Dungeon Master for a Dungeons and Dragons campaign we started last summer, which has continued through the semester. I also enjoy classic board games like Seven Wonders and Dominion—I have five expansions for Dominion, and it's one of the many games my wife and I play with friends. It's great to have these outlets beyond work, keeping the balance fun and engaging.

Dr. Wallen completed his undergraduate degree at Union University, Ph.D. at Emory University in Inorganic chemistry, and a post-doc at University of Wisconsin-Madison.

Advising and Planning for the Spring Semester

BY BOBBY STUMPF

Important Dates:
November 1st – Registration opens
November 8th – Deadline to Apply for Graduation
November 14th – Registration closes

Major requirements

Generally, Chemistry degrees are very structured. Some higher level courses are only offered in the Fall or Spring semesters. Courses only offered in the spring include, Physical Chemistry II (CHE 3302), Instrumental Methods of Analysis (CHE 3560), or Forensic Toxicology (CHE 4630). If you need to find a way into spring-only courses outside of registration, discuss options with the chemistry department or your advisor.

Permits

Some chemistry courses require a permit to enroll! Known courses to require permits include Quantitative Analysis (CHE 2210) and Instrumental Methods of Analysis (CHE 3560) and their labs. Some courses may also fill up before you can register. If there's no waitlist, some professors will offer permits to join. Contact professors or the department to get a permit for a required course if it is full.

Registration

Remember to have your PIN handy and a list of CRNs of the courses you plan to take in the spring. Navigate to the [registration tab](#) and the [early registration access subsection](#) on the office of the registrar's webpage to find your registration date and time. Registering at the earliest possible time will ensure that you have the best chance to get into the courses you want!

Degreeworks

The most useful tool for course planning is [Degreeworks](#). We urge all students to review your degree plan. The "What-If" section of Degreeworks is a fantastic resource for those who may not be confident in their major, minor, or concentration! It will allow you to see how your earned credits would be applied to a different degree. If you have any concerns about your degree or your academic progress, reach out to your advisor or contact the office of the registrar.

Advising

Your advisor should have discussed plans for next semester at this point! If you have not met with your advisor, do so ASAP! They will help you navigate your degree and make sure that you have the courses and credits you need to progress through your degree.

Looking for a new course to try? TRY Alpine Skiing or Snowboarding!

Offered from January 13 to March 03, Alpine skiing (PE 1873) and snowboarding (PE 1876) are courses not commonly offered in North Carolina! Most Appalachian alums agree that the school's environment is unique and taken for granted while in undergraduate studies. Remember, all students are required to have two credit hours of physical education to graduate. Take the edge off your stressful semester sliding down some ski slopes!

ALUMNI SPOTLIGHT

BY ZECH PAYNE

MIA VERDUGO

Graduation: Spring 2024

Degree: BS in Chemistry,
Forensic Science

What have you been doing since graduating and what process did you take to get there?

I enrolled in the master's program at ECU for chemistry so I'm currently teaching 2 general chemistry labs, conducting my own research every day, as well as taking a couple classes required for my degree! I applied in May of 2024 long after applications were already submitted and accepted so I was late to the game. I really scrambled to get my 3 recommendation letters, personal statement and transcript figured out.

After these main tasks, it was mainly just a waiting game. Once accepted, I quickly packed up all of my things and left to start at my new school!

What was something your advisor told you that was helpful for graduate school?

I never actually talked to my advisor about this, I depended on my research mentor, Dr. Babyak, for almost everything. If I had any questions about graduate school or if I was ever nervous, I would just sit and talk with her and it would always make me feel better about my direction after undergrad.



What was the hardest part about the transition from undergraduate school to graduate school?

The hardest part for me would have to be teaching, I have never taught before so I wasn't sure what to expect or how I should be teaching because each student needs different things. I feel as if I'm always scrambling to figure out what I need to do and what is expected of me when I teach but I'm getting through it anyways, working to constantly improve myself!

What classes specifically helped prepare you for graduate school and how?

Honestly, it's mainly the general chemistry classes. A lot of the basic information learned in those courses has remained important even through my current biochemistry research. It is especially helpful when teaching general chemistry labs so I can reference material and further supply my students with the information they need.

DEAR LABBY

Are you in need of advice or an answer to your chemistry questions? Dear Labby provides a space for you to anonymously ask whatever you may need, and allows current students to answer to the best of their ability!

https://docs.google.com/forms/d/e/1FAIpQLSfa526nmn6y8EQe7l6cSPI_fe9_QY7LVefWs7EPiUWXkoWwDA/viewform

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HURRICANE NEWS AND RELIEF

BY BOBBY STUMPF

After the catastrophic impact of Hurricane Helene, Boone is on the mend. Flooding and landslides were extremely prominent as Hurricane Helene passed through the high country. For two and a half weeks, many remained without water, power, and/or internet access. The university was forced to remain closed during this time as the people of Boone rushed to assist the community.

Housing Crisis

Boone is infamous for its limited housing availability, and damage from the storm has exacerbated this. Many students, faculty, and residents of Boone have been displaced. Cars were destroyed, belongings were ruined, and some buildings have become uninhabitable. The university has gone to extreme lengths to help all who have suffered major losses.



Submerged Vehicles
picture from u/lowtide33 on Reddit



Flooding in Rankin Science West Basement Lab
picture by Chase Reynolds

Boone Aftermath

At this point, most, if not all primary and secondary roads are repaired around Boone. Nearly all businesses have reopened to the public. The university has decided to resume having home football games for the rest of the semester to garner more financial support from students and locals alike. After the storm, Boone lost its most profitable income, fall tourists. Boone and surrounding towns have relied heavily on fall tourists who “enjoy seeing the leaves change” and visiting small local businesses. It’s an unprecedented time for local business owners, so consider supporting them while you’re here!

Student Aid for Hurricane Relief

As of October 30, it’s been announced that students with a family income below \$80,000 will receive additional grant aid to offset hurricane costs. If you are eligible, look for the Next NC Scholarship to help with unexpected expenses. 19.1 million dollars have been allocated by the North Carolina General Assembly for university and community college students.

