

THE PERIODIC TIMES

STUDENT NEWSLETTER - DEC 2022



CHEMISTRY AND
FERMENTATION
SCIENCES NEWSLETTER

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WELCOME!

BY EDITOR-IN-CHIEF
MORGAN CLAY

Welcome to the third and final 2022 edition of The Periodic Times: Student Newsletter! Our goal is to keep you up to date on what's going on within Appalachian's Department of Chemistry and Fermentation Sciences. In this edition, you'll find departmental updates, student and faculty news, career and professional development information, club news, and much more. This time of year can be tough; exams, the end of the semester, and the holiday season are all quickly approaching. Be sure to check out this month's special topic for tips and tricks on studying and prioritizing mental health. We want to wish you good luck on the rest of the semester, and hope you enjoy reading this month's issue of the newsletter!

JOBS AND INTERNSHIPS

BY BLAKE HILTON

Looking for a job or internship?

The National Institute of Environmental Health Sciences is having a virtual career fair, make sure you register by going to their website. Click [HERE](#).

Remember to always check Handshake for job postings and internship opportunities. Handshake posts job opportunities everyday and will filter jobs for you based on your interest. You can click on the handshake to take you to the website.

If you are interested in an internship, Syngenta is looking for several interns in various different positions and locations. Follow [this link](#), for more information.



Interested in International research?

The Chemistry and Biochemistry Department of Georgia Southern is inviting undergraduate and graduate students to apply for [I-CEMITURE](#). This is an opportunity to expand your scientific knowledge and skills in France! Not only do you get to complete research internationally, it also offers a \$5,500 stipend along with **free** housing, meals, and travel. If you are interested, look no further.

Information for the 2023 program:

Application Deadline: January 27, 2023

Program Dates: May 15 - July 21, 2023 (10 weeks)

Website & Application: <http://cosm.georgiasouthern.edu/reu/>

Email: cemiture@georgiasouthern.edu



I-CEMITURE



International-
Collaborative Multidisciplinary Investigations
Through
Undergraduate and Graduate
Research Experiences

PROFESSIONAL DEVELOPMENT CORNER

BY EMMA MCGIBANY & MORGAN CLAY

A resume and CV are valuable documents to have at your disposal when applying to a job or academic program. Keep reading to discover their differences and how you can work on creating your own!



While most people are familiar with resumes, many are not familiar with what a CV is. CV stands for “curriculum vitae,” which is Latin for “course of life.” A CV is a thorough and complete outline of an individual’s academic and professional history.

Both of these documents provide an overview of your accomplishments, professional experiences, and skill sets. They allow potential employers to get to know you before you're called in to interview. While they seem similar at first, these documents have some very important distinctions, which are listed below.

Writing these documents can be difficult and confusing. For help writing your own resume or CV, visit the Career Development center or visit the website below to find additional tips for your writing!

<https://careers.appstate.edu/resumes-and-cvs>

Resume

- Concise (1-2 pages)
- Emphasize work experience and skills
- More commonly required for general positions
- Tailored to specific jobs
- Brief bullet points

CV

- Comprehensive (Multiple pages)
- Emphasize academic accomplishments
- More commonly required for positions in academia
- Shows entire career
- Detailed descriptions

Writing Tips

- Submit your documents as PDFs
- Don't use personal pronouns (I, me, my)
- Use section headings to help organize information



CLUB NEWS

BY MORGAN CLAY AND CONNOR GIBBS

Interested in learning more about forensic science? The Forensic Science Club is the place for you!

All majors are welcome. The club strives to promote awareness of forensic science. They often host speakers with experience in the field and host experiments and activities similar to what you might see in a crime lab (fingerprinting, blood typing, DNA extraction, etc.) There is also a trip every spring to Wilkes Co., where the Wilkes Co. Bomb Squad sets off REAL bombs! Interested in joining? Check out the club's engage page below!



App State Engage

Discover unique opportunities at App State Engage! Find and atten...

engage.appstate.edu

ORDERS ARE OPEN FOR CHEM CLUB APPAREL!

The Chemistry Club is now offering t-shirts and hoodies for the Fall 2022 semester starting at \$20.00 for t-shirts and \$35.00 for hoodies. The back of all apparel has the sample design shown to the right. The only difference is that the lettering is now green. The colors are the same for the front and back of a given shirt. This year's shirt will be in white with the element of the year: Sr on the front with a periodic table on the back (in black lettering).

Below is a **QR code** that will direct you to the Chemistry Club Apparel Order Form. Cash, check, or Venmo are possible forms of payment. Payment will be expected on delivery of goods, unless shipping is required, then advanced payment will be required.

All orders must be placed prior to Nov 30, 2022 at 5pm. Orders placed after this time will not be filled during the Fall semester. If you have any questions please contact Dr. Bates (batesje@appstate.edu).



FINALS STUDY TIPS

BY LINDSAY VAUGHN

Studying for finals can be a stress inducing experience for all students. Study tips can be used to make studying more efficient and alleviate stress.



Study with a classmate

Studying with others provides opportunities to compare notes and build communication skills. A group environment allows several perspectives to be utilized while solving complex problems.

Attend office hours

Even though finals can be a stressful time, do not be afraid to take advantage of office hours. Your professors are still available to provide support and answer questions.

Attend review sessions

Review sessions are provided both by professors and lead tutors. Attending sessions allows the opportunity to ask questions and gain insight from questions asked by other students.

Get some sleep

Getting enough sleep can seem impossible in the chaos of finals week. Sleep enhances recall and problem solving skills that are essential to success during finals.

MENTAL HEALTH TIPS

BY CONNOR GIBBS

Mental Health Check List

1. Create a routine for everything
2. GET OUTSIDE (Boone is beautiful)
3. Write down goals and stay organized
4. Join any club you would like
5. Utilize Appalachian's Mental Health Services

Counseling Center



Initial Consultation Hours:

8:30 a.m. – 11:00 a.m. & 1:00 p.m. – 4:00 p.m. Monday – Friday

Individual and Group Counseling for students and Consultation to faculty, staff, and students on how to help students in distress

After Hours Emergencies - (828) 262-3180

Helpful Links from Appalachian State Counseling Services

Don't be afraid to reach out!

<https://counseling.appstate.edu/>

Download the Appalachian Cares Mobile App

[Download Information](#)

Visit Appalachian's Wellness and Prevention Services

<https://wellness.appstate.edu/>

National Suicide Prevention Line

<https://988lifeline.org/>

Daymark Recovery Services (Watauga County)

daymarkrecovery.org

DEPARTMENTAL NEWS

BY EMMA MCGIBANY

Interested in doing the Honors Program in Chemistry?

All you have to do to apply is submit a current resume; an essay outlining your career plans, goals, and research interests; and two letters of recommendation (one must be from a chemistry faculty member) to the Honors Program Director, Dr. Libby Puckett. If accepted, see the list of requirements to the right that must be completed in order to graduate with Chemistry Honors. More information about the Honors Program in Chemistry, including course descriptions and a four-year plan, can be found [here](#).

1. The student must complete a minimum of six hours of chemistry honors courses and three hours of chemistry honors thesis credit (which includes CHE 4000 with honors for one credit hour and CHE 4510 for two credit hours).
2. The student must graduate with a minimum cumulative GPA of 3.45 and a GPA of 3.45 in chemistry courses.
3. If an honors section (410) of a chemistry course at the 2000 level or above is not available, the student must complete a minimum of one chemistry honors contract in each academic year during participation in the program. A student will not be allowed to enroll in more than one chemistry honors contract per semester.
4. The student is expected to attend all departmental seminars during any semester in which a chemistry honors contract has been established.
5. The student must attend at least one off-campus professional chemistry meeting in each of his/her junior and senior years if possible.
6. The student must make at least one formal presentation either on-campus or at an off-campus professional chemistry conference or symposium.
7. The student must submit a senior research thesis to the Department of Chemistry Honors Committee and defend it prior to the completion of the Honors Program.

CHE 4520 Brewing Production and Analysis

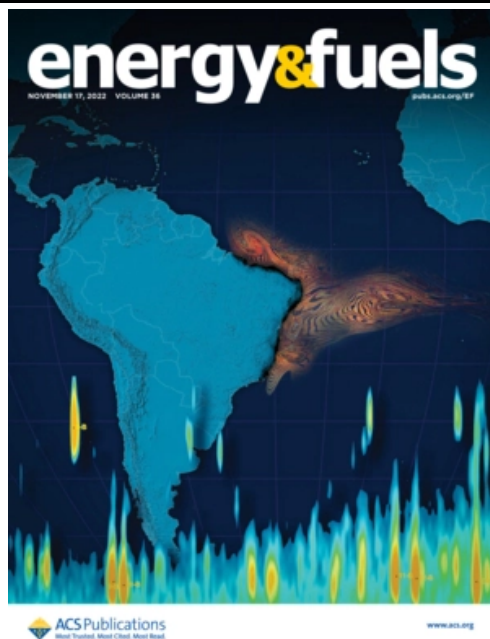
This spring, the Fermentation Program will offer CHE 4520 Brewing Production and Analysis! Brewing Production and Analysis is a hands-on laboratory course covering the processes and techniques employed in the modern brewhouse in the production of malt beverages and the standard analyses of brewing raw materials, sweet wort, and beer as provided by the American Society of Brewing Chemists. Students will also be introduced to inventory tracking and control methods and state and federal regulations and reporting requirements. Safety in the brewhouse at each step in the production process as well as in the laboratory will also be covered extensively in this course. Brewing Production and Analysis can serve as an elective or contribute to a fermentation minor. BIO 3308, CHE2210/CHE2211, and FER4240/CHE4240 are listed as prerequisites for the course; however, it is possible for these prerequisites to be overridden. Click [here](#) for more information.



Dr. Taubman instructs students how to transfer from the kettle to the fermenter.

STUDENT AND FACULTY NEWS

BY MORGAN CLAY



November Edition of Energy and Fuels

ENERGY AND FUELS PUBLICATION

Dr. Bob Swarthout's paper *Synergy of Analytical Approaches Enables a Robust Assessment of the Brazil Mystery Oil Spill* was featured on last month's cover of the ACS journal, *Energy & Fuels*. Between August 2019 and June 2021, Brazil experienced a massive oil spill that covered upwards of 3,000 km of tropical shoreline. With an unknown source of the oil, Dr. Swarthout and his team worked to narrow down the possible origins and determine the composition of the oil. Using samples taken in 2019 from northeast Brazil, they determined that the oil found here was the same as samples taken from areas ~2400 km south. They determined that the South Equatorial Current was transporting oil north and south and that the oil was comprised of two different petroleum products. With their discoveries, they helped play a role in determining the source of the oil and contributed to the understanding of the current and future implications of the spill. To read more about this amazing work, check out Dr. Swarthout's article in *Energy & Fuels*!

Department of Chemistry 2023 Event News

BY CONNOR GIBBS

College of Arts & Sciences
APPALACHIAN STATE UNIVERSITY



What's Happening in 2023?

The first thing not to miss out on in fall 2023 is the weekly seminars hosted by the Appalachian State Chemistry Department. They are held every Friday at 2pm in Garwood Hall 110. Come join us for informative presentations from leaders in the fields of academia and the chemical industry! Converse with speakers over refreshments and snacks! Look for a definitive seminar schedule in future newsletters!

Additionally, do not miss out on the many chemistry department demonstrations. For example, the quarterly chemistry club demo and the forensic club bomb demonstration with the Wilkes County Police department. There are a lot of must see experiences here in the Appalachian State Chemistry Department, please search club pages on Engage or visit the AppState Department of Chemistry and Fermentation Sciences webpage at dcfs.appstate.edu/! Do not hesitate to reach out, you do not want to miss all these amazing opportunities you department faculty and students provide for you! Reach out today!

STATE OF NORTH CAROLINA UNDERGRADUATE RESEARCH AND CREATIVITY SYMPOSIUM

BY LINDSAY VAUGHN

Undergraduate research students of the Appalachian State University Chemistry and Fermentation Science department are presenting at the State of North Carolina Undergraduate Research and Creativity Symposium in December. Lauren Rusnak and Sierra Malley are co-presenting and provided insight into preparing for conferences.

PREPARING FOR A CONFERENCE

Abstract Submission. Abstracts are short summaries of a research project. The first step of attending a conference is submitting an abstract. For information on where to submit abstracts, check the website of the corresponding conference.

Travel grant submissions. Attending conferences is not a financial burden on students. Students can apply for an Appalachian State University Office of Student Resources grants for travel expenses and Appalachian State University Research Grants to cover poster costs.

Making a Poster. Research posters are created by students to showcase their research and share it with others. Posters must be finalized by research advisors and printed prior to attending the conference.

Preparing for the conference. Conference preparation includes students reinforcing the knowledge presented on their poster and becoming comfortable presenting the information to an audience.

Q & A

Q: What was your experience submitting an abstract?

A: To me the abstract wasn't too difficult as I had written a grant about my research the previous semester, so I had some background knowledge I could pull from to get a good start on it. -Sierra Malley

Q: What was your experience submitting a travel grant?

A: I was definitely anxious about submitting a grant request. It is really nice to know the university is supporting undergraduate research. Afterall, that is why I decided to go to App State, for research opportunities. -Lauren Rusnak

Q: What did you find most challenging about making a research poster?

A: I think the hardest part about combining two people's research together on a poster is that we have a lot of information and limited space to fit everything. However, I think me and Lauren did a good job on incorporating everything and our poster turned out great! -Sierra Malley

Q: What are you looking forward to the most about SUNCRS?

A: I am also looking forward to supporting my friends when they present and seeing all the research being done by other undergraduates while at the symposium! - Lauren Rusnak

ALUMNI SPOTLIGHT

By Anderson Noonan

DR. CHELSEA COMADOLL

Graduation Year: 2017

Degree: BS in Chemistry with ACS
Certified concentration



Since graduating from Appalachian State, what have you been up to?

In August 2017, I moved to Lawrence, Kansas to start grad school at the University of Kansas. The day before classes started, my ASU '17 chemistry classmate Lucas Comadoll and I got married! I earned my PhD in Organic Chemistry in December 2021 and have since been working as an Assistant Professor of Chemistry at MidAmerica Nazarene University in Olathe, KS (just south of Kansas City).

What did your time at ASU teach you, and how has it impacted you since graduating?

My time in the AR Smith Department of Chemistry was invaluable. The most influential activity I took part in while at App was working as a LEAD Tutor for 3 semesters in Dr. Shaw's organic chemistry lectures. I didn't take ochem with Dr. Shaw, but he is the one who made me realize my passion for organic chemistry and how much I truly love teaching and learning that subject. Being at ASU also demonstrated the incredible impact that the mentoring aspect of the professor-student relationship has on student development. Dr. Ramey and Dr. Shaw in particular spent 3 years getting to know me, building me up, encouraging me, and making sure I realized the potential that they saw in me. They have continued to do so over the last 5 and a half years since I left ASU. I wouldn't have survived graduate school or my first year of teaching without them! The relationship I have with both of them (and sooo many others in the department) is special to me.

It's about time for REU applications to start opening up. What was your experience like as a Ph.D. candidate working with REU students? Do you have any tips for those applying to programs?

I mentored an REU student in the summer of 2021 (shoutout to Gabe Benitez!). He was awesome and such a quick learner. He is now applying to PhD programs in chemistry! I would encourage anyone who thinks they may be interested in research to apply because these programs are a great way to decide if grad school is right for you (and make money!!). You should apply to at least 8-10 programs because they are HIGHLY competitive! Also, use the opportunity to spend the summer in a place that you wouldn't visit or live in otherwise (like Lawrence, KS... wink wink!). Even if you discover that you don't want to pursue research or grad school, the opportunity still looks amazing on your resume, you get to meet some neat people, and you may still get a letter of recommendation from the person you work for. It's a win-win!

Finally, looking back to your undergraduate days, did you ever think you would go to chemistry grad school, or later on go into academia? What made you choose this career path?

I had no idea what grad school even was when I got to ASU, let alone if I was interested in it or qualified for it. But, I have always known I wanted to teach. Once I got to ASU and built relationships with Dr. Shaw and Dr. Ramey, they both encouraged me to consider a PhD because then, the opportunities are limitless. (You can do ANYTHING with a PhD!). I decided to pursue a PhD so that I could decide my career, whether it was academia or industry (or something else). While at KU, I taught for 8 of the 9 semesters I was there and loved every bit of it, so I knew ultimately that academia was for me. God put me on this earth to teach; I have known it since I was in high school, and I'm fortunate to be in the position I am now as an assistant professor where I can build relationships, mentor, and pour into my students the same way that those at ASU Chemistry did for me (specific shoutout to Shaw, Ramey, BJ, Culpepper, and Babyak). Y'all modeled this relationship so well with me, and I am so blessed to be able to do the same myself "from the other side of the desk" with my own students.

If you are interested in gaining paid research experience in a new place, make sure you check out NSF-funded Research Experience for Undergraduates (REU) programs. The NSF website has a full list of all active REU [sites](#).



A WiSE Addition to Appalachian State

By Anderson Noonan

Freedom Johnson is a first generation college student here at Appalachian State and is graduating fall 2022 with a well-earned B.S. in Biology. Not only will Freedom be finishing her undergraduate career soon, but she has already begun her time as a biology graduate student as part of the Accelerated Master's program here at ASU. Freedom currently works in tandem with Dr. Nicholas Shaw (Department of Chemistry and Fermentation Sciences) and Dr. Rachel Bleich (Department of Biology) in a multi-disciplinary approach researching Crohn's disease gene detection via polyamide-FRET conjugates acting as molecular probes. For research funding, Freedom has recently submitted a National Science Foundation Graduate Research Fellowship Program (NSF-GRFP) grant proposal. However, it's not only Crohn's disease Freedom wants to tackle, she's recently begun the process to found a Women in Science and Engineering (WiSE) club here at App State.



What is WiSE?

As mentioned above, the WiSE acronym stands for Women in Science and Engineering. Various universities world-wide have embodied WiSE from differing perspectives. As a first-generation college student, I have chosen to proceed building the foundation from a unique viewpoint.

What do you hope to provide women-identifying STEM majors with here at ASU?

Today, the goal for WiSE at Appalachian State University Chapter, is to serve all career stages of the scientist. The WiSE chapter at Appalachian State University aspires to not just reach downward in age groups, but also upward. By feeding the need to create an expressive support system for women, the program will also prepare students for struggles that may be encountered in STEM, like equality, diversity, and being a minority. In doing so, the WiSE chapter at Appalachian State University will create an inclusive community that explores and engages in mentorships with senior professionals through educational guidance, networking, collaboration, and outreach programs. Also, I aim to incorporate the faculty by establishing the WiSE mentorship program and WiSE seminar series wherein current women faculty can showcase their chosen field of study, their current research, and also provide the faculty access to enthusiastic students.

As a first-generation college student, what's it like to potentially be given the chance to support others in your position?

Since the beginning of my work towards the foundation of the WiSE Chapter at Appalachian State University, my intentions have consistently been to provide a service for women that have an interest in furthering their career and being supported by the scientific community. Being a first-generation college student, I understand the feeling of wanting to further my education and simultaneously, not knowing that mentorship can be a powerful tool in learning the steps necessary to obtain higher degrees. By founding ASU-WiSE, students and faculty will have easy access to a centralization of relevant resources and events on a routinely updated website. By doing so, I hope to support others in my position, and maybe help create a community of women of all ages at ASU.

Dr. Megen Culpepper: An Outstanding Advisor

By Anderson Noonan



Established in the 1998-99 academic year, The Richard N. Henson Outstanding Advisor Award is presented annually to a full-time faculty member of The College of Arts and Sciences (CAS). Dr. Megen Culpepper was nominated, and presented, the award at the past CAS fall awards luncheon. In doing so, Dr. Culpepper has brought the fifth overall Outstanding Advisor Award to the Department of Chemistry and Fermentation Sciences, a CAS record!

To celebrate Dr. Culpepper's award-winning efforts as an advisor in the 2021-22 academic year, we sat down and discussed the award and what it meant to her.

What does being an Outstanding Advisor mean to you, and what are some of the things you do as an advisor that have contributed to you getting the award?

"It is very humbling. The thing that I most appreciate, is that the award's student nominated and I mean that's why we're here, to help you all succeed in your dreams. One of the things I do when I meet with a new advisee is come up with a four-year plan for them so we're on the same page. Whether they want to go to graduate school, medical school, or industry, we talk about things that might help them like undergraduate research, scholarships, or internships to help make them stand out in their future careers. That gives us an opportunity to change goals, it's not one size fits all and that's okay, that's what college is all about. You don't have to have all the answers at 20, it comes with time. So, any help that I can be with figuring out what they want to do and the path they want to take, that's all I aim to do. It was very humbling and exciting. I just, I love my students!"

You are the 4th individual faculty member from the Department of Chemistry and Fermentation Sciences to be presented the Outstanding Advisor Award, marking the 5th overall award within the department. Do you have any thoughts on the Department of Chemistry and Fermentation Sciences faculty having the most R.N. Henson Awards in the CAS?

"I will say that we as a department take advising very seriously. Dr. Puckett leads an advising workshop every semester to tell us what's new in the curriculum for our department and the overall university curriculum. I personally have taken multiple advising workshops over at the College of Arts and Sciences. We have a very inclusive departmental policy. Dr. Babyak gave a wonderful seminar recently on inclusivity and advising workshops which was very eye-opening. I think we all come with the mindset of helping the students and trying to offer our personal experiences and providing vulnerability to show we are people and relate to you. At the end of the day, we in the department want each of you all to succeed. That really is amazing I had no idea we have the most of the awards."

How do you get involved in undergraduate research?

The first tip is to find something you are interested in. You can go to *the Department of Chemistry and Fermentation Sciences Website* by going to the following link and looking at what professors are researching by clicking on their name. If you find something you are interested in and think you want to take part in their team, reach out to them via email. Be sure to introduce yourself and ask for a time to meet with them to ask questions about their research lab.

How do you go about applying for graduate school?

If you are thinking about going to graduate school, one of the best things you can do is to attend seminars. Seminar can get you connected with professors/researchers from other universities who are often recruiters for their university and you can find out more information from them about their program and requirements. You can also meet with your advisor and they can give you great advice. Another important tip is to look on the websites of the schools you are interested in. Each school has slight differences in their application process so going directly to the website will give you an idea of what you need to do.

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>

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