

THE PERIODIC TIMES

STUDENT NEWSLETTER - NOV 2022



WELCOME!

BY EDITOR-IN-CHIEF
CLAIRE GROSSE

Welcome to the second edition of *The Periodic Times: Student Newsletter*. If you were looking for a way to stay up to date with Appalachian's Department of Chemistry and Fermentation Sciences, this is it! Developed and curated by students, this monthly newsletter offers departmental updates, professional development material, career announcements, faculty and student news, alumni interviews, and so much more. Additionally, each month's issue will have a section focused on a specific topic relevant to current matters happening during that time of the semester. November's topic centers around academic advising and course registration.

We hope this newsletter provides you with enjoyable, informative, and useful content!

CHEMISTRY AND
FERMENTATION
SCIENCES NEWSLETTER

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JOBS AND INTERNSHIPS

BY MEGAN LEARN

Looking for a job in the Chemistry and Fermentation Sciences Department?

There are multiple opportunities now and coming up in the spring semester!

Lab TA Positions:

Dr. Lewis is looking for students interested in volunteering for an introductory laboratory TA position. Students must have completed CHE 1101 & 1102 and may volunteer for two semesters. If you are interested please fill out this [form](#).

Dr. Culpepper is looking for students interested in an instrumental laboratory TA position. Sections are 2-4:50 Monday-Thursday next semester. Additional sample prep will be required outside of lab time. If you are interested contact Dr. Culpepper (culpepperma@appstate.edu).

Dr. Babyak is looking for students interested in a quantitative analysis laboratory TA position. If you are interested please fill out this [form](#).

Looking for an internship or a job after graduation?

Check out these job postings!

The [fermentation sciences job board](#) is a great resource for students looking for a position in the fermentation industry.

Additional chemistry internships and job opportunities can be found [here!](#)



LEAD Tutoring:

Is there a class you are interested in LEAD tutoring for next semester? Keep an eye out, applications for the spring semester will be opening in the near future and will be found on the [university tutoring services website](#).

Students are encouraged to speak to their professors they are interested in tutoring for in addition to submitting an application.

Students must:

- Have at least a B in the course they would like to tutor
- Maintain a 3.0 minimum GPA
- Be available to attend the lecture of the course they would like to tutor
- Submit a professor recommendation

Chemistry and Fermentation Sciences Service Lab:

This position includes but is not limited to:

- Assisting with lab analyses, on the job training and supervision will be provided
 - Spectrophotometric enzymatic assays
 - Instrumental
 - Solution preparation
 - Culture preparation
 - Titrations
- Cleaning and organizing lab space and equipment as needed
- Helping other students with research projects
- Introduction fermentation lab setups

The lab assistant position provides excellent experience in a lab and production facility while being very adaptable to a student's class schedule. If interested contact Daniel Parker (dp72322@appstate.edu).

Chemistry and Fermentation Sciences Office Position:

Students eligible for work study funds may contact Alicia Roberts (robrtsaj@appstate.edu).

PROFESSIONAL DEVELOPMENT CORNER

BY KATHLEEN BURROUGHS
& KATIE MAY



Upcoming NC Biotech Activities

The SHAC 5K and Health Fair is November 12th from 7:30am - 12:00pm and will be located on UNC's campus. There is an entry fee and all proceeds will go towards SHAC's free health services.

The DANC Science & Technology Forum held at East Carolina University's main campus will be November 29th from 9:30am - 6:00pm. Many different researchers and projects can be found here and attendance is free.

Additional activities can be found on [NC Biotech's event calendar](#).

Searching for a Job?

Handshake is a university sponsored website that can help you find a job or internship in your desired field. This is a great resource for current students and recent graduates looking for jobs on- or off-campus. Handshake allows you to reach out to employers in order to get noticed. Employers may also find you and reach out to tell you about positions at their company. Just sign in using your university account and fill out some information to get started. Handshake will send you opportunities that best match the information you've provided. The website has a list of professional development opportunities and events that you can attend both in person and virtually.

Another great tool to search for a job is LinkedIn. LinkedIn allows you to connect and interact with App State alumni and other people in your field of interest. To get help creating a profile, you can go to the Career Development Center (room 222) in the Plemmons Student Union. They offer free professional headshots for students too!

Need Help Building your Resume?

Look no further than the Career Development Center! Resumes reflect individual experience academically, extracurricular activities, and previous jobs or internships. They usually consist of a single page. Building a resume can end up being stressful when you have to decide what is important and you have to focus on the order in which everything should be placed. The Career Studio can help and offer advice to give you a head start on your career! For more information check the [career development center website](#).

CLUB NEWS

BY CLAIRE GROSSE & MEGAN LEARN

2022 Chemistry Demo Show

To celebrate National Chemistry Week, the Appalachian Chemical Society held their annual demo show on Tuesday, October 25th. Beginning in September, twenty-five chem club members began learning and practicing an array of experiments - ranging from self-carving pumpkins and elephant toothpaste all the way to exploding hydrogen and oxygen balloons. The nearly 50-person audience, made up of university students, professors, children, and local community members, experienced an hour of impressive science, corny chemistry jokes, and candy-throwing craziness. This year's show was phenomenally organized by Dr. Bates, filmed by Mr. Farrar, and hosted by Dr. Wallen.

Interested in participating in next year's demo show? Check out the Appalachian Chemical Society's Engage page, become a member, and reach out to Dr. Bates (batesje@appstate.edu) with any questions.



Did you miss Beer Fest? Shirts are still available!

The fermentation science club is selling shirts from this year's High Country Beer Fest. This year was the Fest's 15th anniversary!

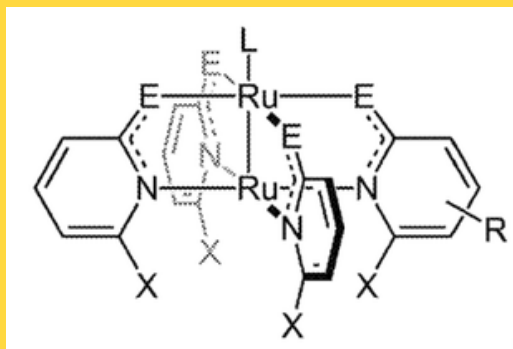
Shirts will be sold for a \$20 cash payment and can be picked up from the fermentation service lab located in Mountain Laurel Hall upon confirmation email.

Please place orders using this [form](#). Supplies are limited, get them while you can!



STUDENT & FACULTY NEWS

BY KATIE MAY & IAN SULLIVAN



Dr. Christian Wallen's postdoctoral research at the University of Wisconsin Madison has recently received a patent. This patent is for the use of metal-ligand catalysts for the oxidation of ammonia into nitrogen and water in the presence of oxygen. The industrial potential for this has yet to be fully utilized but the reaction can be used to create a fuel cell.

This process started with Dr. Wallen's research into industrial uses for diruthenium complexes (depicted above). The patent process, which took 3-4 years, began with his team's discovery of the use of these complexes in the oxidation of ammonia. This process started with 100 claims, 3 were approved, and one patent was awarded. This catalyst has the potential to serve as the basis for an ammonia fuel cell, which might offer more potential to society than hydrogen fuel cells due to ammonia's better stability and safety concerns.

For the past two summers, senior Will Swofford held a chemistry intern position at Axalta Coating Systems in High Point, NC. He worked in different labs each summer, the first being the color development lab and the second being the global buildings products innovation lab. Within each lab he had a 'key project' to work on, which involved the leading of industrial projects from start to finish. This included everything from preparing samples and scaling up, to checking the quality of the product and process and reporting to upper management.

In Will's first summer there, he developed a wood stain color matching database that cut lab time for color development from a week to one day! This summer, Will helped develop a "next-generation water-based coating," along with a method which can predict the final coating performance of the resin.

Will recognizes the skills learned in his quantitative and physical chemistry courses as those that allowed him to succeed in this internship. He found this internship on Glassdoor and is grateful for the knowledge he gained while working at Axalta.



Grants, Grants, and More Grants!

Dr. Michael Reddish has received a grant from the NIH for his work researching human cytochrome P450 27A1. His project hopes to design therapies for various hormone and vitamin related diseases by learning more about the structure of the enzyme and how it affects the function. Dr. Reddish says, "conclusions from our work could have important impacts on our understanding of endocrinology and cancer." For more information click [here](#).

Dr. Christian Wallen has received a grant from the ACS Petroleum Research Fund. Dr. Wallen and his research group are interested in the removal of trace sulfur compounds from sour gas after the bulk of compounds have been removed in the Claus process. They are interested in the potential for metal complexes to trap these compounds with the ability for removal from the complexes after.

ACADEMIC ADVISING AND COURSE PLANNING

BY SCOTT HOPE

Course registration for next semester is happening NOW!

Looking for new or fun classes to take within the department?

FER 2200 (Fermentations of the World) is being offered next spring. Taught by Dr. Folarin Oguntoyinbo, this 3-credit course will be on Tuesdays and Thursdays from 2:00pm-3:15pm.

Permits, Permits, Permits!

A number of chemistry courses require a permit to be submitted for the Spring 2023 semester. These classes include: Quantitative Analysis (CHE 2210), Instrumental Methods of Analysis (CHE 3560), Forensic Microscopy (CHE 4800), and all corresponding labs. Senior Research (CHE 4400) and Chem Honors Thesis (CHE 4510) also require permits. Make sure to meet with your advisor to request permits if you plan to take any of these classes.

Upcoming Course Changes to Note...

- **Physical Chemistry I lecture and lab (CHE 3301 and CHE 3303)** will be offered in Spring 2023 for the first time.
- **Introduction to Chemical Research (CHE 3000)** will become a Writing in the Discipline (WID) course starting Fall 2023.
- **Physical Chemistry I Lab (CHE 3303)** will remain the department's WID course for Spring 2023.



Tips and Tricks for Course Registration

Take classes that are required for your specific concentration. Taking classes that sound interesting to you can be a fun way to learn more chemistry and meet new people, but make sure you prioritize your required concentration classes first.

Give yourself a break! Sitting in lecture for five hours straight can be exhausting. When making your schedule for next semester, try to build in an hour break to get lunch, catch up with friends, or study if you have to. Avoid creating a schedule that includes a massive block of classes with no break.

Ask your peers about their experiences. See what brought success to other students in terms of scheduling classes, specific classes to take, study habits, etc. Taking several rigorous classes all at once can cause burnout. Make sure your workload is achievable for you.

Talk to your advisor more than just when you are required to. Sit down with your advisor and use your concentration's Four Year Guide to create a four year plan specific to you. Scan the QR Code below to find your Four Year Guide.



Congratulations Dr. Brooke Christian!

Our department's own, Dr. Christian, recently received the Excellence in Academic Advising Faculty Advising Award for 2022. This peer-nominated award was created by the university's Undergraduate Advising Council in 2019.

ALUMNI SPOTLIGHT

BY CLAIRE GROSSE

Jordan Moore

Graduation Year: 2021

Degree: BS in Chemistry

- biochemistry concentration
- studio art minor

Q: What have you been up to since graduating in 2021?

A: After graduating, I transitioned into a 2-year fellowship called MedServe and I just recently applied to medical school. MedServe allows college graduates to gain medical experience before professional school. It is based in primary care and places fellows in rural and urban underserved environments. My clinic is MedNorth Health Center in Wilmington, NC. My clinical role is a medical assistant and a certified nurse midwife. My community role is a data analyst and a community health worker.

Q: How did your experience at App and your time in the chemistry department help you get to where you are now?

A: The department made me into the critical thinker and problem solver I am today. The approachability of the professors and willingness to go above and beyond for my learning made my college experience exceptional and gave me lifelong friends and mentors. I felt like I always had someone rooting for me and I still feel like that to this day.

Q: How useful was your undergraduate department advisor? Do you have any tips for incoming students related to advising and registration?

A: My advisor was Dr. Culpepper who I found to be very helpful. She always welcomed me with a smile. When I needed advice, she kept things real and honest while connecting me with resources and even sharing personal words of wisdom. My advice would be to use the four year plans as a guide, but remember that things can be changed. I made changes like taking more advanced classes earlier and changing a biochemistry elective to something I wanted to experience like forensics. If you need help, your advisor is there for you.

Q: How was the process of applying to medical school? How are you preparing for your upcoming interviews?

A: The process of applying to med school was very time consuming. I worked a full time job in healthcare while studying for the MCAT, doing my primary application, and my secondary applications. It has been hard, but I have made it work. I have tried not to compare myself to others and took my time preparing quality essays...I also didn't look at Reddit or other premed sites. I just got two medical school interviews so I plan on practicing with friends and using some interview resources from App. I am more excited than anything about the interviews because I know medicine is what I am passionate about!



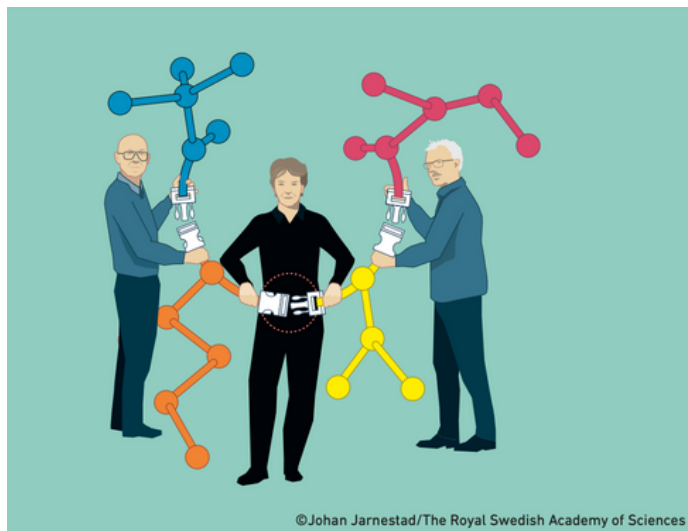
BEYOND THE DEPARTMENT...

BY KATHLEEN BURROUGHS

The Nobel Prize in Chemistry 2022

Scientists Carolyn Bertozzi, Barry Sharpless, and Morten Meldal were awarded the 2022 Nobel Prize in Chemistry on October 5th. Their work focuses on the development of click and bio-orthogonal chemistry which is used in the treatment and diagnosis of illnesses.

Dr. Sharpless is the fifth person to have won the Nobel Prize twice, having won it the first time in 2001. Dr. Bertozzi is the eighth woman to win the chemistry prize.



It's Native American Heritage Month

There is an underrepresentation of Native Americans in STEM. In the top 50 science and engineering departments in the U.S., only six disciplines – chemistry, physics, biological sciences, computer science, astronomy, and earth sciences – have Native American at the rank of full professor. This can lead to students feeling unsupported and alone in their departments.

Additional resources to learn more about Native Americans in STEM include: [Native American Heritage Month](#) and [AISES](#).



DEAR LABBY

If you have any questions or would like advice from a fellow Appalachian chemistry student, fill out this [Google form](#).

CONTRIBUTIONS

Editor-in-Chief: Claire Grosse

Layout/Formatting Editor: Megan Learn

Contributors: Katie May, Kathleen Burroughs, Ian Sullivan, & Scott Hope