



NEWSLETTER

*January -
February 2025*

Chemistry and Physics Department, Oxendine Science Building – Room 3101, Pembroke, NC 28372
chem_phy@uncp.edu 910/521-6247

UNC Pembroke Joins the Green Chemistry Movement

The University of North Carolina at Pembroke is taking a big step toward a greener future.

The Department of Chemistry and Physics has been championing the integration of green chemistry into its undergraduate curriculum for over a decade, paving the way for a more sustainable future. Now, the university has officially signed the Green Chemistry Commitment (GCC).

This exciting pledge reinforces their dedication to teaching students how to create environmentally friendly products and processes that protect both people and the planet.

The GCC program, led by the nonprofit Beyond Benign, gives educators the tools to bring green chemistry principles into the classroom. With this commitment, UNCP joins a global community of over 150 colleges and universities working together to make science more sustainable.

Two passionate professors, Dr. Cornelia Tirla and Dr. Moira Lauer, are the driving forces behind this initiative at UNCP. Dr. Laurer, who focuses her research on creating biodegradable and bio-based plastics, emphasizes the importance of sustainable science in today's world.

“Sustainable chemistry isn't just a good idea—it's essential. By teaching our students these principles, we're preparing them to solve the pressing environmental challenges of our time,” said Dr. Lauer. “We've received amazing support from the university administration, especially our provost, and I'm thrilled to see this becoming a priority at UNCP.”

Dr. Tirla shares the enthusiasm, highlighting how green chemistry inspires students and sparks collaboration across disciplines. “Incorporating green chemistry into our curriculum isn't just the ethical thing to do. It encourages innovation, opens doors for careers in environmental chemistry, and helps build stronger connections with our local community,” she said.

The university has been implementing green practices, like using eco-friendly reagents, reducing waste with micro-scale lab techniques, and introducing energy-efficient methods such as microwave-assisted experiments.

Faculty research projects are also focused on cutting-edge topics like recycling polymers and finding greener alternatives for modern materials. Looking ahead, UNCP plans to revamp its general and organic chemistry labs, making them even more sustainable and aligned with modern environmental goals.



UNC Pembroke recently signed the Green Chemistry Commitment to make science more sustainable.

Cram and Connect Event

Center for Student Success

CRAM & CONNECT

Feeling overwhelmed by **General Chemistry**?
Or maybe you just need a refresher before
your next big exam?

**Don't Stress! Join Us for a General
Chemistry Review Session!**

<p>Who's it For? Anyone who wants to brush up, or just needs some extra support. All welcome!</p>	<p>What to Expect: Clear Explanations of Tricky Concepts, Step-by-Step Problem-Solving Demos, and Study Tips!</p>
--	--

Thursday, January 30 | Oxendine Room 3235 | 6 - 9 PM

In Collaboration with:
UNCP Chemistry and Physics Club

This publication is available in alternative formats upon request. Please contact the Accessibility Resource Center, Oxendine Administration, Room 110, or call 910.321.4995

The UNCP Tutoring Department hosted a Cram & Connect event for General Chemistry students on Thursday, January 30th, at 6 pm in the Oxendine Science Building 3235. This opportunity was for students to review and practice General Chemistry topics covered in General Chemistry 1 and II with help from the Chemistry and Physics Club.

Winter Open House and Accepted Student Day

The Open House and Accepted Students Day event was Saturday, February 8, 2025. Over **1200 registered guests** and more than **400 Future Braves** attended. The day consist of many campus activities as it also included the Festival of Old Main and a joint FAFSA Day with our local education partner Robeson Community College.

The Open House Academic and Resource Fair was set up on Faculty Row near the water feature and University Quad area. The future Braves and their guests were able to visit the fair as well as enjoy the Festival of Old Main which was hosted by Student Affairs. The hospitality, campus pride, and passion-filled expertise makes UNCP special and are often touted as the reason why students choose UNC Pembroke. Open House is a fantastic opportunity to showcase our university, programs, and campus culture to future members of our academic community.

Thank you, Dr. Hunt, Dr. Brandon, and Dr. Smith, for playing an important role in recruiting and welcoming potential Braves to campus, sharing your experiences, and providing valuable insights into the department and programs. We appreciate your involvement and thank you for what you do to put students first.



Marcus Hunt, Ph.D.
Assistant Professor of Chemistry



Bill Brandon, Ph.D.
Professor of Physics



Rachel Smith, Ph.D.
Professor of Chemistry, Chair

THE NORTH CAROLINA REGION IV SCIENCE & ENGINEERING FAIR

The 2025 North Carolina Region IV Science & Engineering Fair took place on Saturday, February 15, 2025, at the Auxiliary Gym, Jones Health and Physical Education Center on the campus of UNC Pembroke. This marked the 44th year that UNCP has hosted the regional fair. With over 74 projects entered from eleven different counties in the surrounding area, including elementary, junior, and senior-level students, the fair provided a platform for students to showcase their scientific projects. Twenty-seven students are advancing to the state level competition. Beyond competition, participants had the chance to present their work, interact with judges, and vie for recognition in various categories. Thanks to generous support from sponsors, four special recognition awards and six awards from NC One Water with monetary prizes were presented. The collaborative efforts of Dr. Tikaram Neupane and Dr. Marcus Hunt, the Chemistry and Physics Department, and supporting offices at UNCP highlight their dedication to nurturing a passion for science and fostering exploration in STEM fields.



The department would like to give a special “thank you” to Dr. Tikaram Neupane for his remarkable work on our Region IV Science Fair. It was a grand success under the leadership of Dr. Neupane as the Director. He did a great job for his organization in overseeing the work which provides a valuable experience for Elementary, Middle, and High School students. Congratulations, Dr. Neupane. Great job!

I sincerely appreciate the invaluable support from Dr. Rachel Smith and the entire Chemistry and Physics Departments at UNCP for the NC Region 4 Science and Engineering Fair.

Also, thank you to the following faculty members for their dedication and the time they took to judge the Science Fair Projects. The faculty members judging the projects were Dr. Rachel Smith, Ms. Sally Vallabha, Dr. Uma Poudyal, Dr. Benjamin Killian, Dr. William Brandon, Dr. Tikaram Neupane, Dr. Marcus Hunt, Dr. Siva Mandjiny, and Dr. Moira Lauer. Thank you, Mrs. Carolyn Oxendine, for your unwavering dedication, which was instrumental in the event's success. I am also grateful to Ms. Hope Bullock and Mr. Brandon Lowery for their steadfast assistance. Working with such a committed team is truly a pleasure, and I look forward to future collaborations.

Thanks to all of you and without your support, this would not have happened. We need this kind of community-based events to encourage the future scientists.

*And the
Winners
are...*

Elementary Winners (Comtech \$25 gift card for each as well)

Sawyer Ceneskie - Project: Creek Peek

Ryan Segarra - Project: Changing the Color of the Egg Yolk

Cloe Bowling - Project: The Best Kind of Butter for Sugar Cookies

Corinna Williams - Project: The Weed Solution

Brayden Lambert - Project: Micro-Size Big Problems

Lyra Ransom - Project: Winglets in Flight

Mason Cashwell - Project: Ready, Set, Race: Friction vs Speed

Sofia Robledo - Project: Balloon Power: How Air Pressure Moves Water?

Elementary Honorable Mentions

Chloe Parsons - Project: The Effects of Smoking

Bristol Ratley - Project: Do Cats Have Their Own Unique Paw Prints?

Nolan Smith - Project: Food Coloring, Coffee, Sodas, Candy....Stains, Oh my!

Mason Thaxton - Project: Which Liquid Dissolves Candy Corn Fastest?

Benjamin Tomala - Project: Sky Rocketing Elephant Toothpaste

Ava Tay - Project: Ice, Ice, Maybe

Anna Trail - Project: Real Photos Versus AI Images

Logan Loflin - Project: Electrifying Balloons

Junior/Senior Winners**JR-Biological Science A and B Category**

Evelyn Schwoebel - Project: Strawberries vs Acorns

Camden Ney - Project: Venus Salt Trap: The Effect of Saltwater Intrusion on Venus Flytrap Growth

Natalie Huymaier - Project: Can YOU Spy the AI?

JR-Chemistry Category

Giana Jones - Project: Battle of the Pans

Hailey Hoover and Abigail Nicholas - Project: Stoplight Experiment

JR-Earth and Environmental Science Category

Levi Bauer and Grant Bauer - Project: Ocean Acidification

JR-Technology Category

Lexie Spannake - Project: Can You Spot the Fake?

JR-Engineering Category

Yang Hu, Hyun Kim and Tai Nguyen - Project: Magic of Eddy Currents - Electromagnetic Breaking

JR-Physics Category

Juris Iyawe Cervantes, Elijah Hancock, and De'sean Hunt - Project: Light but Mighty

Chase Tomala - Project: How Strong Can You Print?

JR-Mathematics, Statistics and Data Science Category

Sarina Gautam - Project: Remote Learning and Academic Performance

SR-Senior Biological Science B Category

Bethania Ketema - Project: Derma Link Skin Cancer Diagnosis Inequality Deep Learning YOLO Model Tool

SR-Senior Chemistry Category

Ashna Upreti - Project: Comparison of Breast Milk and Formula Under High Magnetic Fields

Special Award Winner**Lumbee River EMC**

Sawyer Ceneskie - Project: Creek Peek

Yang Hu, Hyun Kim, and Tai Nguyen - Project: Magic of Eddy Currents - Electromagnetic Breaking

Biotechnology Award

Ryan Segarra - Project: Changing the Color of the Egg Yolk

Camden Nye - Project: Venus Salt Trap: The Effect of Saltwater Intrusion on Venus Flytrap Growth

Bethania Ketema - Project: Derma Link Skin Cancer Diagnosis Inequality Deep Learning YOLO Model Tool

Navy Award

Chase Tomala - Project: How Strong Can You Print?

Logan Hallisy - Project: Banana as Biofilter

Ashna Upreti - Project: Comparison of Breast Milk and Formula Under High Magnetic Fields

Bethania Ketema - Project: Derma Link Skin Cancer Diagnosis Inequality Deep Learning YOLO Model Tool

NC One Water (Water Environment Federation)

Brayden Lambert - Project: Micro-Size Big Problems

Noah Dawkins - Project: Splish, Splash, What's in your Glass?

Sawyer Ceneskie - Project: Creek Peek

Jayden Gray - Project: Greywater Reclaim System

Levi Bauer and Grant Bauer - Project: Ocean Acidification

Logan Hallisy - Project: Banana as Biofilter

**Graduate School in STEM****Q&A with UNCP Alum Haleigh Grace****February 21 at 11:45am-1:15pm in SCI 3233**

On Friday, February 21st, we welcomed UNCP Alum Haleigh Grace (BS Chemistry 2023) back to answer questions students had about choosing graduate programs to apply to, preparing applications, and entering and adjusting to a graduate program in STEM. Since nearly all Chemistry and Physics PhD programs come with a stipend (pay) with no tuition, current UNCP students interested in learning more about whether a graduate degree in STEM was right for them were welcome to attend and enjoy a slice of pizza.

It was great to have Haleigh back (at least for an afternoon)!



MY GRADUATE SCHOOL EXPERIENCE Q&A

BY HALEIGH GRACE
UNCP ALUM
(CHEMISTRY BS 2023)
GRADUATE STUDENT AT
UNIVERSITY OF TENNESSEE

**FRIDAY, FEBRUARY 21
11:45-1:15PM IN SCI3233**

FREE PIZZA

EGR 1100 Class



On Thursday, February 27, Dr. Steven Singletary's Engineering Design class visited APS in Lumberton to discuss a project and for a factory tour. Air Production & Service, Inc is a dedicated engineering and service group providing facility and maintenance solutions for many operations. At APS, they understand the 24/7 needs of operations and have built an organization capable of meeting the needs by incorporating the following groups - engineering, service, fabrication, installation and parts to keep the air in production 24/7.

Dr. Kathryn Reissner



Dr. Kathryn Reissner from the Department of Psychology and Neuroscience at UNC-Chapel Hill visited the department Thursday afternoon, February 27. Dr. Benjamin Killian and Dr. Rachel Smith showed her the Meta Quest VR goggles (virtual reality headsets) use in STEM education and illustration of molecular dynamics in the Reissner Lab. Dr. Steven Singletary spoke with her on the 3D printers. She was very excited to see the accomplished work in the lab.

Celebration of Philanthropy

Thursday, February 27, in the A.S. Thomas Center

Chemistry and Physics presented at the Celebration of Philanthropy:

This event organized by the Office of Advancement showcased two departments from each school or college to current and prospective donors. The Department of Chemistry and Physics showcased an interactive and dynamic display that highlighted various faculty and student activities including: 1) static Rocket display – a large, high-powered rocket that was flown in a NASA competition by the UNCP Rocket team will be on display; 2) video display – a computer monitor and connected laptop will be used to play an edited, compilation video of previous UNCP Rocket team activities (launches, construction sessions, ejection tests, outtakes, etc.); and 3) active 3D printer display – the department's Makerbot Method 3D printer (fully enclosed) will be set up to actively print during the event. UNCP Applied Physics majors and Rocket Team members Joseph Cimadamore and Seth Lowery will aid in the demonstration.

With assistance from Dr. Ben Killian, we also demonstrated the use of the Meta Quest VR Goggles use in STEM education. We were able to purchase two pairs of these virtual reality goggles through a generous gift from Dr. Kate Reissner, daughter of late Chemistry Professor John Reissner, with the aim of helping our students better visualize molecular dynamics and interaction.

MyKayla Greene, recipient of the Dr. Timothy Ritter and Marie A. Amero Endowed Research Scholarship in 2024 and current UNCP Biotechnology Scholarship recipient, discussed her research with Dr. Ben Bahr.

Dr. Steven Singletary organized the impressive offerings of the department.

Dr. Rachel Smith was there to greet guests.

Gray's Creek Middle School – Hope Mills, NC

Dr. Siva Mandjiny participated in Gray's Creek Middle School Career Day on Friday, February 28th. The activity, titled "Biotechnology at UNC Pembroke," aimed to ignite curiosity about living cells and introduce basic Bioprocessing concepts to beginners in STEM, particularly in Chemical Sciences. Students had the opportunity to engage in hands-on activities and demonstrations.

Dr. Mandjiny was thrilled to be part of such an engaging event.

Thank you, Dr. Mandjiny, for your valuable contributions to the event.

