



NEWSLETTER

April 2023

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

UNCP Chemistry and Physics Club – April 1, 2023

Club Outing: visiting Fort Fisher Aquarium and stop by Kure Beach





UNCP Chemistry and Physics Club – April 5, 2023 – SPRING STEM FAIR



**UNCP CHEMISTRY
AND PHYSICS
CLUB PRESENTS:
THE 2023
S.T.E.M.
FAIR**

 Present and view research

 Conduct and engage in demonstrations

 Meet with clubs and departments in your field of interest

 Explore post-graduate opportunities

Open to the public, students, and faculty!
When: April 5th, 2023, 3-5pm
Where: The Quad
 *rain date: April 12th 3-5pm

 Event details and updates available on Instagram @uncp_chem_phys_club

With questions and concerns, please email hmg015@bravemail.uncp.edu or kmg031@bravemail.uncp.edu

This publication is available in alternative formats upon request.
Please contact the Accessibility Resource Center, D.F. Lowry Building, 910-521-6695.

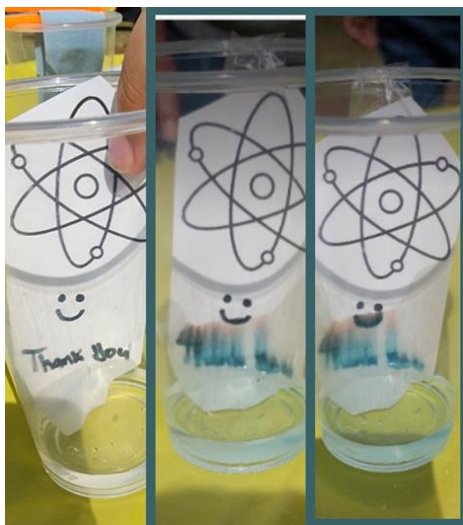


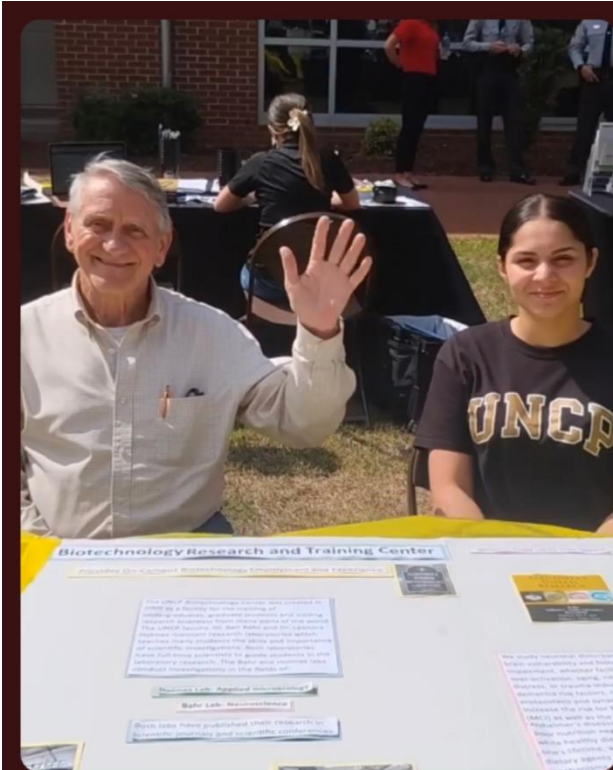
Event Intentions and Objectives:

increase participation by STEM students in major-related extracurriculars, such as clubs

provide students with a glimpse of post-graduate opportunities.

The Career Center has acquired several employers in STEM fields and is still working to get graduate schools.









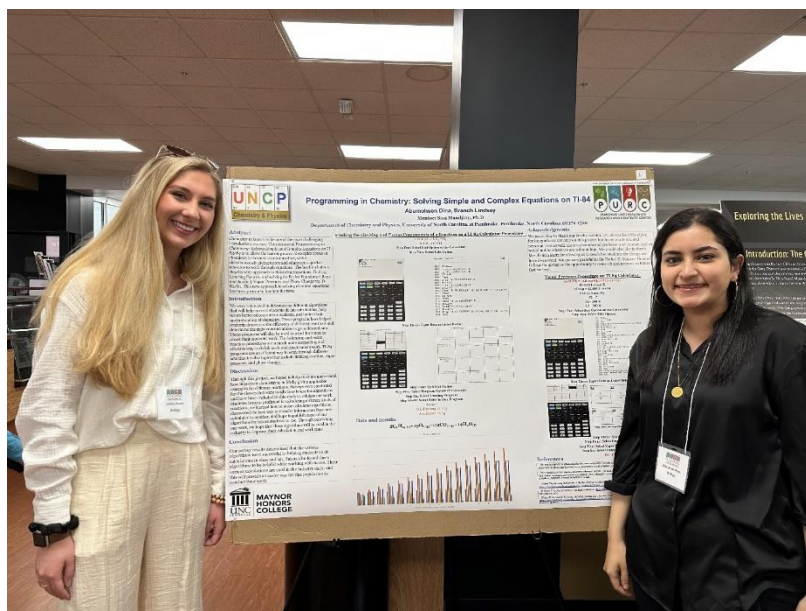
17th Annual Pembroke Undergraduate Research and Creativity Symposium

The 17th Annual Pembroke Undergraduate Research and Creativity Symposium was held Wednesday, April 12th from 10:00 am to 2:20 pm in the common area and reading room of the Mary Livermore Library. This event included 93 presentations of scholarly ventures by approximately 79 students and 49 faculty mentors, representing 15 academic departments. There was a jazz septet performing three student-authored compositions. There was posters, performances, oral presentations, and exhibits followed by an awards ceremony at 1:15pm. Everyone was welcome to join in celebrating this year's achievements in the undergraduate research!

A special “thanks” to all the mentors who worked tirelessly with the students for their progress. The mentors are **Len Holmes, Paul Flowers, Sally Vallabha** (Council Member), **Steven Singletary, Quinton Rice,** and **Siva Mandjiny**.

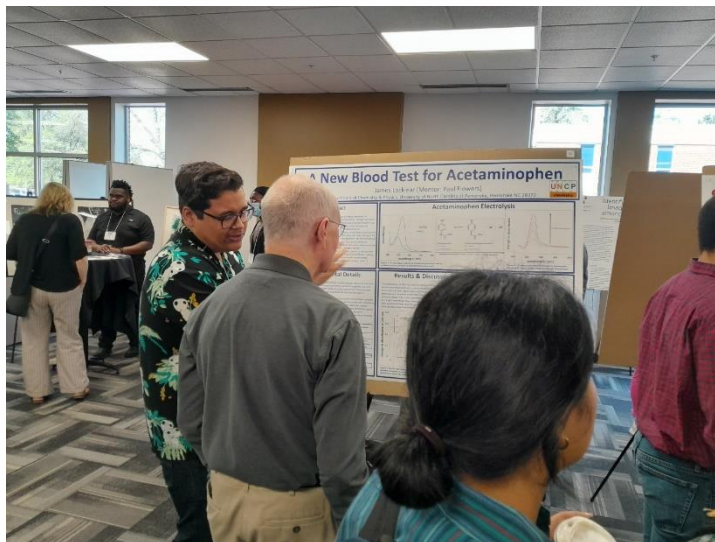
Posters:

Programming in Chemistry: Solving Simple and Complex Chemical Equations on TI-84
Dina Abumohsen, Lindsay Branch, and Mentor: Siva Mandjiny



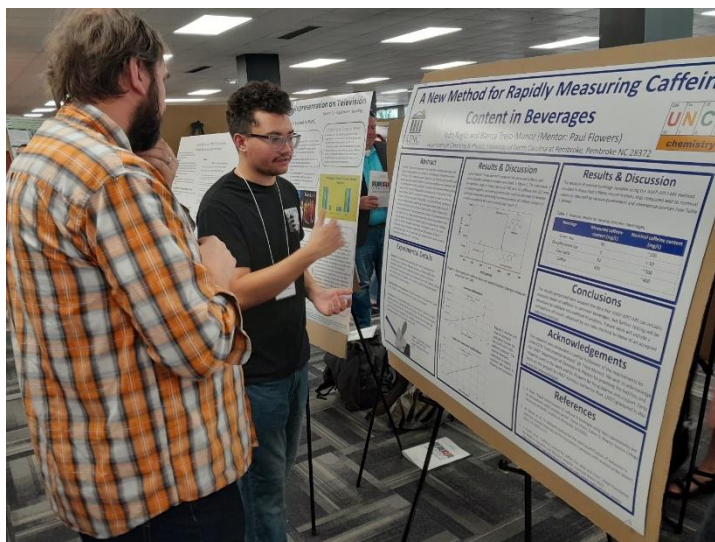
A New Blood Test for Acetaminophen

James Locklear and Mentor: Paul Flowers



A New Method for rapidly Measuring Caffeine Content in Beverages

Trey Rogitz and Mentor: Paul Flowers



Tensile Strength vs Infill Percentage for 3D Printed Beans

Toni Blackwell and Mentor: Steven Singletary

Forensic Analysis: Impact of Hair Treatments on Opioid Detection

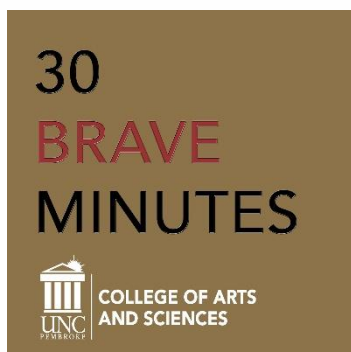
Kae Burns and Mentor: Steven Singletary

The Propagation and Optimization of Bacillus Thuringensis

Anyla Hunt and Mentor: Leonard Holmes

A Study of Quantum Cryptography Using the BB84 Protocol

Caleb Locklear, Kendrick Oxendine, Billy Pait, Edward Jeffries, and Mentor: Quinton Rice



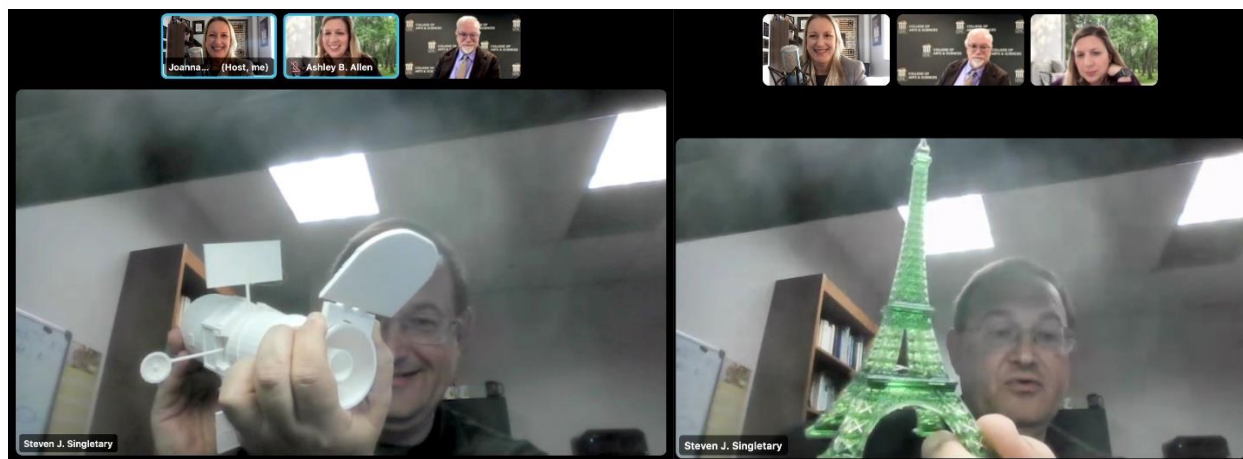
“Anything is Possible:” 3D Printing with Dr. Steven Singletary

Hosted by the Dean of the College of Arts & Sciences at UNC Pembroke, in each episode distinguished guests discuss a thought-provoking topic.

<https://cas30braveminutes.podbean.com/>

Join us as we chat with 3D printing expert Dr. Steven Singletary of the UNCP Department of Chemistry and Physics. A native of Tar Heel, N.C., Dr. Singletary served in the U.S. Marine Corps before earning a degree in Math and Computer Science from UNC Pembroke. He then earned his Master of Science in Geology from Texas Christian University and his Ph. D in Geochemistry from the Massachusetts Institute of Technology. Back home after his time at MIT, Dr. Singletary is an integral part of his home department, and spends his time leading UNCP’s Rocket Team, who have established themselves as a group to watch after successful competitions and achievements at the national level. Dr. Singletary has presented and published for over sixty-five leading international journals and conferences and has earned over \$2.6 million in successful grant funding to date. He is licensed as a Senior Parachute Rigger by the Federal Aviation Administration and works as an Accelerated Free Fall Instructor for the United States Parachute Association.

Today however, Dr. Singletary joins us to discuss the possibilities and advances in 3D printing, and how we use these machines on campus and across the community. Join us as we welcome Dr. Singletary and dive into this topic (pun intended, as you’ll hear in the interview) which is so fascinating to us all.





UNCP Rocket Team - NASA USLI Competition

The rocket team left Wednesday, April 12, for their first competition in Alabama. They competed in NASA's Undergraduate Student Launch Initiative. Throughout the academic year, the team has been building and testing their rocket, submitting design reports to NASA, attending briefings with NASA engineers to explain their progress and plans for further work – all while taking care of their normal day to day class/school activity. They have passed all the mile-stone reviews and the email from NASA last Friday, April 7, told us “The UNCP Rocket Team is go for launch in Huntsville”. NASA will be live streaming launch day activities on Saturday, April 15, on the USLI face book page and the Marshall Space Flight Center YouTube channel.

Dr. Steven Singletary “thanks to all of you for your support this year and if you see a team member, please give them a high five or a well done – they’ve earned it this year regardless of the outcome of the competition”.

If you didn't get a chance to tune in live this past Saturday – the broadcast is archived. Skip to 52:30. The team was first to launch, and everything went exactly as planned. Target altitude was 5200' – the onboard computers put apogee at 5281'.

<https://www.youtube.com/watch?v=HLuCndLABTY>

UNCP now has a lot more friends and supporters in the rocket world that look forward to seeing us back and the returning team members are highly motivated to go back. Thanks to all of you for your support and encouragement. Now on to Wisconsin and the First Nations Launch Competition! Congratulations to Dr. Steven Singletary and his student team on a successful launch!



The UNCP Rocket Team has been selected to compete in the NASA Student Launch Challenge in Alabama in April 2023

Archived Footage From NASA USLI



Congrats on a successful launch!



The rocket's name is ***Small Boi.***

High School Group



On April 13, Dr. Siva Mandjiny (Chemistry and Physics) met with a group of visiting high school students in the Mary Livermore Library. He shared with the students about STEM programs. Special thanks to Mary Beth Locklear (Office of Undergraduate Admissions) for the opportunity to speak to an enthusiastic group.

Academic Awards Day

The 2023 Chemistry and Physics Academic Awards Day Program was held April 19, 2023 in room SCI 3256. The department had 15 winning students for awards.

This year's recipients are:

David Conklin	American Institute of Chemists Outstanding Senior Award
Haleigh Grace	Professional Promise Award
Tiffani Roberts	Continuing in Chemistry Award
Reece Hicks	Continuing in Chemistry Award
Keirah-Lee Grace	ACS Sponsored Award in Analytical Chemistry
Keirah-Lee Garry	ACS Sponsored Award in Inorganic Chemistry
Haleigh Grace	ACS Sponsored Award in Organic Chemistry
William Ridge Leviner	ACS Physical Chemistry Undergraduate Award
Anyla Hunt	CRC Freshman Chemistry Award
James Locklear	Undergraduate Research Award in Chemistry
Billy Ray McLean Pait	Undergraduate Research Award in Physics
Caleb Locklear	Undergraduate Research Award in Physics
Nicolas Kincaid	Outstanding Pre-Engineering Student Award
Billy Ray McLean Pait	Einstein Achievement Award in Physics
Caleb Locklear	"3+2" Student Award

Congratulations, students, on your recognition and award!



Caleb Locklear (*Undergraduate Research Award in Physics*) and Dr. Bill Brandon



Billy Ray McLean Pait (*Undergraduate Research Award in Physics*) and Dr. Bill Brandon



Nicolas Kincaid (*Outstanding Pre-Engineering Student Award*) and Dr. Quinton Rice



Keirah-Lee Garry (ACS Award in Analytical Chemistry) and Dr. Paul Flowers



James Locklear (Undergraduate Research Award in Chemistry) and Dr. Paul Flowers



David Conklin (*American Institute of Chemists Outstanding Senior Award*) and Dr. Siva Mandjiny



Haleigh Grace (*Professional Promise Award*) and Dr. Siva Mandjiny



Tiffani Roberts (Continuing in Chemistry Award) and Sailaja Vallabha



Reece Hicks (Continuing in Chemistry Award) and Sailaja Vallabha



Haleigh Grace (ACS Award in Organic Chemistry) and Dr. Rachel Smith



William Ridge Leviner (ACS Award in Physical Chemistry) and Dr. Benjamin Killian



Billy Ray McLean Pait (*Einstein Achievement Award in Physics*) and Dr. Tom Dooling



Caleb Locklear (*'3+2' Student Award*) and Dr. Tikaram Neupane

(Not picture)

**Anyla Hunt (*CRC Freshman Chemistry Award*) and Mrs. Felicia Scott
Keirah-Lee Garry (*ACS Award in Inorganic Chemistry*) and Dr. Mark McClure**





On behalf of the department, the Faculty and Staff would like to thank the following faculty and staff members for the execution of the departmental awards day ceremony. It went extremely well.

1. Dr. Rachel Smith took complete initiative and work countless hours to get all the awards together which includes working with all the faculty and staff members, students, and their family members. Rachel, thank you for making this ceremony happen with a great success and all you do for this department. You are greatly appreciated.
2. Mrs. Hope Bullock worked very closely with Dr. Smith to make everything happen. Faculty and students love it.
3. Thank you, Dr. Mark McClure, for taking nice pictures of the whole event.
4. Mrs. Carolyn Oxendine and Mrs. Hope Bullock worked together in organizing a nice party. The punch, fruit, cheese and crackers, and vegetable trays was great. Thank you! Job well done.

Dr. Mandjiny stated "It was so nice to see everyone together with the students on this great "Departmental Award Ceremony" occasion. I am highly impressed to see that you gave the awards to your students with enthusiasm and with a great smile. It was so nice to see that. The department is so proud of you all to work with them for preparing them for their future and for their success".

UNCP Chemistry and Physics Club – April 20, 2023

Outreach: West Hoke Elementary School "Science Night"

Demonstrations and interactive activities to engage with students and encourage the youth to pursue STEM







UNCP Chemistry and Physics Club – April 22, 2023

Outreach: Sandy Grove Middle School (Hoke County)

Volunteer Judging the Hoke County Robotics Competition



Early College Program Students



On April 27, Dr. Siva Mandjiny (Chemistry and Physics) met with 40 visiting early college program students from Robeson Community College in the Mary Livermore Library. He shared with the students about STEM programs.

Special thanks to Mary Beth Locklear (Office of Undergraduate Admissions) for the opportunity to speak to an enthusiastic group.

UNCP Rocket Team - “First Nations Launch Competition”

Dr. Steven Singletary and the Rocket Team traveled to Kenosha, Wisconsin for the rocket launch competition April 27 – 30, 2023. The team did their presentations to the judges. They were quizzed by the judges on the construction of their rocket, how the altimeter works, how the parachute will get deployed and on total safety procedures. Special “thanks” to Dr. Singletary for his achievement in sending our UNCP’s rocket in the outer orbit. Hope their adventure continues forever. We are so proud of both the faculty and the students.

Just a quick note on how this year’s competition went. The task this year was to build a high-powered rocket completely from scratch based on one of three kits. The team with the lightest rocket compared to their chosen kit has the inside track to win. We will learn the competition winner by June 1. As of last night, 6 of the 8 teams were within 2 points of each other and we are one of the teams in contention.

The team had a successful launch with a nominal flight. All events occurred as programmed/needed and the team recovered the rocket, and it is ready to fly again.

An awards banquet was held, and the team will bring home more awards this year. Not as many in number, but much more in terms of reward. The team won the Public Outreach award for all their hard work in developing and delivering programs to surrounding schools and groups. That award comes with a \$500 prize to fund further efforts.

The team also won the big prize, the Next Step award. This is awarded to the team the judges feel is best positioned to move up in terms of their competition level. Essentially the team displayed a level of technical mastery that shows they can compete at the next level. It comes with an invitation to participate in NASA’s USLI competition in Huntsville next year as well as a \$15,000 award.

As we wait for word on who the overall competition winner is, the team and I would like to thank each of you for your support and encouragement over the past year. It has been greatly appreciated.

Congratulations to Dr. Singletary and all the team members for a job well done. It is so amazing to see your and the students’ effort.

(Pictures and video to come later.)



Chemistry and Physics Graduate Social

The 2023 Spring Graduate Social was April 28, 2023. It was a great turn out with students, faculty, and staff. Everyone enjoyed the good fellowship and great food. The “Dim Sum Buffet” was served for lunch and catered by Sodexo. The graduates for this semester are: **Billy Ray McLean Pait III, Xanthe Pearson, Nykedra Alizay Spencer, Haleigh Marie Grace, Bryan Axel Martinez-Lopez, David John Conklin, Antonia Oladeji, Harlie Kay Scott, Christopher Jaymes Collins, and Dekiah Sapphire Parson.** Congratulations to our graduates. Job well done!





Haleigh Marie Grace and David John Conklin



Billy Ray McLean Pait III and Anthonia Oladeji







The faculty and staff members appreciate both Carolyn and Hope for organizing such a wonderful Graduation Day Social. It was a wonderful event, and the food was excellent. Thanks to both of you. Job well done.

Faculty Appreciation Dinner

During the Faculty Appreciation Banquet on April 28, the Chancellor and the Interim Provost appreciated all the faculty members for their hard work and working with the students. In that recognition, Dr. Jose D'Arruda was appreciated and recognized for the Faculty Emeritus Status.





Two events, an Open House and a New Student Orientation, happened at once on April 29. Students had the opportunity to visit both groups. Students and families visited the departments of their choice. Dr. Neupane met with students at the Thomas Hall. Afterwards the Chemistry folks went to SCI 3256 where Dr. Mandjiny talked to the students and the parents.



Dr. Tikaram Neupane
Assistant Professor of Physics



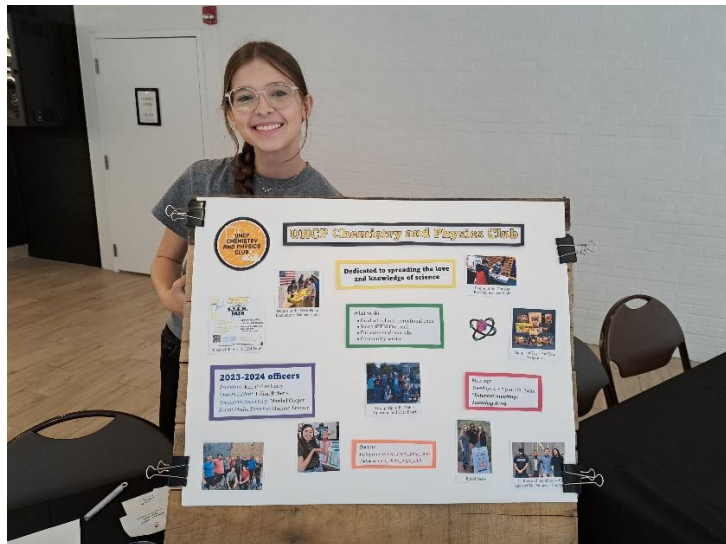
Dr. Siva Mandjiny, Ph.D.
Chair-Chemistry & Physics

Thank you, Dr. Neupane and Dr. Mandjiny, for volunteering and spending time with the students and families at Open House.

UNCP Chemistry and Physics Club – April 29, 2023

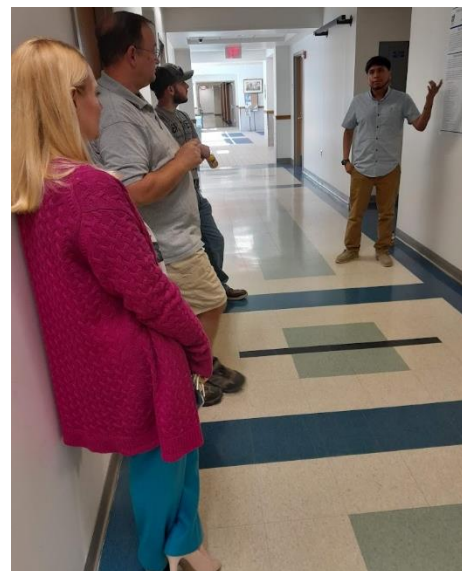
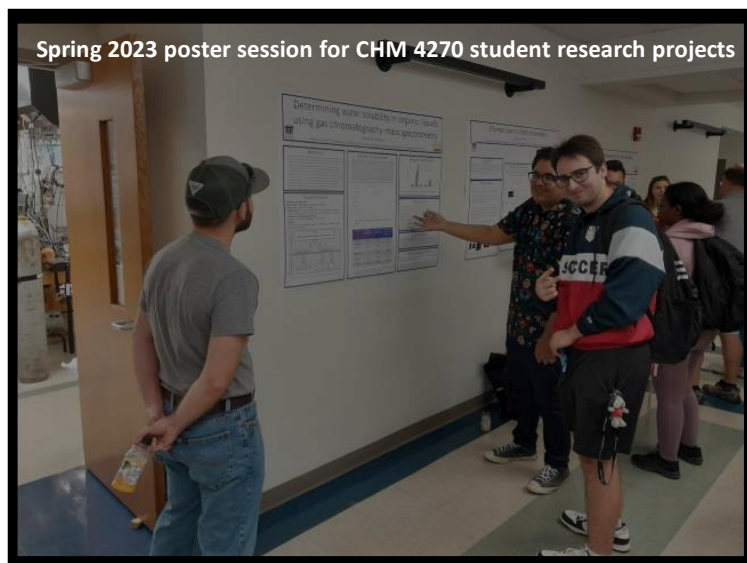
UNCP Incoming Freshman Involvement Fair

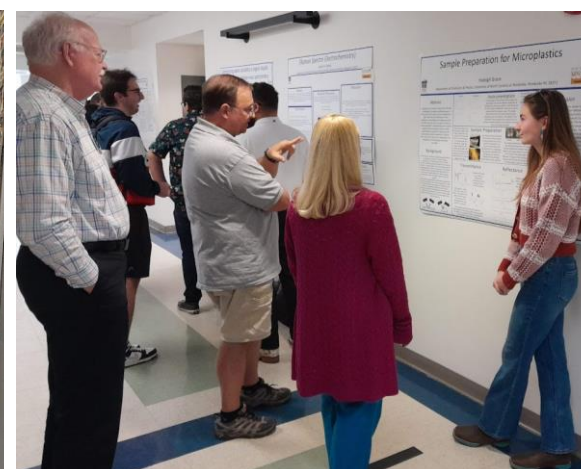




CHM 4270 Student Research Poster Session (Spring 2023)

On May 3 in the Oxendine Science Building, Dr. Paul Flowers and his students presented their research posters at the Instrumental Analysis symposium.





Visit the link to the Google Photos album: <https://photos.app.goo.gl/Vk4W49DsfcTvRuTR7> for more photos. Great work Dr. Flowers and students.

Student News



Anna Miller: received the MA Chamber Pharmacy Alumni Scholarship. The scholarship is \$6,500/year for the next four years. Anna will be attending UNC – Chapel Hill.



Haleigh Grace: accepted into the graduate chemistry programs at the University of Tennessee-Knoxville.



David Conklin: accepted into the High Point University for Pharmacy School.



Ryan Locklear: started a job with Cummings Aerospace as a Test Engineer on March 23. He had previously been an intern at Cummings when he was still a student at UNCP (June – August 2021).



Chinemerem Blossom Edoh: accepted to Duke University's Clinical Research Gap Program.



April 6, Haleigh Grace received an award through the Center for Student Success for her work as a peer tutor, particularly in Chemistry and Physics courses. Club member, Haven Guinn (Biology major) also received an award.

UNCP Chemistry and Physics Club – Members Receiving Awards



We are so proud of our students.

