



Volume 12,
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*What's going on in
the North Carolina
Academy of Science:*

- President's Letter
- CASCAS Workshop 11/4/23
- Call for Grant Proposals:

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President's Letter

By Dr. Taek You, NCAS President 2023-2024

Dear fellow members and supporters of North Carolina Academy of Science,

I hope this letter finds you well. It is my greatest honor serving you and the organization as a president.

The North Carolina Academy of Science has a rich history. Our predecessors founded NCAS 120 years ago and the torch is still lit. The torch is with us right now.

The mission of the North Carolina Academy of Science is promoting and advancing sciences and science policies in North Carolina. In accordance with the mission, we must actively pursue our goals. It is well known that water must continuously flow to be healthy and safe. Stagnant water is unsafe. We do not want to be stagnant water but flowing water.

How can we make NCAS better? How can we advance sciences in North Carolina? These are challenges that we must tackle. If we stay put, we are doing disservice to future generations and NC science communities.

I have heard and seen Sigma Xi honor society. We may not be the same kind of organization but may adopt its principles and operation. The Sigma Xi could be our role model. The Board of Directors members and numerous volunteers have been working for the NC Academy of Science. Their time and efforts are very much appreciated. Better yet, now is the time that we get together and pull the train, called North Carolina Academy of Science, to keep it moving forward.

There are many challenges ahead of us. Why are we making obstacles while we can go the same way as the past 120 years? There is nothing wrong with going the same way. Is it what we really want to do for the next 120 years? I would like to ask all members to think about it from your heart. Individual effort would not be enough to pull the giant train, NCAS. Only WE can do this together!

According to the history of NCAS, the annual meeting once drew over 1,000 participants in the past. Decrease in membership and participation may be due to the pandemic effect. We would like to increase membership numbers and expand businesses in a way to fulfill our mission.

Every event has a beginning. When there is no beginning, there will not be an ending. We



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President's Letter - continued

need to begin our journey now to fulfill the mission. I would like to invite all members and supporters to reach out to fellow scientists and students for the sake of advancement of sciences in North Carolina. Our annual meeting is the perfect opportunity to do that.

We have scheduled an annual meeting at Winston Salem State University on April 4-5, 2024. We can invite as many people to the annual meeting and celebrate the achievements of student presenters, and we take this opportunity as a springboard to leap into the future of NCAS.

I commend our BOD members, supporters, and volunteers for your tireless efforts and service to this community. Be blessed and let us celebrate the historic 120th NCAS annual meeting.

CANCAS Group Members

Campbell University

< Your Group Coming Soon? >

Time to renew your Group's Membership!

Renew your CANCAS membership today!

CANCAS membership costs are \$15 for individuals and \$100 for a group membership.

Go to <https://www.ncacadsci.org/cancas/> for instructions on creating CANCAS group memberships. CANCAS membership can be renewed at the following link:

<https://www.joinit.org/o/north-carolina-academy-of-science>.

Please reach out to Dr. Ryan Brandt at rbrandt4@elon.edu with any questions.

Yarborough Grant Winners

From David Cartrette and Emanuel Waddell, Yarbrough Co-Chairs

Please join the North Carolina Academy of Sciences in congratulating the following recipients of the Yarbrough Undergraduate Research Funds for academic year 2023/2024:

Allison Fredrick, Catawba College

Effects of UV Radiation on Epithelial Cells

Mentor: Professor Erin Witalison

Yahaira Galan Cruzes, Catawba College

The Efficiency of Plasma-Treated Water as a Fertilizer Compared to Store-Bought Fertilizer

Mentor: Professor Andrew Jacobson

Summer Lutz, Fayetteville State University

Determining the Presence of Antibiotic Resistance Genes in Soil Bacteria Isolates

Mentor: Professor Danielle Graham

Deborah North, Durham Technical Community College

Wastewater Treatment Using Microbial Fuel Cell Technology

Mentor: Professor Darryl Bing

Bethany Perry, Lenoir Rhyne University

Effect of Temperature on Circadian Rhythms and Stomatal Aperture In Soybeans

Mentor: Professor Michael Stiff

Anastajia Price, Catawba College

Vulpes vulpes Response to Exotic and Native but Extirpated Large Carnivore Scents

Mentor: Professor Andrew Jacobson

Salma Ramirez Sanchez, Lenoir Rhyne University

Antifungal Effects of Oregano Oil Against Candida albicans

Mentor: Professor Daniel Grimm

Isaac Riggs, Lenoir Rhyne University

Effects of Seed Germination on Chelone lyonia Seeds Using Smoke-Water Exposure

Mentor: Professor Marsha Fanning

Lynn van Staalduinen, Lenoir Rhyne University

Determining the Time to Confluency of Mouse Embryonic Fibroblasts Cultured in Varying Oxygen Concentrations

Mentor: Professor Daniel Grimm

Meet our 2023-2024 CASCAS Officers



CASCAS Board 2023-2024

From left to right:

- President: Reagan Womeck; Lenoir-Rhyne University
- Vice President: Diego Sanjuan; Lenoir-Rhyne University
- Secretary: Erica Schulz; Lenoir-Rhyne University
- Historian: Kevin Reza-Villa; Wake Technical Community College

NCAS Annual Meeting to be held on April 5-6, 2024 Save the Date!

The 120th Annual Meeting of the North Carolina Academy of Science will be hosted by Winston-Salem State University. Contact the Chair of the Local Arrangements Committee, John Merle, merle-jo@wssu.edu, if you have any questions.



Elon University is Proud to Host The 2023 CASCAS Undergraduate Research Workshop

From Ryan Brandt, CASCAS Co-Director

When: Saturday November 4, 2023

Host: Elon University

Location: McMichael Science Center, 314 E Haggard Ave, Elon, NC 27244

The Collegiate Academy of the NC Academy of Science (CASCAS) Workshop is a fantastic opportunity for students interested in pursuing careers in science and medical fields. Here's a breakdown of the key details and benefits of the event:

Purpose of the Workshop:

The workshop aims to provide undergraduate students with valuable insights and resources related to their academic and professional development in the sciences.

Networking Opportunity:

Attendees will have the chance to network with representatives from various programs, including Ph.D. programs, Physician Assistant (P.A.) programs and more.

Panel Discussion:

There will be a panel discussion where students can ask questions and gain insights into different career paths and educational programs.

Breakout Sessions:

After lunch, students will have the opportunity to attend breakout sessions on several important topics:

- **Resume/CV Development:** Learning how to create an effective academic and professional resume or curriculum vitae.
- **Building a Professional Social Media Presence:** Understanding the importance of maintaining a professional online presence in the science field.
- **Reading and Presenting in Science:** Developing skills for effective scientific reading and presentation.
- **How to Communicate Effectively through Scientific Oral and Poster Presentations:** Learning how to convey scientific information clearly and persuasively.

Overall Benefits:

- The workshop provides experience in professional development, covering not only academic and career insights but also practical skills necessary for success in the sciences.
- It encourages students to connect with peers and experts in their fields of interest, fostering a sense of community and support.

Who Should Attend:

Undergraduate students pursuing degrees or careers in science-related fields, including biology, chemistry, physics, and healthcare professions, should consider attending this workshop.

Call for Proposals–Robert R. Bryden Graduate Research Award

1. One \$1,000 grant is in the NCAS 2023-24 budget for research equipment and/or expenses related to attending scientific conferences. Past recipients are not eligible.
2. Both the applicant and the research advisor must be at a college or university in North Carolina and members of the NCAS in good standing (membership forms may be obtained from the address listed below or at the web site: <http://www.ncacadsci.org>). *Please note that this grant program is funded through dues paid by NCAS members. In order to continue this and other valuable NCAS programs, research advisors are encouraged to request their institutions to contribute through an institutional membership.*
3. Applications for the grant must include one copy of the following:
 - NCAS proposal cover sheet form with one page budget summary. Itemize as specifically as possible.
 - Extended abstract of research no longer than 2 pages with three sections.
 - Introduction: Background, significance and clear statement of purpose.
 - Results: Brief summary of experimental results to date.
 - Planned Research: Brief description of work planned over the next year.
4. Send applications electronically to:

Dr. Zhenquan Jia, Email: z_jia@uncg.edu
and
Dr. Mark McCallum, Email: mark.mccallum@pfeiffer.edu
5. **Deadline** for applications is **February 26 2024**.
6. Award will be announced at the 2024 NCAS annual business meeting.
7. Award recipient is strongly encouraged to present their work at the **NCAS 2025** annual meeting.

Thank you!

Thank you to Meredith College, the headquarters of the North Carolina Academy of Science and site of our home office!

Presenting Winners of 2023 Robert R. Bryden Graduate Research Award

Rebecca Hirsh, UNC-Chapel Hill

(Advisor: Dr Jessica Bowser)

Project: CD73 restrains mutant β -catenin oncogenic activity in endometrial cancer.



Ajmal Khan, UNC-Greensboro

(Advisor: Dr Zhenquan Jia)

Project: Molecular studies of Microplastics and Nanoplastics induced endothelial inflammation: implications in environmental determinants of cardiovascular disease.



NCAS Website Will Soon Be Back

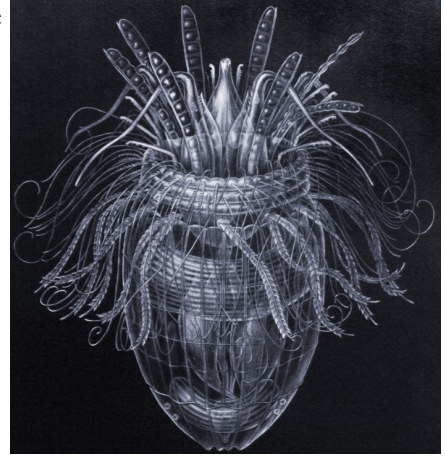
You may have noticed that we are experiencing an unexpected problem with the website and that it is currently unavailable. We are working diligently to resolve the issue and put a mechanism in place so we do not experience another outage in the future. We are eager to regain access so we can once again have the NCAS news and other information available with a click of a button.

Thanks for your patience while we work through this issue. In the meantime, I hope you found the information you need in this newsletter. We will post the newsletter on the website for your convenience once it is back up.

Academy to establish new graduate award in memory of Robert Higgins

Report By Dr. Lisa Kelly, NCAS Historian and Faculty at UNC Pembroke

Thanks to a generous donation from the Gwen Higgins Family Trust, the Academy will establish an endowment to fund a graduate research award in memory of the late Dr. Robert Price Higgins. A single competitive award will be bestowed each year to support thesis research in evolution, systematics, or ecology, or in any combination of these disciplines. Higgins served as President of the Academy from 2000-2001 and was a Life member in the Academy. He was the leading authority on the ecology and meiofaunal systematics of some of the smallest marine creatures known – the phyla Kinorhyncha and Loricifera. The latter is a new form of life which he co-discovered in 1974, stemming from a single animal found in coastal sand from North Carolina.



Pliciloricus enigmaticus

Originally from Colorado, Higgins earned a PhD from Duke University and then served on the faculty of Wake Forest University for several years before accepting a post-doctoral position in the Systematics-Ecology Program at the Marine Biological Laboratory in Woods Hole, Massachusetts. Afterwards, he joined the Office of Oceanography and Limnology at the Smithsonian Institution, where he held several directorships and served as Research Scientist and Curator of Invertebrate Zoology until his retirement in 1993. During his long career, spanning more than four decades, he participated in several expeditions and international projects, and conducted research in more than 50 countries.

Higgins' expertise and scientific discoveries earned international acclaim and national honors. He was an elected member in premier scientific societies (including Sigma Xi and AAAS) and served as officer in several professional organizations. He continued to be active in research and the sciences long after his retirement from the Smithsonian, accepting several academic positions in North Carolina. International colleagues named no fewer than nine species in his honor. His research was featured by PBS, *Discovery Magazine*, and the Canadian Discovery Channel, among other media.

A handful of glass models of the “first loriciferan” (discovered first in North Carolina), *Pliciloricus enigmaticus*, Higgins & Kristensen, were crafted in commemoration of the 20th anniversary of the publication of the phylum Loricifera. In honor of Higgins, the University of Copenhagen gave the Academy one of these models, along with a letter from his co-discoverer Dr. R.M. Kristensen. During its 102nd annual meeting in 2005, the Academy hosted a special event, “A Celebration of Biodiversity: A Tribute to Dr. Robert P. Higgins,” to showcase his co-discovery of Loricifera and to show off the glass model. The celebration was held in the WRAL Digital Theater of the North Carolina Museum of Natural Sciences and was chronicled in the Proceedings of the *Journal of the North Carolina Academy of Science* (2005, Vol. 121(4), pages 177–191).

The new graduate research award to be named in Higgins' memory will join only one other graduate award bestowed by the Academy -- Robert R. Bryden Research Award. The new award may roll out as early as 2024, during the 120th annual meeting at Winston-Salem State University.

Interested in learning more? Visit this link to an article from 2018: <https://hakaimagazine.com/features/lord-of-the-rhynchs/>



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The **objective** of the North Carolina Academy of Science is to "encourage the advancement of science within the state of North Carolina by promotion of scientific research and by the fostering of education in the sciences". The North Carolina Academy of Science meets these objectives by...

- Publishing a peer reviewed scholarly journal, the *Journal of the North Carolina Academy of Science*.
- Fostering and encouraging student involvement in the sciences through support of the Collegiate (CANCAS) and Student Academies (NCSAS).
- Promoting interactions among scientists and students throughout North Carolina.
- Providing a forum for exchange of ideas for solving issues important to North Carolina.

The Academy members include individuals from academia, industry, government, and all others who support the objectives and goals of the Academy.

Con-

North Carolina Academy of Science

Our Mission

The North Carolina Academy of Science promotes public appreciation of science, science education, scientific research and a meaningful role for science in public policy.

Our Goals:

Promote public appreciation of science

- Partnership with Science Centers
- Public Lecture Series
- Newsletter

Promote science education

- NCAS Webpage
- Academic Lecture Series
- NCAS Publications: Journal, Educational Publications
- Student Academy - Middle & High School

Promote scientific research

- Yarbrough and Bryden Research Grants
- CASCAS Undergraduate Research Workshop
- Presentation Opportunities at Annual Meetings
- Journal of the North Carolina Academy of Science

Promote science in public policy

- Symposia
- News Releases
- Position Statements
- Interactions with Public Officials

