



From the President: Dr. Michael Kingston

Volume 2,
Issue 1

September 2013

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

- Letter from the new NCAS President,
- Announcing new CASCAS officers 2013-2014!
- Memories from NCAS Annual Meeting 2013
- Congratulations, Yarbrough Winners!

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Report by: Dr. Michael Kingston, Elon University

I am excited by the opportunity to serve as President of the Academy. It seems like only yesterday that we were all together at our 110th Annual Meeting at UNC Pembroke held jointly with the newly formed North Carolina Project Kaleidoscope Network. NC-PKAL, formed in 2012, grew out of the NSF-funded national PKAL Initiative which began as an informal alliance of campus leaders and science advocates interested in shaping undergraduate learning environments that build and sustain strong



undergraduate programs in science, technology, engineering and mathematics. This effort is just one example of the Academy's recent efforts to build connections that support our mission. This year, the Academy will reach out to our colleagues in the state's community colleges to build interconnections to support undergraduate research and science education collaborations across North Carolina.

The 2014 Annual Meeting will provide the opportunity to renew a past connection with the North Carolina State Museum of Natural Sciences in Raleigh on March 28th and 29th. This exciting venue will provide an unprecedented opportunity to engage and interact with the public during the meeting. Undergraduate members of the Collegiate Academy of NCAS will have the opportunity to visit research labs and learn about volunteer and internship opportunities at the Museum and the Nature Research Center. The Museum and the Academy share common missions and founding histories. Both organizations are devoted to the advancement of science understanding and the early histories of both were strongly influenced by the Brimley brothers. Herbert Brimley who served as the first full-time Curator of the N.C. State Museum participated in early discussions to form the Academy. Herbert's brother Charles later served as President of NCAS.

Although our Annual Meetings offer keynote speeches and workshops on cutting-edge science and the opportunity to present your research and that of your students, the Academy confers many other benefits on members. Recently, the Academy's Board of Directors endorsed a public statement on fracking in North Carolina in keeping with one of our missions --- to provide a voice from the scientific community on public policy. The statement which was developed by the Science and Public Policy

From the President: Dr. Michael Kingston, cont.

Committee is the outcome of lengthy and careful consideration of the scientific knowledge surrounding shale gas development. The Journal of the North Carolina Academy of Science provides a multi-disciplinary publishing outlet to disseminate research conducted in and by North Carolina scientists. The editors are moving forward in implementing an on-line submission and peer-review process starting January 1st. The Academy's quarterly newsletters include meeting updates, a featured scientist article, news of interest to N.C. scientists and educators, and current job listings. In addition to these services, the Academy supports undergraduate research through the Yarbrough Grants program.

Clearly, the Academy provides much value to its members while keeping membership and Annual Meeting costs to a very modest level at a time when money is tight on many campuses. If you are not yet a member, I would encourage you to peruse our website (<http://www.ncacadsci.org/>) to see all of the benefits that come with being a member. If you are a member, then please share your knowledge of the Academy with colleagues so we can expand our membership.

Dr. Michael Kingston
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Save the Date!

March 28-March 29th, 2014
The 111th annual NCAS conference will be held
at the North Carolina Museum of Natural
Sciences in Raleigh, N.C.

The End of an Era in Biotech Training

On September 13, Bill Schy sent an email to NC Biotechnology Center (NCBC) workshop graduates saying, "I am sorry to have to inform you that due to a \$4.6 million budget cut made to the North Carolina Biotechnology Center by the State Legislature this year, the Center's Education and Training Program is being shut down at the end of September."

For 26 years, NCBC has supported teachers at all levels, from K-12 through the university level and also non-profit groups, with training and equipment to support the education of our next generation of scientists. This program will be sorely missed and leaves yet another gap in resources to support educational programs across NC.

CANCAS Officers and Liasons 2013-2014

CANCAS Officers and Campus Liaisons for the 2013-2014 year were elected at the Annual NCAS meeting in April. Positions are still available for Campus Liaisons from member schools. Please contact any of the officers if you are interested in serving.

Position	Position held by / Institution	Email address
President	Michael Khayat, Guilford College	khayatmm@guilford.edu
Vice President	Brenten Bottoms, Barton College	blbottoms@bulldogs.barton.edu
Secretary	Kelsey Worthy, Guilford College	kjworthy@gmail.com
Historians	David Creasman, Campbell University	dacreasman1229@email.campbell.edu
	Megan Bucek, Mount Olive College	mpb5860@moc.edu
Campus Liaison	Campbell University	Vacancy
Campus Liaison	Anthony Fata & Kelly Allen Elon University	afata@elon.edu kallen17@elon.edu
	Gabriel Gore, Guilford College	goregk@guilford.edu
Campus Liaison	Logan Bearfield, Lenoir –Rhyne University	logan.bearfield@my.lr.edu
Campus Liaison	Alicia Vazquez, Mount Olive College	

SAVE THE DATE for the annual CANCAS Fall Undergraduate Research and Career Workshop: Guilford College, Greensboro, NC, November 2, 2013

The CANCAS/NCSAS Fall Undergraduate Research and Career Workshop is scheduled for Saturday, November 2, 2013 at Guilford College in Greensboro. The workshop will run from 9:00 am to 5:00 pm and will include interactive sessions related to research/presentation skills, internship/study abroad opportunities and career preparation. Students will also have the opportunity to participate in mock interviews and resume building sessions. College preparation sessions will also be available for NCSAS participants. Two discussion panels consisting of students and professional school admissions representatives will provide an open forum for career and research questions. There will be plenty of networking opportunities with peers and faculty during the Luncheon, CANCAS Business Meeting and evening social. Please pre-register online at the CANCAS website to save your spot at the CANCAS/NCSAS Workshop!

Featured Scientist: Scott T. Johnson, Wake Technical Community College

Report by: Jessica McCann, Duke University

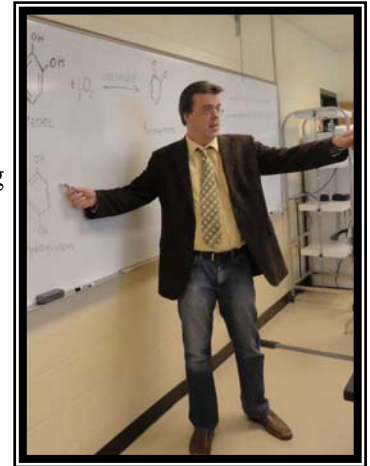
“Teaching is such a idiosyncratic profession and it is a craft. There are always new things to try and new ways to approach your class/lab – which not only makes it rewarding when you try something new and it works, but it keeps it exciting.”

In this issue’s Featured Scientist, we are profiling Scott T. Johnson, Biology instructor at Wake Tech Community College. Teaching is the main priority of a community college faculty member, but Mr. Johnson never planned to be in the classroom. Starting out at community college himself, Mr. Johnson worked with students in a work-study teaching program. This experience stuck with him. He moved on to Rutgers, and while finishing up his undergraduate degree, a teaching position opened up at his former school. He jumped at the chance to teach again, and now says he couldn’t imagine doing anything else. In his current position, Mr. Johnson can share his passion for science and develop new and better ways for students to learn science in the community college setting. “Teaching is such a idiosyncratic profession and it is a craft. There are always new things to try and new ways to approach your class/lab – which not only makes it rewarding when you try something new and it works, but it keeps it exciting.”

A big part of the craft of teaching is knowing how and when to modify curriculum to help a particular student. Mr. Johnson described one especially rewarding experience while working with a blind student. “When we were doing genetics, I created some Punnett squares with tape on a poster board and used dominoes to represent the letters.” He used the dominoes like Braille symbols, only in reverse. “I used a domino with one dot (indentation) to represent a capital letter and a one with two dots to represent a lower case letter. I then filled out the Punnett square, attaching the dominoes outside and inside the Punnett square and had him work through it to give me a phenotypic ratio. I will never forget the look on his face when he was able to do this and understand what we were doing when discussing Mendelian genetics. That was pretty cool.”

At Wake Tech, Mr. Johnson teaches both science and non-science majors. He views these non-majors classes as, “important opportunities to increase the scientific literacy of a voting public,” and share his excitement for science.

Since starting his teaching career Mr. Johnson has completed a graduate degree and is bringing his research experience into the classroom. One facet of Mr. Johnson’s teaching strategy is to institute an undergraduate research program at Wake Tech. We asked Mr. Johnson how he is managing to



Featured Scientist: Scott T. Johnson, cont.

find time and resources to get a research program going in the midst of teaching a full course load. He told us it is true that, “having the time to work on a project as big as starting a research experience from scratch is problematic.” But he also shared advice for those who might be planning research programs of their own. “Establishing a timeline of what you would need/like to accomplish semester by semester

can be helpful. The biggest thing is to be prepared for the amount of work it is going to take. This is exactly what I am trying to initiate at Wake Tech and it is a long road. Change can be hard, but it also can be an incredibly rewarding experience to institute something as effective and exciting as an undergraduate research experience.” Moving forward, Mr. Johnson is making contact with local colleges and universities that

have established research programs. “Hopefully this will lead to some collaborations that are beneficial to everyone involved,” he said. His mantra is, “Students learn science by doing science.” Wake Tech is also providing increased institutional support for STEM subjects, and Mr. Johnson is optimistic that the research program will be a success.

“Change can be hard, but it also can be an incredibly rewarding experience to institute something as effective and exciting as an undergraduate research experience.”

Interested in Publishing a Short Communication?

The Journal of the North Carolina Academy of Science (JNCAS) is now accepting short communication papers. This format can include papers from students who present their work at the annual meeting of the Academy, from undergraduate research, and from the NCSAS state competition winners. These peer-reviewed papers should be no more than three printed pages in length and must be co-authored or sponsored by a senior member of the North Carolina Academy of Science. Additional information and submission guidelines are available on the NCAS website or in the Journal of the North Carolina Academy of Science.

JNCAS Moving to Online Submission!

The Journal of the North Carolina Academy of Science (JNCAS), announces our multidisciplinary focus for all types of research relevant to North Carolina. We are especially interested in research conducted in North Carolina and neighboring states, or by North Carolina researchers. We will begin accepting manuscripts for publication online through Allen Press PeerTrack™ beginning January 1, 2014. All manuscripts must be submitted as outlined in JNCAS or on the North Carolina Academy of Science website (www.ncacadsci.org). After this date, hard copies of manuscripts will no longer be accepted.

Updates from the NC Student Academy of Science

The NC Student Academy of Science is looking forward to the State competition that will take place on **Friday, March 28th, 2014** at the NC School of Science and Mathematics in Durham. Young scientists from middle schools and high schools across the state converge on Durham to present their work in front of panels of scientists.

The NCSAS has a change in leadership this year as long-time Executive Director, Steve Warshaw hands over the reins to Amy Sheck, Dean of Science at NCSSM. Steve was single-handedly responsible for making the Student Academy a vibrant, inclusive, state-wide organization that provides middle and high school students with scientific opportunities and access to scientific expertise. In addition to organizing the district and state competitions, as the NCAS representative to the AAAS, Steve chaperoned students to the AAAS Annual Meeting where students presented their posters to a host of prominent scientists. And lastly, through the NCSAS, Steve created student scholarships and teacher awards that fostered excellence in research and teaching. We are thankful to Steve Warshaw for his years of service to the NCSAS and the NCAS and appreciate his contributions towards the improvement of science education in the state of North Carolina.

The NCSAS is always looking for scientist judges – if you would like to volunteer, please contact Steve Warshaw (warshaw@ncssm.edu) or Amy Sheck (sheck@ncssm.edu). For more detailed information on the competitions see www.ncsas.org



Science and Public Policy Committee Seeks Assistance

One of the duties of the Academy Science and Public Policy Committee is to identify and study important public policy issues that have a scientific basis or that merit attention of scientists and other citizens across North Carolina. Such issues may involve the environment, health matters, public safety, education, energy supply, etc. Studies of appropriate public policy issues may lead to reports to Academy members, government agencies, or the general public. An example of such a recent study and report of the committee is our report on Horizontal Drilling and Fracturing in North Carolina found on our Academy website.

We seek the assistance of Academy members in identifying additional public policy issues for potential study. If you have an interest in a particular public policy issue or issues please contact Charles Lytle, co-chair of the committee at lytle_bio@ncsu.edu. We will appreciate your assistance.

Many thanks to our excellent 2013 Annual Meeting photographers:

Drs. Matt Clark and Andy Steele!

Job Openings in the Scientific Community

For more information on how to apply, go to <http://www.ncacadsci.org/NCAS/jobOpportunitiesRegistration.html>

1. **Assistant/Associate Professor (Chemistry), Campbell University, Buies Creek, NC.** The Department of Chemistry & Physics invites applications for a full-time tenure-track faculty position to begin August 2014.
2. **Scientist (Bioinformatics/Molecular Biology), Bayer CropScience, RTP NC.** The primary responsibility of this role, as a Scientist, is to use bioinformatics and molecular biology tools to discover novel genes from microbes that will improve agronomic performance and value in key crops.
3. **Tenure-Track Assistant Professor (Applied & Computational Mathematics), Princeton University, Princeton NJ.** We are especially interested in candidates in nonlinear mechanics, but all areas of expertise relevant to mechanical and aerospace engineering will be considered. **Deadline to apply:** Dec 1, 2013.
4. **Staff Quality Assurance Scientist, Danaher/Beckman Coulter, Chaska MN** The Beckman Immunoassay product portfolio is diverse and includes new concepts for hardware, software, and immunoassay clinical decision applications. This position will be engaged from the early product design development phase through market release.
5. **Process Development Scientist, Upstream, KBI Biopharma, Durham NC**
6. We are seeking an experienced Scientist to work in the Fermentation/Cell Culture group to perform development, characterization and manufacturing tasks that will help to advance Phase I/II programs for recombinant proteins, monoclonal antibodies, peptides and vaccines.
7. **Assistant Director Position, North Carolina Office of Science & Technology, Raleigh NC** The Assistant Director serves as second-in-charge of the executive functions of the Office of Science & Technology.
8. **Assistant Professor (Affective Neuroscience), Pomona College, Pomona CA** Pomona College invites applications for a tenure-track appointment at the Assistant Professor level in the Department of Psychology with affiliate status in the Department of Neuroscience. **Deadline to apply:** Nov 1, 2013
9. **Assistant Professor of Biological Sciences (Prokaryotic Microbiologist), California State University, Long Beach CA. Deadline to apply:** Oct 1, 2013.
10. **Lecturer/Senior Lecturer (Biology), University of Washington, Seattle WA.** The Department of Biology at the University of Washington invites applications for two full-time (9-month) lecturer or senior lecturer positions in Biology, commencing as soon as Dec 16, 2013. **Deadline to apply:** Sept 24, 2013.
11. **Lecturer with Potential for Security of Employment (LPSOE) Position (Biology), UC San Diego CA. Deadline to apply:** Oct 1, 2013.
12. **Bioinformatics Analyst Positions, MindSpec, McLean VA.** Bioinformatics Analyst positions are available at MindSpec (<http://www.mindspec.org>), a nonprofit research organization researching molecular events underlying autism spectrum disorders.
13. **Biotechnology Equity Research Associate, Stifel, New York NY.** Stifel is focused on building the premier middle market investment bank.
14. **Education Specialist, Center for Teaching Excellence, Cornell University, Ithaca NY**
15. **Faculty Positions (Inflammation and Chronic Disease), Vaccine & Gene Therapy Institute of Florida, Port St Lucie FL.** The Vaccine & Gene Therapy Institute of Florida (VGTI Florida) is seeking to recruit outstanding immunologists to direct programs in basic and translational human immunology.
16. **Faculty Positions (Viral Immunopathogenesis), Vaccine & Gene Therapy Institute of Florida, Port St Lucie FL.** Priority areas of research include immunopathogenesis of emerging viral pathogens including influenza and flaviviruses, vaccine development, adjuvants, and inflammation.

17. **Program Director (Cancer Epidemiology Cohort and Consortia Coordination), National Cancer Institute, Bethesda MD.**
18. **Program Director (Clinical and Translational Epidemiology), National Cancer Institute, Bethesda MD.**
19. **Program Director (Computational and Data Journalism), Columbia University, New York NY.**
20. **Senior Scientist II (Immunology), AbbVie, San Francisco Bay Area CA.** AbbVie is a global, research-based biopharmaceutical company formed in 2013 following separation from Abbott.
21. **STEM Center Director, Oregon State University, Corvallis OR.** The Center was established in 2012 with a mission to conduct research and development that leads to enhanced understanding of the processes that underlie how individuals become lifelong STEM learners, practitioners and researchers.
22. **CHARLOTTE NATURE MUSEUM NATURALIST-FULL TIME** Charlotte Nature Museum seeks Naturalist to plan, develop and conduct on site environmental education.

Yarbrough Winners 2013-2014

Fully Funded 2013-2014 Yarbrough Grant Proposals

Student	Institution	Faculty Advisor	Project Title
Jessical Avila	Nash Community College	David Beamer	Morphological Homoplasy Within Mountain
Hannah Billian	Warren Wilson College	Stephen Cartier	Analysis of Berberine and Hydrastine in Rhizomes of Goldenseal (<i>Hydrastis canadensis L.</i>) Grown in Varied Levels of Nitrogenated Soil
Sarah Dietrich	Warren Wilson College	Stephen Cartier	Synergistic Qualities of Goldenseal <i>Hydrastis canadensis</i> versus Bererine Isolate <i>in vitro</i>
Austin Patton	Warren Wilson College	JJ Apodaca	Isolation & Characterization of Polymorphic Microsatellite Loci in the Green Salamander <i>Aneides aeneus</i>

Partially Funded 2013-2014 Yarbrough Grant Proposals

Student	Institution	Faculty Advisor	Project Title
Michi Stewart-Nunez	Warren Wilson College	David Coffeey	Shining a Light on the Physics of Charge Transfer Within Organic Photovoltaics
Stephanie Williams	Warren Wilson College	JJ Apodaca	Analysis of Variation in Venom Within the Western NC Population of Timber Rattlesnakes
Todd Elliott	Warren Wilson College	Mark Brenner	Biodiversity Studies of Ectomycorrhizal Macrofundiy of the Guiana Shield

*Students will be presenting their work funded by the grant at the upcoming annual meeting.
Congratulations, recipients!*



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Check us out on the web!
<http://www.ncacadsci.org/home.html>

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.

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
- CANCAS 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

