Virginia Scientists

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"Virginia Scientists" is the official newsletter of the Virginia Academy of Science (VAS). This publication offers information for VAS members such as upcoming events, past events, scholarships/ awards information, accomplishments of VAS members and other timely information.

Editors:
Sujan Henkanaththegedara
Deborah Neely-Fisher

Inside this issue:

VJAS 80th Annual Meeting was a Big Success!

The Virginia Junior Academy of Science (VJAS) held it's 80th Annual Meeting and Research Symposium in a virtual format in May 2021. This year, the entire process was conducted online, from the research paper submission to oral presentation judging, with The College of William & Mary generously stepping up as the virtual host institution for the Research Symposium. During the Opening Ceremony and the George W. Jeffers Memorial Lecture, we had Dr. Joel S. Levine from the Department of Applied Science at The College of William & Mary speak to students and teachers on The Exploration of Mars and Return to the Moon. This was an exciting talk from Dr. Levine to kick off the VJAS Research Symposium. The very next day, students presented virtually in front of their peers and expert judges – even with minor technical challenges, both the students and judges showed resilience, and everyone was able to successfully present their research findings.

At the Awards Ceremony a week later, VJAS celebrated all the young scientists for their perseverance in conducting outstanding research projects during this unusual time. Of note, Lynn Tao from Thomas Jefferson High School and Ella Lewis from Central Virginia Governor's School won the Henry W. MacKenzie Environment and Frances and Sydney Lewis Environment Scholarships, respectively, awarded by the Virginia Environmental Endowment (VEE). In addition, VJAS awarded Meenakshi Ambati (Albemarle High School) and Cameron Sharma (Mills E. Godwin High School) the prestigious opportunity to attend the next American Junior Academy of Science Conference in February 2022. The alternate winners were Lynn Tao (Thomas Jefferson High School) and Brock Duma (Blacksburg High School). Finally, VJAS had the honor of recognizing the Virginia Department of Environmental Quality (DEQ) with the VJAS Scientific Community of Excellence Award.

As a closing note, the primary mission of the Junior Academy is to bring the best young minds of Virginia together to share research with their peers and to exchange ideas. Although there are competitive aspects, the Research Symposium shines as a .....*Cont'd. P6*

President's Message

Here we are, at the start of a new academic year. Unlike past years, this year seems strange; the initial shock of a new pandemic is past, and we are adjusting to the new normal of living with the reality of COVID-19. There is reason for hope amid all this uncertainty as new treatments and increased understanding of the virus are enabling us to finally gain some traction and sense of normalcy. As always, science marches on.

In that spirit, we are excited to have the Fall Undergraduate Research Meeting return to a live (i.e. in-person) format. We are cognizant of the realities of the current pandemic and appropriate precautions will be taken to ensure a safe meeting. However, being able to interact with students and hear about the exciting research they are conducting will be a welcome change from the last 18 months. Initial indications are this this will be our best-attended Fall meeting in recent memory, and I am anxious to see how this positively impacts the future of the Academy.

As they say, the only constant in life is change. This holds true for the Virginia Academy of Science as well, as we welcome new officers who have volunteered to serve the Academy. *...cont'd. P7*

Michael S. Price
President, VAS

VAS 2022 Annual Meeting at University of Richmond

This coming Spring, the Virginia Academy of Science will begin its Centennial year with our Annual Meeting at the University of Richmond in May, 2022. This one-hundredth meeting of the Academy promises to be a wonderful celebration of scientific inquiry and student engagement in research. As usual, the Virginia Junior Academy of Science will meet jointly with the Senior Academy, celebrating their eighty-second meeting of the VJAS. Information on exact dates and schedule are forthcoming, so please be on the lookout for that information and plan to attend!

The Fall Undergraduate Meeting of the Virginia Academy of Science will be held on October 30, 2021, at Hampden-Sydney College in Farmville, VA. This meeting will be in-person with appropriate precautions for the ongoing COVID-19 pandemic. It is already apparent that there is a pent-up excitement to meet and share their research by the undergraduates at the focus of this meeting, as the number of registrants greatly exceeds those of recent Fall meetings. It promises to be an exciting time, and a wonderful lead-in for the Centennial meeting this Spring! Hope to see you there!

Submitted by **Michael S. Price**

Professor of Microbiology, Liberty University
President, Virginia Academy of Science

2021 Fall Undergraduate Research Meeting at Hampden-Sydney College

After a year of virtual meetings, the Virginia Academy is excited to get back together at Hampden-Sydney College on October 30 for the annual Fall Undergraduate Research Meeting. There are a record 56 posters from 11 unique institutions to be presented at this meeting as students compete for one of nine $750 research grants in support of their continued work. The winning students will present their completed work in May 2022 at the Academy's meeting at the University of Richmond. The Fall meeting will also feature a keynote address from Dr. Jeremy Hoffman of Virginia Commonwealth University and the Science Museum of Virginia, a leading scientist in the field of heat mapping. Students will hear from scientists across several different fields in a career panel as well as take part in 5-minute "lightning talks" from representatives of each participating institution.

Submitted by **Michael Wolyniak**

Associate Professor of Biology, Hampden-Sydney College
Past President, VAS

Virginia Scientist in the Spotlight

"Virginia Scientist in the Spotlight" series introduces scientists in Virginia covering various scientific disciplines. Our guest scientist for this issue is:

Michael Wolyniak

Affiliation: McGavacks Associate Professor of Biology, Hampden-Sydney College, Farmville, Virginia

Education: B.A. in Biology, Colgate University, 1998; Ph.D.in Genetics, Cornell University, 2004; postdoctoral training, Geisel School of Medicine at Dartmouth, 2004-09.

Your teaching/classes? I teach mostly courses in molecular biology and genetics, but also teach in our general biology survey course. I also contribute to Hampden-Sydney's core curriculum by regularly offering a course in Bioethics and sections of the College's Western Culture required course.

Your research? Past and current projects? My work looks at an array of topics revolving around gene expression. Most recently, I have worked with Three Roads Brewing in Farmville to develop student projects that challenge them to modify genes in budding yeast (Saccharomyces cerevisiae) to create new strains that would have desirable traits for beermaking. I have also taken a strong interest in the scholarship of teaching and learning with an emphasis on understanding how to best incorporate authentic research experiences into classes.

Notable work/publications? Along with colleagues from several other schools, I just received an NSF grant designed to help undergraduate instructors develop the resources to effectively teach CRISPR-Cas9 gene editing technology to their students. I have also become a part of the Partnership for Life Science Education (PULSE) Network, which is dedicated to promoting life science education reform at a department level. This opportunity allows me to be a part of several different institutional reform efforts across the country.

Hobbies? Reading, politics, fitness

Advise for students? Failure is normal in science and persistence is more important than intelligence. If you enjoy doing science, expect failure but grow from failure, because it is that persistence that allows you to learn, to adjust, and ultimately to succeed.

Advise for peers? Keep fighting the good fight for work/life balance. It can be VERY hard to say "no" and very easy for your professional life to take over your entire life. Ultimately, realize what is important and work to give yourself the chance to pursue what you love.

When did you join VAS? I joined VAS when I first came to Virginia in 2010.

Your Role in VAS? I am the Immediate Past President of VAS and the current Chair of the Science Education Committee

Something "cool" about you? I am the owner of an English bulldog puppy that takes up the majority of my free time.

"Failure is normal in science and persistence is more important than intelligence."

- Michael Wolyniak

Rafat Siddiqui: Recipient of Rising Star at the Virginia State

Dr. Rafat Siddiqui received the "Outstanding Faculty-Rising Star Award" during the opening ceremony of the Academic year 2021-2022 for his extraordinary, exemplary performance as a tenure-track faculty at VSU. Dr. Siddiqui joined VSU in October 2015 in the College of Agriculture and began his research in Nutrition Science. During the last 5 years, he supervised 10 graduate students for a Master's thesis, 16 graduate students for 6 weeks of research rotations, 7 students for undergraduate research projects, and 5 dietetics students for a nutrition research internship.

He has published 17 manuscripts in peer-reviewed scientific journals (7 publications directly from research performed at VSU, 3 invited publications from work at VSU, and 7 publications as a collaborative author from work done at other institutes), 37 non-referred articles as abstracts for poster or oral presentations, edited 2 books and contributed for one book chapter. According to Goggle Scholar, Dr. Siddiqui has an H index of 42 with more than 5800 citations to his research work, the highest at VSU.

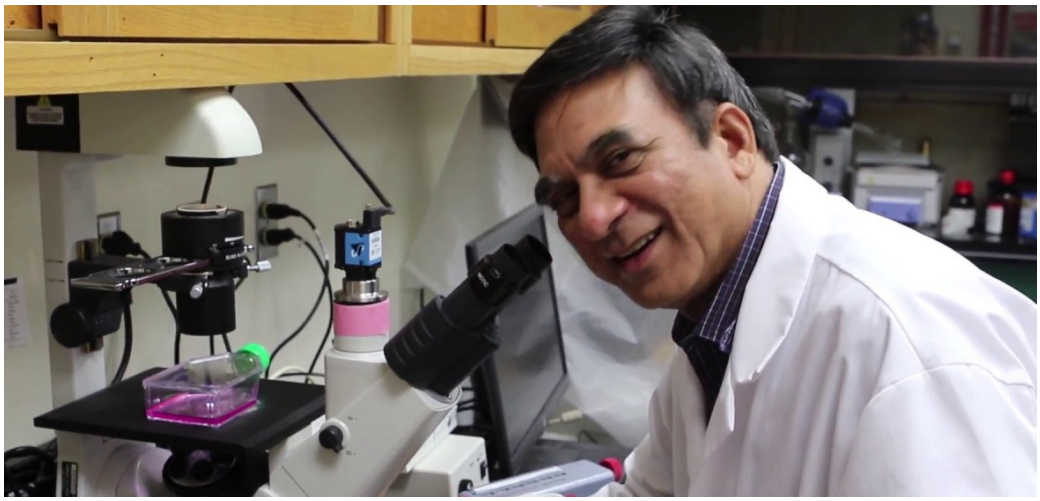
Dr. Siddiqui earned his BSc and MSc degrees in Biochemistry from the University of Karachi in Karachi, Pakistan. He obtained his Ph.D. from the Australian National University in Canberra, Australia. Dr. Siddiqui served as a postdoctoral fellow at Massey University in Palmerton North, New Zealand. He immigrated to America in 1989 and worked as a Howard Hughes Research Fellow at Vanderbilt University Medical Center in Nashville. Dr. Siddiqui began his work as a researcher at Methodist Hospital in 1993 and served as Director of Cellular Biochemistry and Lipid Biology programs from 2000 – 2015.

He is an internationally recognized expert in nutrition in many areas, including cancer, cardiovascular disease, inflammation, and neuroscience. He has published over 120 scientific papers in peer-reviewed journals and has written several invited review articles, book chapters, commentaries, and editorials on emerging issues. He has been invited as a keynote speaker at several national and international conferences.

Dr. Siddiqui's research has been supported by funding from the National Institutes of Health (NCI), United States Department of Agriculture (USDA), the American Heart Association (AHA), the Showalter Foundation, the Clinical and Translational Sciences Institute (CTSI, Indiana), and pharmaceutical companies including Baxter and Abbott Laboratories.

Dr. Siddiqui's research has been featured on the BBC, FOX TV, and WTHR broadcasts and in the Sun, Telegraph, Indianapolis Star newspapers, and several other media outlets. He has served on the editorial board of numerous journals, including the British Journal of Nutrition and Nutrients. His recent work focuses on the health benefits of green papaya, pomegranate, plums, ginger, and turmeric extracts.

At present, Dr. Siddiqui's research interests are in the area of cancer, inflammation, and cardiovascular diseases. His research emphasis is on the synergistic modulation of chronic diseases by a combination of nutrients and drugs. More recently, Dr. Siddiqui was awarded tenure and promoted to full Professor in the Agricultural Research Station at VSU and received funding from a Capacity Building Grant from USDA, an Innovation award from VSU, and a P20 award from NIH.



Virginia BioBlitz reports nearly 1.5 million observations covering more than 15,000 species from Virginia becoming one of the largest state species repositories in the nation. Scan this QR code to learn more!

SCAN ME

Flora of Virginia Update

With the 1923 founding of the Virginia Academy of Science and the subsequent 1926 establishment of the Academy's Virginia Flora Committee, the door was opened that led to the development and publishing of the modern Flora of Virginia.

The primary mission of the Academy's Flora Committee was to "promote the study of and publications of the flora and vegetation of Virginia." There were important steps taken towards realizing this mission through the years. Over the next seventy-five years a number of Academy members and their graduate students conducted floristic studies of many areas in Virginia with the goal of producing a flora for Virginia. In 1930, the Flora of Richmond and Vicinity by Paul Merriman was published by the Academy. In 1970, Alton Harvill, active in the Botany Section and the Flora Committee, published Spring Flora of Virginia and in 1977 with Academy support published Part 1 of the Atlas of the Virginia Flora. Harvill then organized the Virginia Botanical Associates which published subsequent editions of the Atlas through the early 1990s. This Atlas, essential to the development of a flora for Virginia, is now in digital format. All of these accomplishments laid the foundation for a modern flora for Virginia.

In 1999, with support of the Academy's Flora Committee, chaired by Rex Baird, and the Academy, a Small Project Grant was provided to assess the feasibility of developing a modern flora for Virginia. In August 2001, with the support of funding from the Academy and other partners, the Foundation of the Flora of Virginia Project (FFVP) or Flora Project was established. In 2002, the Academy supported a symposium on the Flora of Virginia Project, which brought further attention to the endeavor.

The Flora Project's mission has always been "to inspire conservation of Virginia's native flora through education, outreach, and production of the Flora of Virginia, in print and electronic formats." This goal was achieved with the support and generosity of the Virginia Academy of Science along with other partnerships when the Flora of Virginia manual was published in 2012, and in 2017 with the release of the electronic version of the Flora of Virginia as an App. The Flora App had a major update in 2020 to keep the science current. The financial and other support from the Academy and Fellows has been instrumental in the Flora Project publishing the Flora of Virginia manual as well as developing the Flora App.

To fulfill the Flora Project's mission of education and outreach efforts, several of the members of the FFVP board gave presentations, taught workshops, and presented papers at Academy annual meetings. To further the education and outreach mission, a Flora Education Committee was appointed by the Flora Project Board. Earlier this year that committee developed and recorded seven educational ... contd. P7

The Flora Project's mission has always been "to inspire conservation of Virginia's native flora through education, outreach, and production of the Flora of Virginia, in print and electronic formats."

In "A Tour of the Flora," Marion Lobstein traces the development of Virginia floras from 1762's *Flora Virginica* (99.99% in Latin!) to the Flora of Virginia (2012) and the Flora of Virginia Mobile App (2017, with a major update in 2020). These modules are a milestone of the Flora Project's education and outreach mission.

VJAS 80th Annual Meeting was a Big Success! *Contd. from P1*

conference where students from all backgrounds across the state gather to brainstorm about how best to solve the next set of challenges we face as a collective society.

Please join us next year (as a student and/or school participant, a judge, a contributor, or a volunteer) at the 81st Annual Meeting and Research Symposium of the Virginia Junior Academy of Science. The College of William & Mary will be hosting the virtual event again. There are also many ways to be involved with the Junior Academy of Science. Please reach out to anyone below or visit us at www.vjas.org.

Submitted by
Se Jeong, VJAS Committee Chair, swj3af@virginia.edu
Susan Booth, VJAS Director, susan.science@gmail.com

University of Richmond Biologist Eugene Maurakis Awarded NSF Grant for Documentary Focusing on Freshwater Fish Research

Eugene Maurakis, an evolutionary biologist who specializes in environmental sciences, has received more than $200K in grant support from the National Science Foundation for research on freshwater fishes in Virginia.

This research investigates breeding behaviors and selfish herd theory of nest-building freshwater fishes, an understudied ecological community. Studying nest-building fishes can provide the basis for environmental policy and monitoring and assessment tools for stream ecosystems. The research can also determine how these fishes influence other species.

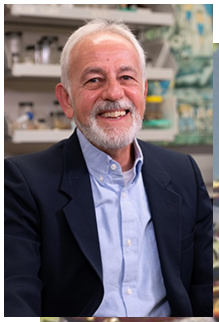
This four-year project, a collaboration with Virginia Tech's Departments of Fish and Wildlife Conservation and Civil and Environmental Engineering, specifically studies selfish parental care of egg and larvae in mixed-species communal nest-breeding freshwater fishes with a focus on sharing information with the general public.

"This project includes a diverse and interdisciplinary team of engineers and biologists," Maurakis said. "We will produce a natural history documentary grounded in science, yet interpreted with art, dance, animations, and music, so the general public has multiple ways of understanding science content."

"The documentary component is especially important as access to videos for teaching has taken on increased importance as field labs navigate the pandemic," Maurakis added.

Maurakis is a visiting research scientist in the Department of Biology and adjunct professor of liberal arts in the School of Professional & Continuing Studies.

He also serves as science advisor for Virginia Public Media and Chief Scientist Emeritus of Science Museum of Virginia He received both his bachelor's and master's degrees from the University of Richmond and completed his Ph.D. at The George Washington University.



Online Vaccine Educational Research Study

What is this study about?
Researchers from Georgetown University Medical Center and Hampden-Sydney College are conducting this study to help young people learn more about vaccines-what they are, what they do, and how they can help prevent diseases.

This research study has been approved by the Hampden-Sydney College Institutional Review Board (IRB) and is designed to find out if 10th grade students will learn new information after watching educational videos about vaccines.

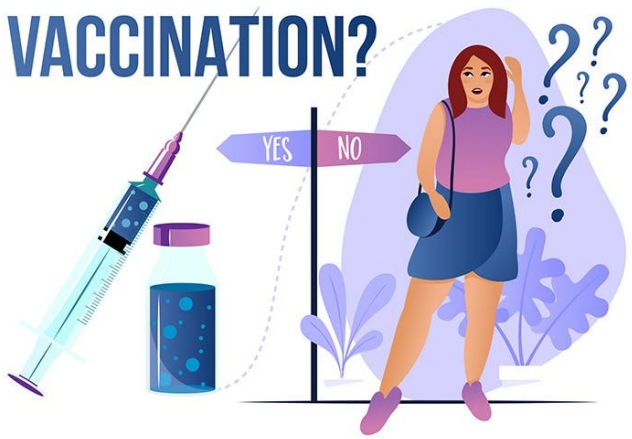
Who can participate?
This study is open to any 10th grade student in the Virginia public school systems with access to a computer or mobile device with internet capability.

What will you need to do if you decide to participate?
It will take about 80-90 minutes to complete the study. Participants will be asked to:
• Complete a brief survey with 16 multiple choice questions (10 minutes).
• Watch some educational videos. One group will watch some educational videos about vaccines. The other group will watch educational videos about the biology of cells. This will take about 60 minutes.
• Complete another brief survey with 20-25 multiple choice questions (10-15 minutes) after watching the videos.

One of the student's parents will need to give permission first and then the student will also need to sign a form agreeing to be involved in this study.

What will you get for participating?
All participants will have the opportunity to view the vaccine videos which contain important information about vaccines.
Participants who successfully complete the study will receive a check for $40 for contributing their time to this research.

What if you have any questions?
If you are interested in participating or have any questions, please contact Dr. Edward Lewin's research team at mwolyniak@hsc.edu



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President's Message *Contd. from P1*

No organization like ours can run without the faithful service of its members, and I am very grateful to all those who have stepped up to guide the Academy for the next year. Additionally, we are working hard to add to our ranks and engage even more professionals to foster partnerships and collaborations among academia, government, and industry.

And this is an important year as well, as the Virginia Academy of Science will celebrate its 100th Annual Meeting in May, 2022. The initial meeting of the Virginia Academy of Science was held at the College of William and Mary on April 26-27, 1923. The initial 135 attendees set the direction of our Academy as outlined in our Constitution, which we have done our best to faithfully uphold for the last ten decades by encouraging young scientists to inquire and explore with support from the Academy. Recent initiatives such as the Virginia BioBlitz have been a huge success, with students of all ages participating to record observations of over 15,000 species of flora and fauna in Virginia.

As we approach the beginning of our 100th year, the Virginia Academy of Science is poised to do even more great things to advance STEM in the Commonwealth. By continually supporting the Virginia Junior Academy of Science, we help to instill an awe of the natural world in our youth that we hope leads to further engagement. With increasing membership, solid financial footing, and advanced technological capabilities, the future of the Virginia Academy of Science is bright indeed. To the past and current members of the Academy, thank you for all you have done to promote STEM in Virginia. I ask all those not yet joined with us to accept our invitation to join with us as we enter the next 100 years, continuing to promote science in the Commonwealth.

Submitted by **Michael S. Price**

Professor of Microbiology, Liberty University
President, Virginia Academy of Science

VAS Centennial Celebration

The Virginia Academy of Science held its first official meeting in April 1923, at the College of William & Mary. The Academy is making plans for a Centennial Celebration, with many actions taking place in 2022, as we move toward a celebration at The College of William & Mary in the Spring of 2023.

The preparations for this celebration have begun and President Michael Wolyniak appointed Richard Groover to be the Centennial Committee Chairperson. A Centennial Committee held its first meeting in January 2021, giving the Academy a great deal of time to develop ideas and planning before the celebrations become public.

Yet Yet to be confirmed, events for the Centennial may include recognition of outstanding scientists who are or have been members of the Academy, recorded testimonials from famous individuals, and a special event, with invited dignitaries, honoring Presidents and Fellows of the Academy.

The Centennial Planning Committee is exploring special historical recognition for the creation of the Science Museum of Virginia, the establishment of the Virginia Junior Academy of Science, and development and support for the publication of The Flora of Virginia. This event will include highlighting participation and support in the creation of the Virginia State Park's System and the Scopes Monkey Trial. Special fundraising events will coincide with the Centennial.

The Centennial Committee ZOOM meetings take place once every other month, if you are interested in attending these meetings please contact;

Richard Groover at rgroover@reynolds.edu

Flora of Virginia Update *Contd. from P5.*

video modules. This series of videos modules breaks down the wealth of information and various features of the Flora of Virginia manual and its App into concise but simplified presentations. The videos are suitable for a wide range of audiences and have the option of closed-captioning available. The following is a list of the titles of the video modules: Tour of the Flora of Virginia, How to Use the Flora App, Basic Botany, Taxonomy, Keying, Plant Families, and Habitats. While each presentation stands alone, the series provides a comprehensive approach to understanding and using the Flora, and the Flora App. Each video presentation is about an hour long and divided into sections. Timestamps and descriptions allow viewers to navigate to specific topics or sections of interest.

Live links provide additional resources. Presenters included Flora Board Education Committee members Marion Lobstein, Sally Anderson, Michelle Prysby, Jan Hodges, Ann Regn, and guest Linda Wilcox. Mark Murphy, the Virginia Native Plant Society's webmaster, recorded, edited, and posted the video modules on both the Flora of Virginia Project's website, https://floraofvirginia.org/ and the Virginia Native Plant Society's website, https://vimeo.com/showcase/8814177 and https://vnps.org/my-journey-with-the-flora-of-virginia/.

Over the last twenty years, I have had the honor to be involved in establishing and serving on the first and second FFVP boards of directors and vice president of the second board. The third decade of the Flora of Virginia Project has now begun with a new Board of Directors. Three members of the second board, Chris Ludwig, Sally Anderson, and Ann Regn, are continuing to serve on the third board. Of the nine new members, three are active members of the Virginia Academy of Science. These are Conley McMullen, former VAS president who is an Academy Fellow and active in the Botany Section and the Virginia Flora Committee, as well as Andrea Weeks and Jordan Metzger who are both active in the Botany Section of the Academy. The other six new members are Caitlin Cyrus, Irvine Wilson, Ryan Huish, Ashley Moulton, Joey Thompson, and Eli Wright.

The Flora of Virginia Project moves into its next decade in very capable hands, and the partnership with the Virginia Academy of Science will play a vital role in the future of the Flora Project.

Submitted by **Marion Lobstein**

From Stream Invertebrates to Protected Crayfish:
Dinwiddie High - Longwood Research Collaboration Brings Invaluable Experience to High School Students

In the fall of 2019 the Science Education Committee launched a new initiative in K-12 classrooms with the intent of connecting classroom teachers and students with science professionals to conduct authentic scientific research. At Dinwiddie High School that initiative brought together Mr. William Kissner, an environmental science teacher and Dr. Sujan Henkanaththegedara, a conservation biologist at Longwood University. The mentorship began with initial project meetings between Dr. Henkanaththegedara and Mr. Kissner in late September of 2019 at Longwood University to discuss research opportunities, logistics of research, and student involvement. After the recruitment of high school student researchers, research opportunities were presented and a project was decided on, based on student interest.

Dr. Sujan Henkanaththegedara (left) and Mr. William Kissner (second from left) continue their research with college and high school student researchers.

The research students at Dinwiddie High School decided to investigate whether Stony Creek, in Dinwiddie, VA, had recovered from a point source organic pollutant which had severely degraded the biodiversity of Stony Creek. Along with guidance from Dr. Henkanaththegedara and Mr. Kissner, students organized field investigations where they sampled aquatic macroinvertebrates in order to assess the water quality of Stony Creek. In December of 2019 the project was up and running with field investigations occurring twice a month. The project progressed up until March of 2020, when all public schools were closed due to the COVID-19 pandemic. During this time research was put on hold and two of the three research students graduated from Dinwiddie High School and moved on to pursue undergraduate degrees. When public schools reopened in a virtual setting for the 2020-2021 school year the research was resumed with a single remaining research student, Jenna Beville.

Ms. Beville agreed to complete the research project and bring it to the Virginia Junior Academy of Science's Annual meeting. Starting in November and ending in late April, numerous ZOOM meetings were held to work towards the goal of finalizing the research and constructing a paper to submit at the VJAS annual meeting. During this time period the student worked tirelessly to put together an authentic research paper entitled "A Preliminary Assessment of the Recovery of Stony Creek from Pollution Using Aquatic Macroinvertebrates" that presented the findings of the research at the VJAS annual meeting. The research project conducted by Ms. Beville was selected for presentation by science professionals across the state of Virginia at the VJAS annual meeting. Mr. Kissner added "In my 15 years of science education I have never been more proud of a student and their work."

The obstacles that were overcome by Ms. Beville due to the COVID-19 pandemic are a testament to her dedication, hard work, and determination. The experience that was gained from conducting research and participating in the VJAS annual meeting, were "invaluable". Currently, Ms. Beville is pursuing her bachelor's degree in Environmental Sciences at Virginia Tech and finishing her manuscript to be submitted to the Virginia Journal of Science.

"I, as an environmental science teacher and first time mentor to a student presenting at VJAS, gained experiences that I will soon not forget. I would like to thank the Virginia Academy of Science for implementing this initiative that brought Dr. Henkanaththegedara and I together. Dr. Henkanaththegedara's knowledge and expertise provided me the opportunity to learn and grow as I worked alongside him" concluded Mr. Kissner.

Currently, Mr. Kissner and his high school research students collaborate with Dr. Henknaththegedara's research team to study the Ecology and Life-history of state protected Chowanoke crayfish.

Dinwiddie High Environmental Science teacher Mr. William Kissner (right) poses for a photo with his research students, Jenna Beville (right) © Sujan Henkanaththegedara

Submitted by **William Kissner**
Environmental Science Teacher
Dinwiddie High School

You can learn more about the latest research on protected Chowanoke crayfish by scanning this QR code.

SCAN ME

In Memory of Rex Baird

J. Rex Baird, known as Rex, passed away on December 13, 2020, at his home in Hillsboro, NC. Rex was an active member of the Academy during his 32 years as Professor of Biology at the University of Virginia-Wise as well as several years after his retirement as Professor Emeritus. He was active in the Botany Section and the Virginia Flora Committee and played an important role in setting the stage for the establishment of the Foundation of the Flora of Virginia Project or Flora Project by supporting early grant applications and acting as the temporary treasurer.

Additionally, Rex served as an advisor to the Flora Project. In the Botany Section Rex brought a smile and humor to the meetings. His love of the teaching and exploring the flora of southwestern Virginia carried on after his retirement. I had the pleasure of visiting Rex and his lovely wife Sally on several occasions after his retirement and he enjoyed sharing some of his favorite botanical spots with me. Rex was a gentleman and a scholar, always generous in sharing his knowledge and friendship.

On October 05, 2021, a Celebration of Life service for Rex who passed away on December 13, 2020, was held at the Sandridge Science Center Atrium on the campus of UVA-Wise. The UVA-Wise herbarium has been named the J. Rex Baird Herbarium in his honor. He is deeply missed by his family and his friends and colleagues of the Academy.

His obituary can be viewed at https://www.clementsfuneralservice.com/obituaries/James-Rex-Baird?obId=19274433.

Submitted by **Marion Lobstein**

(Photo: Rex at Maple Gap in 2007 © Marion Lobstein)

Virginia Academy of Science New Research Mentoring Initiative

The Virginia Academy of Science has launched an effort in recent years to promote learning science by doing science in the Commonwealth's middle and high school classrooms. We have sponsored a mentorship initiative that matches classrooms with one or more mentors to guide students through the design and implementation of a long-term research project.

We are looking to recruit both mentors (undergraduates, grad students, postdocs, instructors, scientists, etc.) and high school teachers who would like their students to participate in a virtually-driven long-term research project. We have partnered with the Virginia Junior Academy of Science (www.vjas.org) in this endeavor in the hopes that this project will encourage participation in their 2022 Annual Research Symposium and give students the juried research experience necessary to earn the Virginia Department of Education's new Seal for Excellence in Science and the Environment on their diploma. Mentorships may be in-person, virtual, or hybrid, and we would like to offer middle and high school instructors the opportunity to either do a project of local interest or to participate in a "Citizen Science" type initiative in which their class will work with others across the Commonwealth and (sometimes) the nation in the collection and analysis of data.

I am excited for this model since it should allow a greater level of participation with geography and distance not being limiting factors. If you are interested in serving as a mentor in this project, please fill out the form found at: https://secure4.hsc.edu/forms/view.php?id=117158

If you are a high school teacher with an interest in having a mentor work with your class, please fill out the form found at: https://secure4.hsc.edu/forms/view.php?id=116443

Please do not hesitate to contact me with any questions you may have, and please pass this announcement along to any other contacts you think may wish to participate. Thank you for your consideration of this opportunity!

Submitted by **Michael J. Wolyniak** McGavacks Associate Professor of Biology, Hampden-Sydney College

Virginia Junior Academy of Science Virtual Symposium May 13-14, 2022

1. What Is the Virginia Junior Academy of Science (VJAS)?
VJAS is a STEM competition and symposium for 7-12 grade students. Over 600 students participate annually in more than thirty categories such as botany, engineering, environmental and earth science, mathematics and statistics, and medicine and health.
Middle and senior high students participate in separate categories. The 2022 VJAS Virtual Symposium will be held May 13-14, 2022.

2. How Do Students Participate?
Students complete individual or team projects which are supervised by a teacher, mentor or parent. A school or individual joins the Virginia Junior Academy of Science. The student(s) submit a formal research paper by March 2.

3. How Are Students Selected?
STEM Readers review and score projects using criteria which are applicable to all STEM disciplines. Readers recommend projects for the symposium and the projects are ranked in the various categories. Selected students are invited to present at the May 14 Virtual Symposium, held in connection with the College of William & Mary. All students receive feedback from the STEM Readers.

4. How Are Students Judged at the VJAS Symposium?
Students make a presentation. STEM Judges score the research paper, presentation and responses to questions. Category winners are selected with first, second, third and honorable mentions awarded. The first place category winners become eligible for over twenty-five honor awards and scholarships. Two students, or teams, are selected to attend the American Junior Academy of Science. The project abstracts and first place papers are published in the VJAS Symposium Proceedings. All presenters receive feedback from the judges.

5. How Do Students Benefit from VJAS?
Students have increased understanding of Virginia's Standards of Learning (SOL) for STEM subjects. They use creative and critical thinking skills and develop technical reading, writing and presentation skills. Students obtain an enhanced understanding of careers by interacting with STEM professionals, participating in symposium lectures, and visiting university campus and research laboratories. In addition, students can develop citizenship skills by serving as a VJAS officer and/or volunteering at the symposium. Students can use feedback from STEM Readers and Judges to improve future research.

6. How Can I Obtain Support for Student Research? Learn More?
The Virginia Academy of Science (VAS) supports student research by providing mentors for teachers. VJAS Student Officers, or a prior VJAS presenter, can mentor a beginning researcher. Experienced teachers within a division are a valuable resource for teachers beginning to involve students with VJAS.

To learn more, visit the Virginia Junior Academy of Science website (http://vjas.org). Be inspired by images from prior symposia, abstracts and papers in the VJAS Symposium Proceedings, and the student publication, The Voice. Learn details by reviewing the VJAS Handbook and by contacting the VJAS Leadership Team.

Submitted by **Julia H. Cothron**
VJAS Representative to VAST Board

Updated Institutional Membership Guidelines

The Virginia Academy of Science recently passed new guidelines for Institutional Membership. These new guidelines are intended to encourage more institutions to support the Virginia Academy of Science through institutional membership and also to provide more benefits to institutional members. These changes to the by-laws were approved at the Spring 2020 Council meeting. Institutional and Business Membership is available to colleges/universities, businesses, and industrial organizations.

Benefits included with institutional membership include:
• Listing on VAS webpage page as an Institutional Member (name, logo, and live link to webpage for Institutional Members)
• Acknowledgement (name/logo of Institutional Members listed) and one-page Ad in Virginia Academy of Science Program (Annual Meeting program) and in the VJAS Blue Book
• A complimentary subscription to the Virginia Journal of Science
• Two complimentary registrations to the Annual Meeting

Free Student Memberships are also provided as part of the Institutional membership. The number of free student memberships is based on the selected Tier.
Tier 1– $570- 10 student memberships
Tier 2– $870- 20 student memberships
Tier 3– $1170- 30 student memberships

The Virginia Academy of Science welcomes Longwood University as a new Institutional member.

Please encourage your college/university, business, or industrial organization to join the Virginia Academy of Science as an Institutional Member.

Submitted by **Amorette Barber**
Associate Professor of Biology, Longwood University

Know your VAS logo

1. What is the flower depicted in the inner circle of the VAS Logo?

2. Who are the four famous Virginia Scientists listed in the middle ring of the Seal or Logo?

3. What is the Academy's Maxim?

Answers: *1. The flower is the Dogwood. It is in full bloom at the top of the seal and as a bud at the bottom of the seal. 2. The four famous scientists are Walter Reed, a physician, Matthew Fontaine Maury, an explorer and cartographer, John Clayton, a botanist, and Thomas Jefferson, an agriculturist and educator. 3. Of course everyone should get the last question correct , the maxim is "Ignorantia Supremus Tyrannus" Ignorance is the greatest tyrant.*

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VAS Office Hours:
Tuesday & Thursday ~11 am to ~1 pm

Newly Elected VAS Officers (2021-2022)

At the VAS's Annual Meeting each May, members of the Academy Council hold one of their three scheduled yearly meetings. New Academy officers and Council members take office at this time. As detailed in Article VII of the VAS Constitution, the Academy Council consists of the Academy's elected officers, an elected representative from each section, the three most recent presidents, standing committee chairs, directors of the VJAS and Visiting Scientist Program, and representatives to the Science Museum of Virginia, AAAS, and National Association of Academies of Science.

Congratulations to newly elected officers for 2021-2022!

Elected Officers	**Name**	**Contact Information**
President	Michael Price	msprice2@liberty.edu
President-Elect	Deborah Neely-Fisher	dneely-fisher@reynolds.edu
Vice President	Joseph D'Silva	jdsilva@nsu.edu
Secretary	Christopher Osgood	cosgood@odu.edu
Treasurer	Christopher Labosier	labosiercf@longwood.edu

The Council of the Virginia Academy of Science holds one of their three scheduled meetings at the conclusion of the Annual Meeting of VAS. At this time the newly elected officers of the Academy take their place on the Council, which is comprised of the President, the President-Elect, the Vice President, the Secretary, the Treasurer, the three most recent Past Presidents and one member elected by each Section of the Virginia Academy of Science as outlined in Article VII of the VAS Constitution.

The full list of council members including recent Past-Presidents, Directors, Section Council Representatives, Standing Committee Chairs, Ad Hoc/Special Committee Chairs, Editors, and Special Representatives can be found at the VAS web site at https://vacadsci.org/about-vas/current-members-of-council/

We Invite You to Contribute to *Virginia Scientists*

Virginia Scientists is the official newsletter of the Virginia Academy of Science (VAS). This publication offers information for VAS members, such as upcoming events, past events, scholarships/awards information, accomplishments of VAS members and other timely information. We electronically publish Virginia Scientists twice every year and circulate to all current members and academic institutions.

We would like to extend an invitation to you to submit articles to Virginia Scientists and/or use the advertising space. We are currently accepting articles for the next issue.

The length of the article should not exceed 500 words. Any exceptions must be get approved by the editors prior to submission. Please consider the following categories to submit.

- ***Member achievements*** – your publications, awards and other professional achievements related to science
- ***Upcoming events*** –information about educational and professional events
- ***Historical notes*** – articles related to history of science and scientists in Virginia, and VAS
- ***Summaries of scientific studies*** related to Virginia
- ***Advertisements*** (commercial events, products etc.)

If you have ideas beyond these categories and think it is suitable for publication here, please check with editors before you proceed. Article and any accompanying high-quality photographs must be electronically submitted to Sujan Henkanaththegedara (henkanaththegedarasm@longwood.edu).

If you would like more information about the advertising space, please contact Debbie Neely-Fisher (dneely-fisher@reynolds.edu).

Please let us know if you need more information and/or have any questions.

Sujan Henkanaththegedara
Deborah Neely-Fisher
Editors, Virginia Scientist