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## Monarch Science Observer, Volume 16

College of Sciences, Old Dominion University

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# Monarch Sciences Observer

SPRING 2023, VOLUME 16



## DISCOVER MONARCH RESEARCH

This spring ODU students and faculty embarked upon new experiences, research opportunities, and community engagement. Monarchs are changing lives, both regionally and globally.

**MAY GRADS: SCHOLARS, RESEARCHERS & CHANGE AGENTS**

**VIRGINIA STATE SCIENCE & ENGINEERING FAIR**

**TOP AWARDS FOR FACULTY, STAFF, AND STUDENTS**





# A MESSAGE FROM DEAN DODGE

The spring 2023 semester ended with two joyous graduation ceremonies on May 5 (graduate students) and May 6 (undergraduates). The weather was beautiful. The whole campus paused to honor the new graduates and celebrate their accomplishments.

In this newsletter you will have a chance to read about a few of our amazing students. I do not use the word “amazing” lightly. Our students are eager to change the world, dive deep into science, health, or other fields, and engage with the community. Their time in college was massively interrupted by COVID. They have demonstrated incredible resilience, some of them overcoming numerous hurdles just to enter college, let alone finish. I hope you will take the time to read their stories.

Interestingly, several themes emerge from the students’ comments. One is the importance of family and the influence of their parents. Early experiences had a big impact on them. Another is the importance of self-reliance. You will see that they have a great deal of passion for science, for the environment, and for community. You will read about three siblings, all graduating from ODU on the same day, who escaped the civil war in Yemen and adapted to a new home in Norfolk.

On April 15, ODU hosted the Virginia State Science and Engineering Fair (VSSEF) in-person at Chartway Arena. We hosted 224 students from around the state who had won local and regional competitions. The event was in person for the first time since 2019. It was a huge success and the students were excited to talk to the judges in person. The energy in the arena was tremendous. I am very grateful to the many faculty, staff, and students who made that and other outreach events over the past year possible.

I also want to thank our faculty who have worked so hard over the past year to teach, encourage, mentor, and support our students. Every student has a story about the faculty member who helped and inspired them. The faculty spend a lot of time and energy working with students in the classroom, in their office, in the lab, and in the field. These interactions, large and small, make a huge difference to the students.

Over the summer we will turn our attention to planning for the upcoming academic year. We will look for ways to help students start strong and stay engaged.

I hope you all have a wonderful summer. Thank you for your support of the College of Sciences!

Gail Dodge



## HEAD OF CLASS FINDS A PLACE OF BELONGING AT ODU

By Tiffany Whitfield



Photo: Ciara Covington, Psychology Major

Psychology Major Ciara Covington is the 2023 Outstanding University Scholar and College of Sciences Outstanding Scholar. She has maintained a 4.0 GPA throughout her educational experience at Old Dominion University. Even though ODU was not initially her first choice, Covington could not see herself anywhere else now that she has earned a Bachelor of Sciences as a high achieving graduate.

Coming from a military family, Covington was taught to work hard. Covington’s father served in the Army and was stationed in Germany when she was born. The Covington family was stationed in North Carolina and then Virginia. “I’ve been in Richmond pretty much my whole life from kindergarten,” said Covington. Her parents instilled a strong work ethic into Covington and her older brother. Her father said, “I need you all to go to school, get that education, and come back in and be proud,” said Covington. “And my mom was the same way, and because she’s an independent person, she didn’t want me or my brother to rely on anyone else to get somewhere in life.”

Self-reliance would help her during high school. Covington was one of five African Americans in the Center for Education and Human Development Specialty Center a rigorous program at Glen Allen High School. When it came to selecting a college to attend, she wanted a place where diversity matters. Read the full article [here](#).

## HER LOVE FOR ASTRONOMY LAUNCHED HER INTO ASTROPHYSICS & COMPUTER ENGINEERING

By Tiffany Whitfield

Virginia Beach native Alicia “Ali” Mand’s natural curiosity has made her a leader in science, technology, engineering and math at Old Dominion University. On May 6, 2023, Mand became the first in her family to earn a college degree. She chose to double major in astrophysics and computer engineering because of an affinity with astronomy that stemmed from her childhood.

Mand’s parents, both retired from the Navy, instilled two long-lasting characteristics in her. They pushed her to have a good work ethic, and they sparked her love for gazing at the planets.

“My dad used to take me out each weekend to go look at the stars, when I had my own telescope growing up, and ever since then I’ve been enthralled with astronomy and astrophysics,” Mand said. “I had one of the cheap telescopes you could buy from Wal-Mart, and we could only really see the moon with it.”

Nevertheless, the experience kindled Mand’s urge to discover the unknown. Read the full article [here](#).



Photo: Alicia “Ali” Mand, Astrophysics & Computer Engineering Double Major



# A HEART TO SERVE AND A DESIRE TO BECOME A DOCTOR



Photo: Antra Patel, Biomedical Sciences Major

By Tiffany Whitfield

Antra Patel had the unique opportunity to speak on May 6, 2023, at ODU's commencement. Patel is no stranger to seizing opportunities whether doing research, serving on ODU's Board of Visitors (BOV), or volunteering in multiple student organizations and in the community. Patel has made strides to set the stage for a career in the medical field while always having the compassion to help those in her community.

"During commencement I will provide brief remarks by giving a 'thank you' and an overview of my time here at ODU," said Patel. "I will recall a few moments to cherish and end by thanking the faculty, students, professors, mentors and the leaders of the university."

"We do not traditionally have student speakers at graduation; however due to my engagement and involvement within the community and my close-knit professional relationships and my time on the (ODU) board, I was granted this honor," said Patel.

Patel has served as a student representative on ODU's BOV for one year as a non-voting member. Her term lasted from May 6, 2022, to May 6, 2023. She was first made aware of the board during her sophomore year when she founded a student organization called Health Occupations for Students of America. Read the full article [here](#).

# A LOVE FOR THE EARTH FUELS HIS RESEARCH



Photo: Andrew Lindgren, OES Major

By Tiffany Whitfield

On May 6, 2023, Andrew Lindgren temporarily traded his mud and boat gear out for a diploma in Ocean & Earth Sciences with a concentration in geology from Old Dominion University. His innate love for nature and passion to protect natural environments has fueled him to study vigorously so he can help the next generation have pristine environments.

"There's a lot of ways that we are not treating the Earth well at all, and we're starting to see some really awful consequences of that," said Lindgren. "What has brought me here (to ODU) fundamentally is a love for these natural environments that we're uprooting and we're destroying in all sorts of ways and a desire to protect them and to save something beautiful for the next generation."

At first, science did not seem like the clear choice for Lindgren. Just after graduating from Centreville High School in Clifton, Virginia, he took a summer geology class at Northern Virginia Community College (NOVA). Originally, Lindgren planned to major in engineering at ODU. "I was generally impressed by ODU's engineering department," said Lindgren. "It seemed professional, competent and an up-and-coming program that was certainly more affordable than the other colleges I was considering."

However, once he started engineering classes, something was missing. "I felt like the person I was when I entered college and the person I was when I started at ODU were pretty different," said Lindgren. He remembered the way he felt when he took his first geology class at NOVA. "It really clicked with me, and that's where I fell in love with geology." Read the full article [here](#).

# THREE SIBLINGS FROM YEMEN GRADUATE TOGETHER

By David Simpson

On May 6, 2023, Fozi Alkaifi – only 19 years old – graduated from Old Dominion University with a Bachelor of Science in mathematics. That's notable in itself, but there's more. On the same day, his sister Seena, 21, a public health major, received her bachelor's from ODU. And so did their sister Sana, 24, who's studying psychology. That's right: The Alkaifi name will be announced no fewer than three times at S.B. Ballard Stadium.

"It's the Year of Graduation for the family!" Seena said with a laugh. They've been through a lot to get here. Through it all – fleeing civil war in Yemen, moving to America, adjusting to the culture, enrolling in new schools, finding academic paths, enduring COVID-19 shutdowns – they've drawn strength from a powerful source: one another. "Family is first," Fozi said. "Family is important."

In early 2015, warplanes fighting Houthi rebels in Yemen bombed the southwestern city of Taiz, where the Alkaifi family lived – five children and their mother. At the time, their father and oldest brother were out of the country.

The children felt the blast while playing with their cousins outside their grandfather's house, Fozi remembered. "We saw the smoke coming up, and I told all my cousins, 'Come in! Come in! Come in!' And they just started running up into the house. And you know, when a bomb occurs, the shaking of the house continues. When a bomb goes down, there's a couple of explosions, not just that one. It explodes, and then it explodes again and the house shakes." Read the full story [here](#).



Photo: (L-R) Seena Alkaifi, Sana Alkaifi and Fozi Alkaifi

# MATH PH.D. STUDENT EARNS FELLOWSHIP AT JEFFERSON LAB



Photo: Ronglong Fang, Applied Mathematics Doctoral Student

By Tiffany Whitfield

Old Dominion University Applied Mathematics doctoral student Ronglong Fang will apply his mathematics research skills to help further our understanding of the building blocks of matter in the Department of Energy. Fang was awarded a one-year research fellowship in the Electron-Ion Collider Center at the U.S. Department of Energy's Thomas Jefferson National Accelerator Facility (EIC Center at Jefferson Lab).

As one of six new researchers to be awarded this fellowship, Fang will develop a scalable algorithm to monitor online data for the Electron-Ion Collider with the goal of being able to do real-time, autonomous detector calibrations. During the next year, Fang and the other fellows will work to advance the science program and further the research of the EIC.

"I felt excited when I heard the news," said Fang. Being selected as a fellow means he will work alongside of Department of Energy (DOE) physicists and scientists while pursuing a Ph.D. in Computational Applied Mathematics at ODU. "Math can be applied and used in many fields," said Fang. At Jefferson Lab, Fang will monitor the data projected from a detector which is always changing, in order to develop algorithms for real-time, autonomous calibrations on the detector. He gets to do research alongside his ODU Advisor and Mathematics Professor Yuesheng Xu and under the joint supervision of Dr. Markus Diefenthaler of Jefferson Lab. Read the full story [here](#).



## ODU COMPUTER SCIENCE FACULTY LEAD MISINFORMATION PANEL



Photo: Computer Science faculty discussing disinformation

By Tiffany Whitfield and Muntabir Choudhury

Can you spot fake news on social media? Is the internet easily accessible for people with visual impairments or disabilities? Have you wondered how reliable digital preservation is or what about data mining impacts your web experience? These are only a few of the topics covered by Old Dominion University computer science faculty at a recent panel, “How are Misinformation and Disinformation Related to You?” The lively panel was held on February 23, 2023 at the Perry Library and as a hybrid event with viewers from all over the world who tuned in.

The ODU Computer Science panelists included six faculty with a wide range of expertise who included:

- Assistant Professor Jian Wu, Ph.D., is an expert in natural language processing and understanding.
- Assistant Professor Sampath Jayarathna, Ph.D., has expertise in data science and neuro-information retrieval.
- Professor Michele Weigle, Ph.D., studies web science, digital preservation and social media.
- Lecturer Faryaneh Poursardar, Ph.D., does research on computer human interaction.
- Assistant Professor Vikas Ashok, Ph.D., is an expert in accessible computing.
- Assistant Professor Yi He, Ph.D., has expertise in data mining and machine learning.

Read the full article [here](#).

## ODU BIOLOGY LECTURER EARNS GRANT TO HELP STUDENTS EXPLORE WILDLIFE



Photo: Julie Jo Walters, Biological Sciences Lecturer

By Tiffany Whitfield

The 2023 Virginia Wildlife Grant funded through the Department of Wildlife Resources (DWR) and the Wildlife Foundation of Virginia (WFV) has been awarded to Biological Sciences Lecturer Julie Jo Walters at Old Dominion University. This \$10,000 grant will help Walters to connect urban high school students with outdoor wildlife activities. Walters values the connections that can be made in the learning experience and is looking forward to imparting her knowledge of the outdoors to the next generation of scientists.

She was inspired to apply for this grant after conducting outreach activities for years at public schools in Portsmouth. “I have found an interest and a need to connect students with the natural world,” said Walters. “I am excited by the opportunity to show high school students the wonders of the natural world right in their own backyard and hope that this program will ignite that spark that directs them into their future.”

Out of the 110 submissions received, Walters was one of 14 to get funding. Her project is titled, “Increasing Participation of Local Title 1 High School Students in Wildlife Activities.” “I will start with the establishment of a Wildlife Club at Churchland High School in Portsmouth,” said Walters. “We will use this club to connect underrepresented students to the outdoors through guided walks on the school campus to explore the biodiversity found around the high school.” ODU biological sciences faculty and graduate students will play a vital role in the outreach of this grant. Read the full article [here](#).

## MEET THE 2023 RECIPIENTS COLLEGE OF SCIENCES AWARDS

Congratulations to the 2023 College of Sciences faculty, staff, and students who earned the following awards:

Above and Beyond Faculty Award - Terri Grant (Mathematics & Statistics)

Distinguished Teaching: Non-tenure Track - Elaine Murphy (Psychology)

Distinguished Teaching: Tenure Track - Yuan Zhang (Physics)

Distinguished Teaching: Adjunct - Courtney Mozo (Psychology)

Outstanding Undergraduate Research Mentor - Balsa Terzic (Physics)

M.S. Thesis Award - Samantha Fitzner (Psychology, Advisor: Matt Henson)

Lee Entsminger Dissertation Award - Jin Ren (Mathematics and Statistics, Advisor: Yuesheng Xu)

Outstanding Advisor - Suzanne Morrow (Psychology)

Distinguished Early Career Research - Sampath Jayarathna (Computer Science)

Distinguished Research - Pat Hatcher (Chemistry & Biochemistry)

Cheng Fund for Innovative Research - Lisa Shollenberger (Biological Sciences)

Outstanding Staff Member - six awards given this year: Danielle Achterfeld (Biological Sciences)

Team: Delicia Malin and Annette Guzman-Smith (Physics)

Leilanie Campos (Computer Science)

Peggy Kinard (Psychology)

Dana Schilling (OES)

“Please join me in congratulating our award winners,” said Gail Dodge, dean of ODU’s College of Sciences. “These honors represent an enormous amount of work and achievement. Thank you to all of you who have played a part in nominating your colleagues or students for these awards.” To view the list of winners from this year and previous years visit our [Faculty Awards website](#). The Dean’s Office hosted a College of Sciences Awards Ceremony and Reception on Tuesday April 25, at Mills Godwin Building 102 at 3:00 p.m.

## ODU & EVMS WORKING TO FORM NEW HEALTH SCIENCES CENTER



Photo: President Brian O. Hemphill, Ph.D. of ODU and President Alfred Abuhamad, M.D. of EVMS

Old Dominion University and Eastern Virginia Medical School have embarked upon an exciting mission – integrating the two institutions in order to create a brand new health sciences center in Hampton Roads.

Why join forces?

- EVMS and ODU share a strong history of collaboration.
- We are renowned experts in our respective disciplines.
- We share complementary cultures.
- We have proven track records of emphasizing diversity, equity, and inclusion.
- We are deeply committed to making our community a better place to live.
- The new center would be the largest in the Commonwealth in terms of both the number of health sciences programs offered and the number of students enrolled in those programs.

Leveraging the expertise at each institution allows us to offer stronger educational programs, resulting in a significant expansion of Virginia’s healthcare workforce and enhanced patient care. To learn more about the merger click [here](#).



# KUDOS TO ODU'S NEWEST 40 UNDER 40



The Old Dominion University Alumni Association has announced its [40 Under 40 Alumni Recognition Program Class of 2023](#). The honorees demonstrate the best in achievement and service. They include one alumnus who earned four degrees from ODU, four alumni who earned three ODU degrees and five more who hold two degrees from the University.

The Alumni Association started the recognition program in 2020 to honor graduates who “have achieved exceptional feats and have created an indelible legacy all before the age of 40.”

“Included in this year’s class are outstanding business leaders and developers, caregivers, educators, communicators and problem solvers, all of whom demonstrate a certain strength and dedication that has an impact locally, regionally and even globally,” said Krista Harrell ‘01, ‘03, ‘12, associate vice president for Alumni Relations.

**College of Sciences Members of the 2023 class are:**  
**Justin Brunelle, Ph.D. ‘08, ‘10, ‘16:** Chief Scientist, Software Engineering Innovation Center, The MITRE Corporation  
**Dave Royfe ‘07:** Senior Director, Automotive Product, Bose Corporation  
**Katherine Smith, Ph.D. ‘08, ‘09, ‘22:** Research Assistant Professor, Virginia Modeling, Analysis, + Simulation Center, ODU  
**Joshua Whitlinger ‘08:** Science Educator, Virginia Beach City Public Schools

# STELLAR HIGH SCHOOL STUDENTS COMPETE AT STEM STATE FAIR

By Tiffany Whitfield

When more than 200 students with scientific and engineering projects filled the Chartway Arena at the Ted Constant Convocation Center on April 15 for the 2023 Virginia State Science and Engineering Fair (VSSEF), energy filled the arena. Students from throughout the Commonwealth of Virginia presented their projects that showcased their aptitude in science, technology, engineering, and mathematics (STEM).

Old Dominion University was selected as the host site for the VSSEF in 2021, but due to the COVID-19 pandemic and restrictions, the 2022 competition was held virtually. This year was the first year since 2019 that students were in-person. Co-sponsors for the VSSEF include ODU’s College of Sciences, ODU’s Batten College of Engineering, Virginia Tech College of Science, Leidos and American Electric Power Foundation.

The 224 VSSEF high school competitors worked for months on their projects and had won their respective local and 11 regional fairs from all around Virginia to have the opportunity to face off for the coveted prizes. Students were inspired and motivated to create their projects based on personal experiences and their natural curiosity to explore subjects deeper.

High school competitors arrived at 7:30 a.m., to compete in category and special awards judging. There were 173 individual projects and 42 team projects that were judged. Each of the students showed off their analytical, research, design, and presentation skills in this highly competitive fair. Read the full story [here](#).



Photo: High school students from across Virginia competing during VSSEF

# ODU'S OCEAN BOWL: NEW NAME, SAME SYNERGY OF SCIENCE FOR HIGH SCHOOL STUDENTS



Photo: Group photo of students who participated in Ocean Bowl

By Tiffany Whitfield

A nearly three decades old competition, the Blue Crab Bowl, synergized with some of the brightest scientific minds from across the Commonwealth of Virginia faced off under a new consortium beginning in 2024 under the Center for Ocean Leadership at the University Corporation for Atmospheric Research (UCAR). This gap year meant that a national bowl would not be held in 2023 for high school competitors. However, Old Dominion University’s Department of Ocean & Earth Sciences (OES) faculty filled the gap and offered competing high schools an opportunity to face off meaning the bowl would go on in 2023 under a new name.

On February 25, 2023, this year’s competition was called the ODU Ocean Bowl, exclusively hosted by ODU’s OES faculty. High school competitors used the same format as the traditional Blue Crab Bowl with a buzzer-based competition of toss-up and bonus questions and written collaborative team challenge questions. Volunteers were welcomed to take part in this one-of-a-kind science bowl and serve as match officials and more on the day of the competition.

“In 2023, as the National Ocean Sciences Bowl (NOSB) reorganizes as part of UCAR and will not be supporting NOSB regional competitions, many of our faculty, staff, and students at ODU have enthusiastically stepped forward to fill the void by offering the 2023 ODU Ocean Bowl,” said Bill Dunn, ODU’s regional coordinator, and a former Blue Crab Bowl coach. “Their efforts will allow us to continue this annual event that is a high point for many high school students, many of whom enroll at ODU!” Read the full story [here](#).

# MONARCHS ON YOUTUBE



Click [here](#) to watch the YouTube video of Danielle Dundas a biochemistry major at ODU. See how she uses her love for the game of Lacrosse and science to achieve her goals.



Click [here](#) to meet Heather Sheffey, an Ocean & Earth Sciences graduate student. She studies microplastics and their effects on coral.



Click [here](#) to watch the YouTube video of Professor Sebastian Kuhn, Ph.D. He has always been in awe of physics and believes it can reveal a lot about the world about us.



# DISCOVER MONARCH SCIENCE



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