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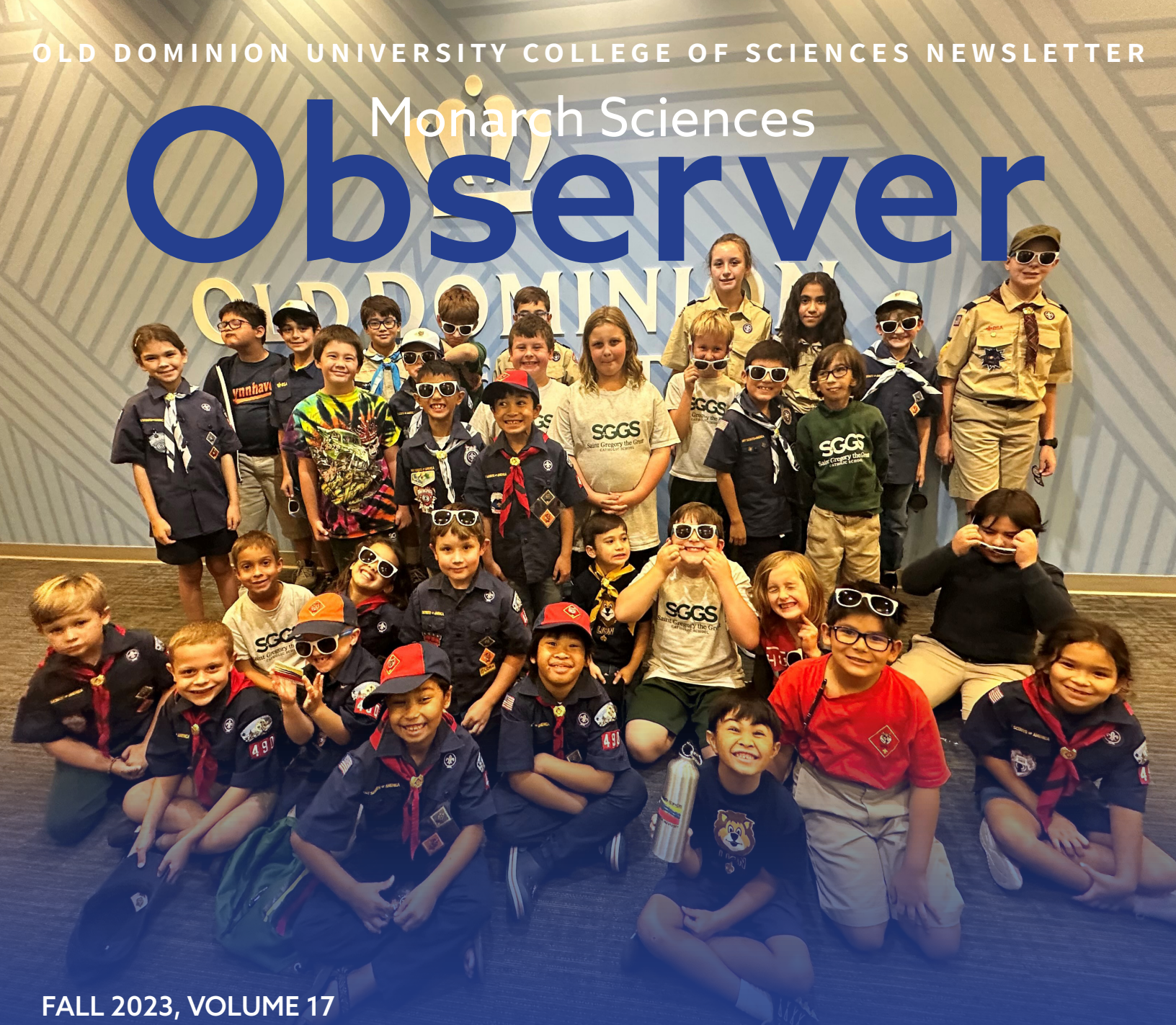
College of Sciences, Old Dominion University

OLD DOMINION UNIVERSITY COLLEGE OF SCIENCES NEWSLETTER

Monarch Sciences

Observer



FALL 2023, VOLUME 17

MONARCHS CARE FOR COMMUNITY

This fall ODU students and faculty are engaging with the community through their research and outreach activities, changing lives regionally and globally.

MONARCH UNDERGRADUATES ARE RESILIENT

MONARCHS BRING SCIENCE TO CHILDREN

STUDENTS AND FACULTY PURSUE RESEARCH OPPORTUNITIES

OLD DOMINION UNIVERSITY
College of Sciences

A MESSAGE FROM DEAN DODGE

Today I want to focus on ODU's impact on the community. We feel a strong sense of commitment to bring the wonders of science to the public, especially children. For the third year the Department of Chemistry and Biochemistry organized the Reign in Science Day, bringing K-12 students and their parents to campus for fun science activities. This year other departments in the College of Sciences participated in the event, along with representatives from other universities and institutions. Attendance grew to 600 despite decidedly poor weather. The Center for Coastal Physical Oceanography restarted their pre-pandemic marine science education program, hosting smiling cub scouts (see cover picture). From the Great Computer Challenge to the Julia Robinson Math Festival to the Physics demonstration table at the local Children's Festival, our faculty and students enjoy engaging with the public.

Another way that we can involve the community is through citizen science, such as the Measure the Muck program led by Dr. Margaret Mulholland, in which water samples are gathered during the annual King Tide and analyzed for contaminates. In general, the science we do has a big impact by shedding light on some of the key scientific questions and concerns of our time (e.g., How can we prevent or reduce suicide? How do the mass and spin of the proton arise from the quarks and gluons inside? Can a deeper understanding of the oceans improve our models of climate change?). In this newsletter you can read about Dr. Lisa Horth, who is bringing her research on hydroponics to Teens with a Purpose.

We are almost finished with the development of a new strategic plan for the college, to align with the new ODU 2023-2028 strategic plan, "Forward-Focused: Where Innovation Meets Possibilities." I look forward to reporting on our new plan in the next newsletter. One of our goals is to promote community engagement, including expanding industry partnerships. Stay tuned for more information.

Please consider supporting the College of Sciences as part of your year-end giving. Your support has a tremendous impact on what we can do for students. You can donate online at **this link** or contact Krista Kimme Egekeze (**kkimme@odu.edu**) for more options.

Happy Holidays from the faculty and staff at ODU!
Gail Dodge

THE JOURNEY FROM THE COAST GUARD TO A BIOMEDICAL MAJOR AT ODU

By Jonah Grinkewitz

Photo: Irv Antonio, Biomedical Sciences Major

Irv Antonio's path to Old Dominion University was not traditional or easy. But after going through one of the most difficult experiences of his life, the University became a safe haven.

In 2021, Antonio was serving as an electronics technician in the U.S. Coast Guard at the Coast Guard Academy in Connecticut when he received orders to move to the military branch's base in Portsmouth.

Before relocating, he decided to take a vacation to visit his brother in Washington, D.C. While they were walking in the city one night, two strangers mugged and beat them. "The last thing I remember was throwing up my hands before getting hit," Antonio said.

He woke up the next day in the hospital with a cracked skull and a head the "size of a balloon." Doctors had to perform emergency surgery to drain blood and remove dead tissue from his skull.

His move to Portsmouth was delayed three months while he started on his long road to recovery. But when he got to Virginia, he suddenly found himself in a new place while dealing with a life-changing injury. "It was probably one of the most miserable times, immediately (after) getting there," Antonio said. "Everything and everyone was absolutely unfamiliar." It also became clear that because of the severity of his injury he would likely be medically separated from the military. Read the full story **here.**

COMPUTER SCIENCE DECEMBER GRADUATE PLAYS EVERY GAME IN MEMORY OF FATHER

By Harry Minium

Ayhon Turkoglu was a very enlightened and progressive man. His oldest daughter, Ece, was a gifted athlete who as a child wanted to join the local football club, or soccer team as we know it in America. This was nearly two decades ago, when many in Turkey considered it un-lady like for young girls to play soccer.

Things have changed in the years since. More and more young girls are playing sports now. But during the time it was frowned upon, Ayhon not only encouraged her to play, he went to all of her games. When she she made the Turkish National Team, and began to travel all over Europe, he followed her as much as he could.

And for those who thought it wasn't proper for a young lady to play on the pitch, he always had her back.

"I was playing soccer with the boys," said Ece Turkoglu. "And I was fighting at times with the boys, but he always supported me. He was always proud of me." Which is one of so many reasons why it was so difficult for Ece in the summer of 2021 when Ayhon, then just 56, died of a heart attack. At the time, Ece was preparing to leave for her third season with the Old Dominion women's soccer team. Read the full story **here.**

Photo: Ece Turkoglu, Computer Science Major

DEAN DODGE LEADING LONG RANGE PLANNING FOR PHYSICS

Photo: Dean Gail Dodge with nuclear physicists from throughout the U.S.

By Tiffany Whitfield

The Nuclear Science Advisory Committee (NSAC) recently announced the approval and release of *A New Era of Discovery: The 2023 Long Range Plan for Nuclear Science*. This new document provides a roadmap for advancing the nation's nuclear science research programs over the next decade. It is the 8th long range plan published by NSAC since 1979. The plan highlights the scientific opportunities of nuclear physics today to maintain world leadership in the context of four different budget scenarios and details progress.

The major programs, accelerators, instruments and experiments that enable nuclear physics research in the U.S. are primarily funded by the Department of Energy Office of Science (DOE-SC) and the National Science Foundation (NSF). To ensure that these federal investments reflect the national interest, the two agencies regularly solicit input from practicing nuclear physicists through NSAC.

"Every five to eight years, the federal agencies charge the Nuclear Science Advisory Committee to develop a plan to ensure the nation's leadership in nuclear science based on community input. NSAC approved the 2023 Long Range Plan for Nuclear Science after over a year's work and difficult choices," said NSAC Chairperson Gail Dodge, a nuclear physicist and Dean of the College of Sciences at ODU. "The 2023 Long-Range Plan lays out a compelling vision for nuclear science in the United States under multiple budget scenarios and is informed by international context." Read full article **here.**

MONARCH TEACH CELEBRATES 10 YEARS

Photo: President Brian Hemphill inside a classroom with MonarchTeach students

By Jefferson Huddle

This year, 2023, marks the ten-year anniversary of MonarchTeach at Old Dominion University. MonarchTeach is a unique collaboration between the Darden College of Education & Professional Studies and the College of Sciences at ODU. Since 2013, students majoring in mathematics or science have been able to receive teacher licensure while still earning their degree in their content area. Across the country, there have been teacher shortages, but ODU has stayed at the forefront in keeping classrooms filled through the MonarchTeach program.

ODU has produced 75 teachers who were ready to work at schools across Hampton Roads in math and science classes for more than a decade. Through this innovative teacher preparation program, benefits include:

- A degree in Mathematics, Biology, Chemistry, Biochemistry, Physics, Ocean & Earth Sciences, or Computer Science along with a teacher licensure in four years.
- Guidance and support from highly qualified Master Teachers with extensive secondary school teaching experience.
- Opportunities to get scholarships and paid internships.
- Continued support in their classrooms after graduation.

Anastashia Pelletier, a senior at ODU majoring in mathematics with a concentration in education, has been involved with MonarchTeach for three years and "loves every part of it." Through MonarchTeach, Pelletier has been able to develop a teaching method which she and her students find extremely useful. Read the entire article **here.**

ODU PHYSICS GRADUATE STUDENTS VISIT CAPITOL HILL

By Gail Dodge

Caleb Fogler and Mariana Tenorio Pita, both Ph.D. students in nuclear physics at Old Dominion University, traveled to Washington D.C. to participate in the nuclear science Long Range Plan Advocacy Day on Nov. 8.

In attendance with them was Dean Gail Dodge, of ODU's College of Sciences. She chaired the committee that developed the plan and participated in the advocacy day as well. The committee Dodge led was tasked with advising the U.S. Department of Energy (DOE) and the National Science Foundation (NSF) on research priorities in fundamental nuclear science.

Fogler and Tenorio were among dozens of nuclear scientists who came from all over the country to inform members of Congress about the 2023 Long Range Plan for Nuclear Science, titled A New Era of Discovery. The plan was recently released after Dodge and a team of global scientists worked collectively for more than one year to provide a roadmap for advancing the nation's nuclear science research programs over the next decade.

"It was very important to have graduate students participate as part of the advocacy day on Capitol Hill," said Dodge. "Caleb and Mariana did a great job explaining the importance of their research for science and also the data science/machine learning skills that they are acquiring. Graduate students trained in nuclear science are in high demand at national labs and in industry." Read the full article **here.**

Photo: Caleb Fogler and Mariana Tenorio-Pita, Ph.D. Nuclear Physics

BIOLOGY PH.D. STUDENT EARNS VIRGINIA SEA GRANT FELLOWSHIP

Photo: Zlatka Rebolledo Sánchez, Ecological Sciences Doctoral Student

By Tiffany Whitfield

Old Dominion University Ecological Sciences doctoral student, Zlatka Rebolledo Sánchez, is one of seven college students from across the Commonwealth of Virginia to be selected as a Virginia Sea Grant Fellow (VASG). Her research focuses on understanding salt marsh-based blue carbon in the Chesapeake Bay and its tributaries. An international student from South America, Rebolledo Sánchez values education and the easily translatable qualities of science through community outreach. As a VASG fellow, she will be able to dive deeper into research through mentorship and professional development and use her passion for communicating science to diverse communities in the Hampton Roads region.

Originally from Venezuela, Rebolledo Sánchez ended up coming to ODU because of a tweet from Biological Sciences Assistant Professor Erik Yando who would later become her advisor at ODU. "Before that tweet I had never heard about Norfolk," said Rebolledo Sánchez. "I think it's really good for scientists to connect on social media and after a couple of interviews we decided we made a good team."

She started as a master's student and is now entering her third year as a doctoral student. "I'm working right now in carbon of salt marshes in the lower Chesapeake Bay," said Rebolledo Sánchez. "Actually, there is much research being done in this specific area, but I want to focus on spatial variability." Experts in the field typically work on remote sensing at a large scale with satellite images with a focus on the geographical side in biology. Read the full article **here.**

ODU PROFESSORS RECEIVE $3M NOAA GRANT TO TRACK HARMFUL ALGAL BLOOMS

Photo: Margie Mulholland, Professor of Ocean & Earth Sciences

By Tiffany Whitfield

ODU Ocean & Earth Sciences Professor Margaret Mulholland has studied algal blooms for more than three decades and has seen the devastating effects they can have on waterways, fisheries, aquaculture, tourism and more.

In the fight to improve tracking and potentially slow down algal impacts, Mulholland and ODU Eminent Scholar and Professor Eileen Hofmann were recently awarded a $3 million grant from the National Oceanic and Atmospheric Association (NOAA). The grant supports a five-year project to conduct real-time surveillance and data of harmful algal blooms in the Chesapeake Bay and other major waterways in the Hampton Roads region. The data will be used to build forecasting products for harmful algal blooms in the mid-Atlantic region.

This multimillion-dollar research project was funded by the NOAA Monitoring and Event Response for Harmful Algal Blooms (MERHAB) program and begins Oct. 3, 2023. ODU is the lead institution and Mulholland is the principal investigator. She will work with scientists from the Virginia Institute of Marine Science (VIMS), the NOAA National Centers for Coastal Ocean Science (NCCOS) and the Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) to conduct research through 2028. A plethora of agency and community partners will work cohesively with Mulholland to detect, monitor and provide better surveillance on threatened waterways. Read the full article **here.**

ODU BIOLOGY & ENGINEERING FACULTY HELP TEENS WITH A PURPOSE PLANT GARDENS

Photo: Lisa Horth, Professor of Biological Sciences, helping teens to plant

By Tiffany Whitfield

During the summer of 2023, Old Dominion University Biological Sciences Professor Lisa Horth took time to help those in need in the Hampton Roads community. At Teens with a Purpose, located in Downtown Norfolk, Horth introduced staff and teenagers to gardening and some new technological ways to plant more produce thanks to a science grant from Virginia Space Grant Consortium.

Horth's grant titled "Veterans in Biology and Engineering (VIBE) Technical Training and Service Learning" intends to help educate people in the community about using hydroponics to grow food in a new way. Hydroponics is a technique of growing plants in water instead of using soil. Horth, along with co-pirinicpal investigators Associate Professor Orlando Ayala and Undergraduate Chief Departmental Advisor Kim Bullington, both from the Batten College of Engineering and Technology as well as one of Horth's undergraduate students, Austin Jameson, worked with the nonprofit group to plant and grow produce.

Helping those in need is a passion for Horth. "Education can be life-changing, especially for individuals born into challenging socioeconomic environments," said Horth. "Learning how to grow food hydroponically is fun and has the potential to be used as a step toward economic independence."

Using her knowledge in hydroponics means a lot to Horth because this was something passed down to her by her grandmother. Read the full article **here.**

REIGN IN SCIENCE LEVELS UP & BRINGS COMMUNITY TOGETHER

Photo: Chemistry graduate student and families having fun

By Tiffany Whitfield

The third annual Reign in Science Day brought more than 600 students and parents to Old Dominion University. The event was held at the New Chemistry Building on Saturday, October 7. Monarchs stepped up to showcase how engaging science can be on any grade level.

ODU Chemistry Lecturer Emily Hardy and Assistant Professors Kyle Lambert and Trandon Bender worked on planning the event for months, and this year the number of registrants soared and the partnerships in the community grew.

Students in grades kindergarten through 12th grade took part in non-stop fun and science-based activities outside and inside of the Chemistry building. They were given tours of active research spaces, teaching labs, and attended shows about the solar system and the universe on the state-of-the-art dome in the Michael and Kimthanh Lê Digital Theater and Planetarium.

Also, students and parents learned about chemistry, biology, computer science, oceanography and physics through interactive demonstrations given by faculty and graduate students. Read the full article **here.**

Photo: Young artists who attended Reign in Science Day drew pictures "Anyone can be a scientist."

SCIENTISTS REKINDLE 25 YEAR LONG MARINE PROGRAM IN 757

Photo: Cub Scouts learning about mud crabs at ODU's Center for Coastal Physical Oceanography

By Tiffany Whitfield

Local Cub Scouts from Pack 490 were the first to rekindle a tradition that has been 25 years in the making by the Center for Coastal Physical Oceanography (CCPO) at ODU. More than 800 Boy Scouts from all over Virginia, Maryland, and Ohio, as well as the Hampton Roads region have earned their Oceanography merit badge through a marine science program led by CCPO. However, the COVID-19 global pandemic abruptly interrupted this decades-old partnership in 2020. In the fall of 2023, CCPO restarted its marine science education program by hosting 34 Cub Scouts, along with Pack leaders, parents, and siblings, for an event that engaged the eager Scouts in learning about marine science.

The team who worked diligently to bring back the educational science outreach program to ODU were Julie Morgan, CCPO program manager, and Susan Craig, Ocean & Earth Sciences office manager.

On the evening of September 27, 2023, Pack 490 left their den at St. Gregory the Great Catholic Church and assembled on ODU's campus to satisfy the requirements for their NOVA Award. The science-based NOVA Award program encourages Cub Scouts to explore science, technology, engineering, and mathematics (STEM) through research and hands-on activities to get young Scouts interested and involved in science. The Pack included students in second through fifth grades. Read more **here.**

Group photo of Cub Scouts learning about mud crabs inside tank.

KIRK WETLANDS LECTURE: GHOST FORESTS

Pictured from left to right: Biology Professor Lisa Wallace, Dean Gail Dodge, Marcelo Ardón Sayão, Dr. Allan Kirk, Susan Kirk Van Schenck

By Tiffany Whitfield

Ghost forests sound like the name of the next big Hollywood scary blockbuster movie set to be released in 2023, but in real life, they are indicators of climate change. Old Dominion University scientists and community members gathered at the Chartway Arena at the Ted Constant Convocation Center on September 28, for the 2023 Kirk Wetlands Lecture series hosted by ODU's Department of Biological Sciences. The guest speaker was Marcelo Ardón Sayão, an associate professor in the Department of Forestry and Environmental Resources at North Carolina State University. His research focuses on environmental sciences, ecosystems, wetlands and streams.

The title of his lecture was "Ghost forests as symbols of climate change and resilience."

Ghost forests are areas that used to be forested wetlands and have transitioned into marshes or open water. "Nature is always changing, and these forests and marshes have been dancing up and down the coast," said Sayão. According to Sayão the changes are occurring at a "much faster rate." Research like that of Sayão have documented increases in ghost forests across the east coast of the United States. For example, in North Carolina, both droughts and storms have led to saltwater intrusion, which can lead to the expansion of ghost forests.

The changes that a ghost forest goes through when it turns into a marsh can have positive and negative effects. Read the full article **here.**

ODU OCEAN & EARTH SCIENCES ALUMNUS GIVES TOUR OF NOAA SHIP

By Tiffany Whitfield

Alumnus Lieutenant Commander John Kidd serves as Executive Officer on the National Oceanic and Atmospheric Administration (NOAA Corps) *Pisces* ship. In 2010, he earned a Bachelor of Science degree from Old Dominion University's Department of Ocean & Earth Sciences. LCDR Kidd's life changed after he toured a NOAA Corps ship, and recently, he paid it forward by inviting some OES ODU students onto the ship where he is second in command.

"As a senior undergraduate student, I was afforded the opportunity to tour the NOAA ship *Thomas Jefferson*, an opportunity made possible by the collaboration between Rear Admiral Shepard Smith, NOAA, Ret. and Professor Fred Dobbs," said LCDR Kidd. During the tour, the Commanding Officer talked with the students and shared in "great detail" a hydrographic dataset and explained what it took to execute the mission. The National Hydrography Dataset represents the water drainage network throughout the United States which includes features such as rivers, streams, canals, lakes, ponds, coastline, dams, and streamgage. The complex connectedness of bodies of water and how they impact the environment appealed to LCDR Kidd. "It was at that moment I knew I wanted to become a NOAA Corps officer and to one day sail as a Commanding Officer of a hydrographic vessel," said LCDR Kidd. "Because this one-hour tour forever changed my life, I wanted to afford the students currently enrolled in OES classes at ODU the same opportunity."

During the two hour visit to NOAA's Marine Operations Center - Atlantic facilities, ODU OES students boarded the NOAA Ship *Pisces* and NOAA Ship *Thomas Jefferson*. Read the full article **here.**

Photo: Group photo of OES students touring NOAA *Pisces* ship with alumnus LCDR John Kidd and crew

MEDICAL DOCTOR RECOGNIZED AS DISTINGUISHED ALUM HONOREE

Pictured above, from left to right: Ticha Penicheiero, Dr. Surena F. Matin, Norfolk Mayor Kenny Alexander, Capt. Janet H. Days

The Old Dominion University Alumni Association (ODUAA) has announced a four-person class of 2023 Distinguished Alumni Honorees. They were recognized at the Alumni Honors Dinner on Sept. 21 at the Downtown Norfolk Waterside Marriott. Congratulations to ODU Biology alumnus Dr. Surena Matin who was among the honorees.

This year's honorees are:
The Honorable Dr. Kenneth Cooper Alexander '90, mayor of the city of Norfolk
Capt. Janet H. Days '99, commanding officer, Naval Station Norfolk
Dr. Surena F. Matin, MD '90, Monteleone Family Foundation Distinguished Professor in the Department of Urology at MD Anderson Cancer Center, Houston
Ticha Penicheiro '98, former WNBA player, sports agent, Sports International Group

For the past 14 years, the Alumni Honors Dinner has recognized individuals whose entrepreneurial innovations, productive management and community involvement have made a difference in businesses and communities across Hampton Roads and beyond. This year's honorees join more than 50 Monarchs who have been inducted into the Society of Distinguished Alumni since its founding.

ODU graduates receive automatic membership as well as services exclusively for alumni. By helping alumni remain informed, involved and engaged, the ODUAA supports its members, the Monarch community and Old Dominion University.

SEEKING JUDGES FOR 2024 VA STATE SCIENCE & ENGINEERING FAIR

ODU's College of Sciences and Batten College of Engineering will host the 2024 Virginia State Science and Engineering Fair (VSSEF)! The VSSEF was founded in 1985, started with more than 100 projects and has grown considerably to include participants from across the commonwealth. There is a need for alumni and friends of the college to be judges next year. To learn more about judging click **here.**
Also, you can contact the Dean's Office via email if you have additional questions at cosdeansoffice@odu.edu.

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