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Winter 2020

Monarch Science Observer, Volume 2

College of Sciences, Old Dominion University

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Monarch Science OBSERVER

Winter 2020 Volume 2




ODU
College of Sciences

Blue Crab Bowl

STUDENTS FROM ACROSS VIRGINIA PARTICIPATED IN THE
23rd ANNUAL BLUE CRAB BOWL AT ODU

GIVING TO ODU
FEATURED
PHILANTHROPIST
DR. RICHARD CHENG

UNDERGRADUATE
STUDENT
SPOTLIGHT
ALICIA BRYAN

DAY
OF
GIVING
MARCH 17

Message from Dean Dodge

March 17 is ODU's Day of Giving. This is the day when we ask alumni, faculty, staff, students, and friends of the College of Sciences to show support for our students by making a gift. As you will see later in these pages, most of the departments are seeking funds to support undergraduate research. The opportunity to work individually with a faculty member, think creatively about a scientific problem, and present the results of the research at a conference is absolutely transformational for undergraduate students. Whether or not they go on for an advanced degree, the experience improves their confidence and their hard and soft skills, making them better prepared for a job after graduation. As an example, please read about Chemistry student Alicia Bryan on page 5. I hope you will consider supporting one of the Day of Giving projects listed for the College of Sciences at <http://c-fund.us/non>.

There are lots of events coming up in the College of Sciences, starting with the Sonenshine public lecture on March 3 (see below). We would love for you to join us in celebrating science!. Finally, I want to share with you a recent video featuring students from each of the seven departments: "Monarchs Science Love Story." Students talked about when they first fell in love with science.



[Click here to watch "Monarchs Science Love Story" video.](#)



Join us at the Sonenshine Public Lecture

**Guest Speaker:
Dr. Karen Nelson, Ph.D.
President of the
J. Craig Venter Institute**

**March 3, 2020 at 7 p.m.
Big Blue Room at the
Ted Constant Convocation Center**

**Topic: What Genomic Technology
Has Taught Us About Health
and Disease**

Dr. Richard Cheng, Philanthropist



Dr. Richard Cheng grew up in mainland China and then in Taiwan after his family fled there with the Nationalists following the Chinese civil war. He came to the United States to study at the University of Wisconsin – Stout in 1961 with \$30 in his pocket. His wife Nancy joined him in the U.S. two years later. He completed a M.S. degree in Electrical Engineering and a Ph.D. in Computer Science in 1971 at the University of Illinois. Computer Science was such a new field that none of his professors were "computer scientists." "Computer Science had professors from physics, chemistry and electrical engineering," said Dr. Cheng, "they all knew a little bit about computer science, so we had to learn it on our own in graduate school."

He went on to start Computer Science Departments at several universities, including Rochester Institute of Technology, before coming to Old Dominion University in 1979 as an emeritus professor. At ODU he oversaw the separation of Computer Science from the Math Department and served as the first Chair of Computer Science and as Associate Dean. Dr. Cheng said, "I constantly studied the news and read articles to see what the trend of computer science was, so I had confidence to go to the Dean or Provost to fight for the resources." He worked hard to recruit students for the department, personally visiting high schools all over the state. "I went to recruit myself," said Dr. Cheng, "I knew what to say to them and how to encourage them to come to ODU for computer science." ODU had roughly 800 computer science majors at that time. While at ODU he founded a company, Eastern Computers, Inc., (ECI) which was incredibly successful. "I knew that computers were the future of doing business," said Dr. Cheng "and nations must have computing in their own language." Dr. Cheng retired from ODU in 1985 to concentrate full time on his business.

He has continued to support Computer Science and the College of Sciences very actively since then. He has endowed the Cheng Fund for Innovative Research, as well as scholarships and a professorship in Computer Science. He also serves on the COS Advisory Board. He and his wife Nancy have both served on ODU's Board of Visitors. "I feel ODU is part of my life, so I give to ODU," said Cheng. Even though Dr. Cheng continues to wear many hats he has clear advice for current Monarchs, "they should study hard and get a Ph.D. before they leave to go out and make money." Dr. Cheng has lived in the U.S. for almost 60 years, and 38 of those years in Virginia Beach and he says, "one way or the other I'll always be associated with ODU."

23rd Annual Blue Crab Bowl



Photo:
Congresswoman Elaine Luria (2nd District) with Catholic High School winners and coaches.

[Click here to watch "Blue Crab Bowl" YouTube video.](#)

Students from 16 high schools across the Commonwealth participated in an all-day competition that tested their knowledge of oceanography, geology, biology, maritime history and policy. Catholic High School, from Virginia Beach, won in a nail-biter against Seton High School from Manassas. Congresswoman Elaine Luria, representative of Virginia's 2nd District, presented the top four winners with the coveted blue crab bowls. "I think it's a great opportunity for students to dig in deeper to ocean sciences and learn as a team," said Congresswoman Luria.

The College of Sciences, Department of Ocean, Earth and Atmospheric Sciences, Virginia Institute of Marine Science (VIMS) and the College of William and Mary hosted this regional competition. "There's nothing more fun to see than the competitors' heads burrowed together working on their team challenge questions and to feel the palpable excitement in the room," said Fred Dobbs, chair of the Department of Ocean, Earth and Atmospheric Sciences at ODU. "What a wonderful team effort by our College of Sciences faculty, staff and students as well as our colleagues from VIMS and NOAA," said Bill Dunn, ODU's Blue Crab Bowl regional coordinator. Brynn Pecher, a research technician at the Center for Coastal Physical Oceanography (CCPO), joined Dunn in coordinating the bowl competition and associated activities, which included tours of College of Sciences laboratories, the research vessel Faye Slover, and a lecture by OEAS Professor Richard Zimmerman. The winning team, Catholic High School, will prepare for the National Ocean Sciences Bowl competition in Long Beach/Gulfport, Mississippi in April.



Photo: (L-R)
Nicole Buckley (OEAS grad student),
John Whalen (Biology Ph.D. candidate),
Dr. Richard Zimmerman
(OEAS professor), and Shannon Cofield
(OEAS Ph.D. candidate)

Psychology Ph.D. Student...Winning



Miranda Maverick
Psychology
Class of 2022

[Click here to watch Miranda's YouTube video.](#)

Whether it's textbooks in the classroom or opponents in the cage, Miranda Maverick hits hard. The 22-year-old is determined to earn a place in the Ultimate Fighting Championships (UFC) - while earning her Ph.D. in Industrial and Organizational Psychology at Old Dominion University.

Originally from the small farming town of Tunas, Missouri, Maverick frequently moved from state to state because of her father's job as a property developer. Maverick said, "I grew up working as hard as an adult male farm worker even though I was a teenage girl." Maverick actually decided on studying industrial psychology when she was a high school junior. "I've always liked business and numbers, and I've been good at math. I loved psychology, as well," said Maverick.

There was another reason: When she toured ODU, "I didn't feel like a number. The professors seemed genuinely interested in talking to me and finding out more about my personal interests."

She hopes to receive her doctorate in 2022. "Miranda is very driven, diligent and persistent in her graduate studies as she is in the gym. She had nurtured enviable work habits and ethics, discipline, and a thirst for feedback and learning," said Konstantin Cigularov, Associate Professor of Industrial and Organizational Psychology.

If her fight dreams get beat back, Maverick will happily pursue a career in industrial psychology. "ODU is providing me with a future I can count on," she said.

Undergraduate Research Spotlight

Alicia Bryan is majoring in chemistry and minoring in music performance at ODU. She is a part of Dr. Patrick Hatcher's geochemistry research group. In this group Bryan said, "I have worked on several projects over the last year, including photochemical experiments and spectroscopic characterizations of dissolved organic matter." Bryan's research focuses on dissolved organic matter (DOM) that is found in natural water systems. "Alicia is indisputably the best senior undergraduate student I have had the pleasure of advising over the course of my 40 years of research," said Dr. Hatcher. "I am most impressed by her ability to immediately grasp the intricacies of the analytical methodologies associated with the research project to which she has dedicated her time and effort," said Dr. Hatcher.

"I have always been fascinated with science, and chemistry was a natural fit for my problem-solving brain," said Bryan. Her plans for the future include pursuing a Ph.D. in Inorganic Chemistry and so that she can "teach other people about what I love, and then go on to a teaching career in higher education," said Bryan.



Alicia Bryan
Chemistry
Class of May 2020

Ready, Set, Give2ODU

On March 17, the College of Sciences is asking for your help with the Day of Giving. Throughout the day you can help students fund their research, attend conferences, and more. Please use the link <http://c-fund.us/non> to give to ODU. Share this link <http://c-fund.us/non> and tell a friend. Below are the eight COS projects for which we are seeking support. Follow us on Facebook, Twitter or Instagram @ODUSCI on March 17 to see how students will use your gifts. Thank you for your support.

Give2Biological Sciences

Help send undergraduates and graduate students to regional and national conferences. The Biological Sciences Department has a goal of raising \$5,000.

Give2Chemistry & Biochemistry

Each year the Department of Chemistry and Biochemistry sends all of its undergraduate researchers to the National American Chemical Society conference to present their results and would like to raise \$25,000 to support this program.

Give2Computer Science

The Department of Computer Science has a goal of raising \$5,000. You can help undergraduates further their research initiatives.

Give2Mathematics & Statistics

The Mathematics & Statistics Department has a goal of raising \$5,000 to support undergraduate research. The funds will be used to support students to present their research at regional and national conferences.

Give2Ocean, Earth & Atmospheric Sciences

OEAS would like to raise \$2,500. With your support, OEAS students, in the Geology Concentration of our B.S. in Ocean and Earth Sciences will be able to attend field camps.

Give2Physics

The Physics Department would like to raise \$10,000 to support undergraduate physics majors who register for the first time in one of our new Physics Undergraduate Research Program courses. Your donations can help students present research at regional and national conferences.

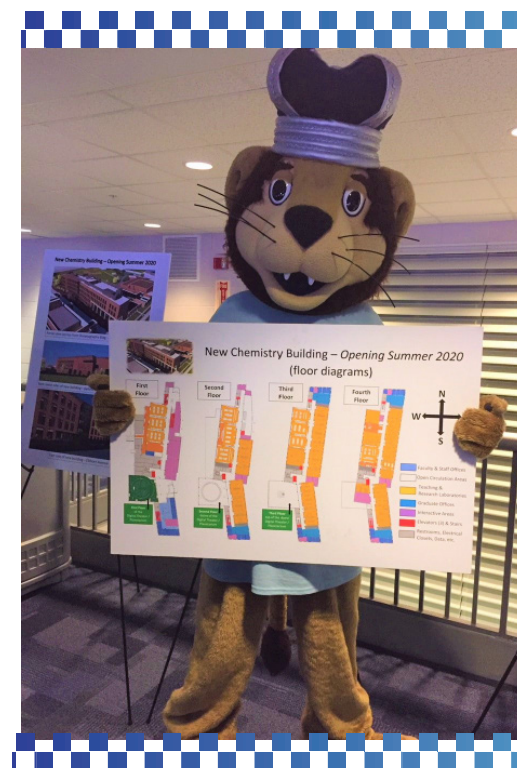
Give2Psychology

The Psychology Department has a goal of raising \$5,000 to send undergraduate students to present research at regional and national conferences.

Give2Arthur & Phyllis Kaplan Orchid Conservatory (KOC)

The Kaplan Conservatory, a year-round public display facility that charges no admission fee, needs your help. The KOC would like to raise \$2,500 to increase the representation and number of botanical orchid species within its living collections.

COS Basketball Alumni Party

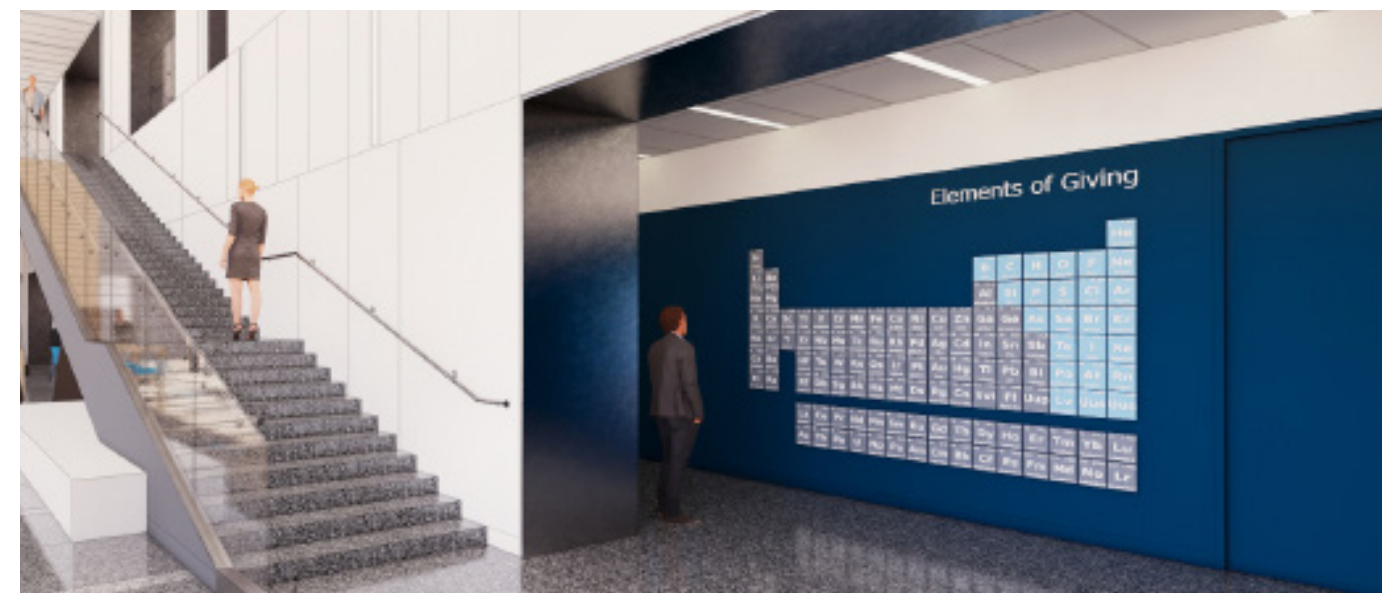


Thank you to all of the COS alumni, faculty and staff who attended the ODU Men's Basketball game on Saturday, January 25 when they took on Florida Atlantic University. Even Big Blue stopped by to show some love for the new chemistry building under construction.



"I wanted to say what a wonderful time my husband and I had Saturday night. It was nice meeting people in the field and I really enjoyed myself."
Judy Smith Fletcher
(BS in Computer Science
Class of 1977)

Buy an Element in the New Chemistry Building



The periodic table will be located on the first floor of the New Chemistry Building. For \$5,000 you can purchase an element and put your name on it. This table will have maximum exposure to students, faculty, alumni and guests of the College of Sciences. Go to the new Chemistry building website here <https://www.odu.edu/chemistry/new-building> for more information or contact Krista Kimme, Major Gifts Officer at kkimme@odu.edu.

Faculty Spotlight: Dr. Nikos Chrisochoides

Dr. Nikos Chrisochoides is the Richard T. Cheng Endowed Chair Professor of Computer Science and Eminent Scholar at Old Dominion University.

He has made several major breakthroughs in doing finite element calculations in parallel, allowing them to be scaled up in ways that impact numerous fields, both pure and applied. He is the founder of the parallel mesh generation discipline, whose impact is measured in terms of multiple billions of dollars in the aerospace and health care industries.

His research has included image analysis with applications to health care, such as combining brain images used in tumor resection and deep brain stimulation. He has worked closely with brain surgeons from Harvard to provide "real-time" images of the brain during surgery. He established his Center for Real-Time Computing (CRTC) to apply his imaging techniques to other fields. His most recent work (with his Ph.D. student Christos Tsolakis and Computer Science undergraduate student Angelos Angelopoulos) is on adaptive tessellation techniques for simulating and analyzing nuclear physics data from Jefferson Lab (JLAB). With their collaborators at JLAB they demonstrated that their tessellation techniques can speed up data analysis by many factors.

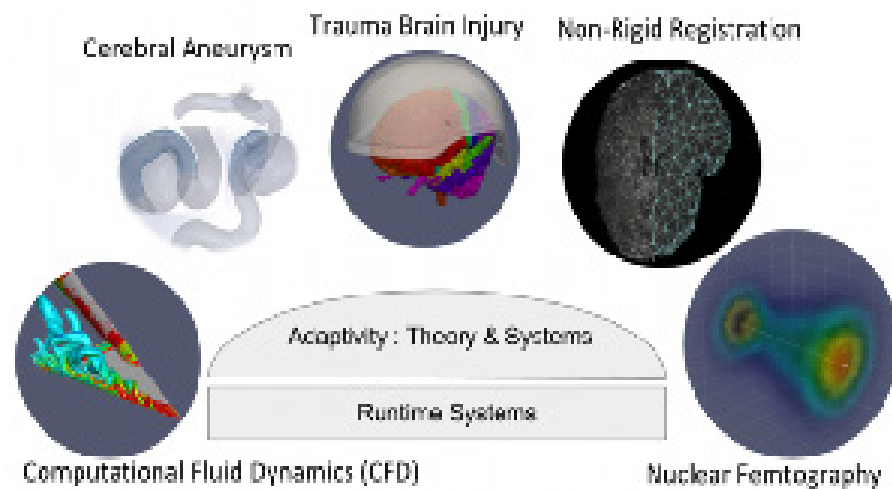
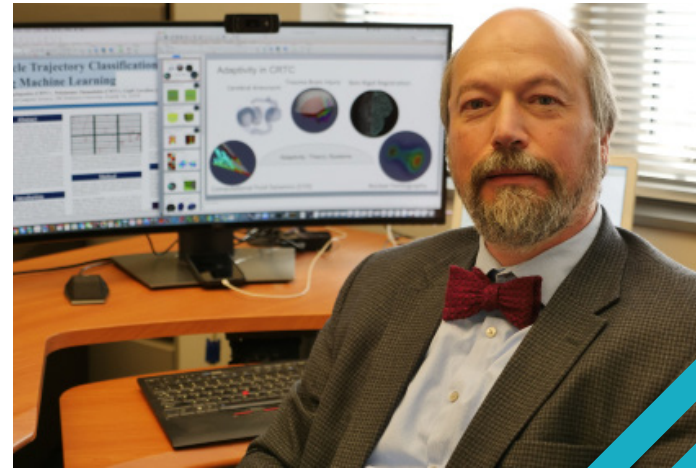
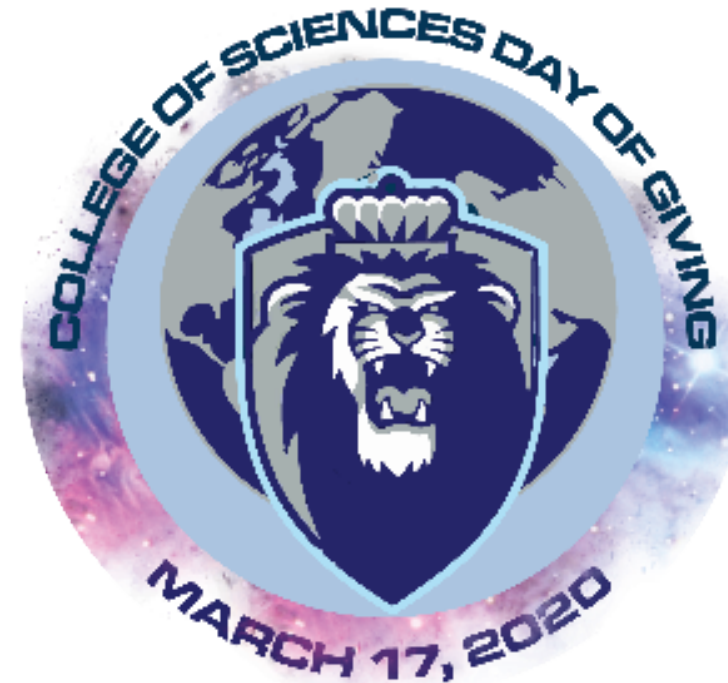


Figure above shows the core enabling technologies developed by Dr. Chrisochoides in his lab. The pictures indicate the five main applications he targets.

Upcoming College of Sciences Events

ODU Julia Robinson Math Festival
Saturday, February 29
Local 3rd to 8th graders have been invited.
Go to www.odu.edu/math/math-festival
for more information.



ODU's Day of Giving
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<http://c-fund.us/non>

Lytton John Musselman
Natural History Lecture
April 7 at 7 p.m. at the Ted Constant
Guest Speaker: Dr. Whit Gibbons
Dr. Gibbons is an expert in herpetology
and ecology of herpetofauna of the
Southeastern United States.



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