

# The Pulse

College of Health Sciences e-Newsletter



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# 2019

## The Year in Review

**By Irvin B. Harrell**

**I**t's 2020, and in hindsight the College of Health Sciences has thrived this past year on several levels – from faculty accomplishments to student achievements to community engagement.

The year showered the college with many memorable moments, far too many to reflect on here, but let's take a look at some of them.

When it comes to individual faculty achievements, there were some notable ones this past year. Among them, Dean Bonnie Van Lunen was named Old Dominion University International Administrator of the Year. Former Dean Shelley C. Mishoe was designated as a lifetime member by the American Association of Respiratory Care (AARC).

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**Preparing Your Preferred Health Professional**

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# 2019, from page 1

Dr. Muge Akpinar-Elci, director of the Center for Global Health, became an American Thoracic Society Fellow. Associate Professor Michael Tamburello received the Excellence in Education Award from the American Academy of Sports Physical Therapy.

Closing out 2019, Elizabeth Locke, director of clinical education for the Doctor of Physical Therapy program, was named one of the 2019 Women in Business Achievement by Inside Business. Meanwhile, Associate Dean Richardean Benjamin was recognized as an upcoming 2020 YWCA Woman of Distinction.

Collaborative efforts by the Center for Global Health earned it two 2019 Governor's Technology Awards and the School of Nursing's community work won it a 2019 American Association of Colleges of Nursing Exemplary Academic-Practice Partnership Award.

Among a few of our top students spotlighted this past year were medical laboratory sciences winter graduate Kasey Byrd, who was named the Clinical Chemistry Student of the Year by the American Association of Clinical Chemistry; medical laboratory sciences winter graduate Esra Cetin, who received \$3,000 in scholarships; and Aaron Sents, a Bachelor of Science in Health Sciences graduate, who was accepted into Yale Uni-

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**Above:** MLS grad Kasey Byrd  
**Left:** Nursing's Lynn Wiles and Jamela Martin  
**Below:** YWCA's Mary Kate Andris and Associate Dean Richardean Benjamin



# 2019, from page 2

versity's Physician Assistant Online Program.

In the realm of research, the School of Nursing's faculty received a HRSA grant to the tune of more than \$1.4 million focusing on educating registered nurses in primary care. ODU's Virginia Modeling, Analysis & Simulation Center received a \$1.5 million from the Virginia Research Investment Fund, some of which will be dedicated to a robot built for our college's new Center for Telehealth Innovation, Education and Research.

In the giving department, Judge Richard Bray and the Beazley Foundation continued their generosity in funds for the School of Dental Hygiene's Dental Hygiene Care Facility. Dr. Gary Karlowicz, a lecturer at the School of Nursing, donated money to pay for two preemie simulators.

But past the accomplishments and accolades, each year also has brought changes in faculty and staff.

Betsy Thomas, the college's business manager for 10 years, and Linda Wray, who served 19 years as the administrative coordinator for the School of Nursing, retired this past year. And with heavy hearts, we said goodbye in 2019 to Faye Elizabeth Coleman, who gave ODU 40 years of her expertise in medical laboratory sciences. She died after a brief illness in January of last year.

Through it all, 2019 was year filled with changes, many of them positive ones. And as we set course for a new decade, there will be many more changes to come.

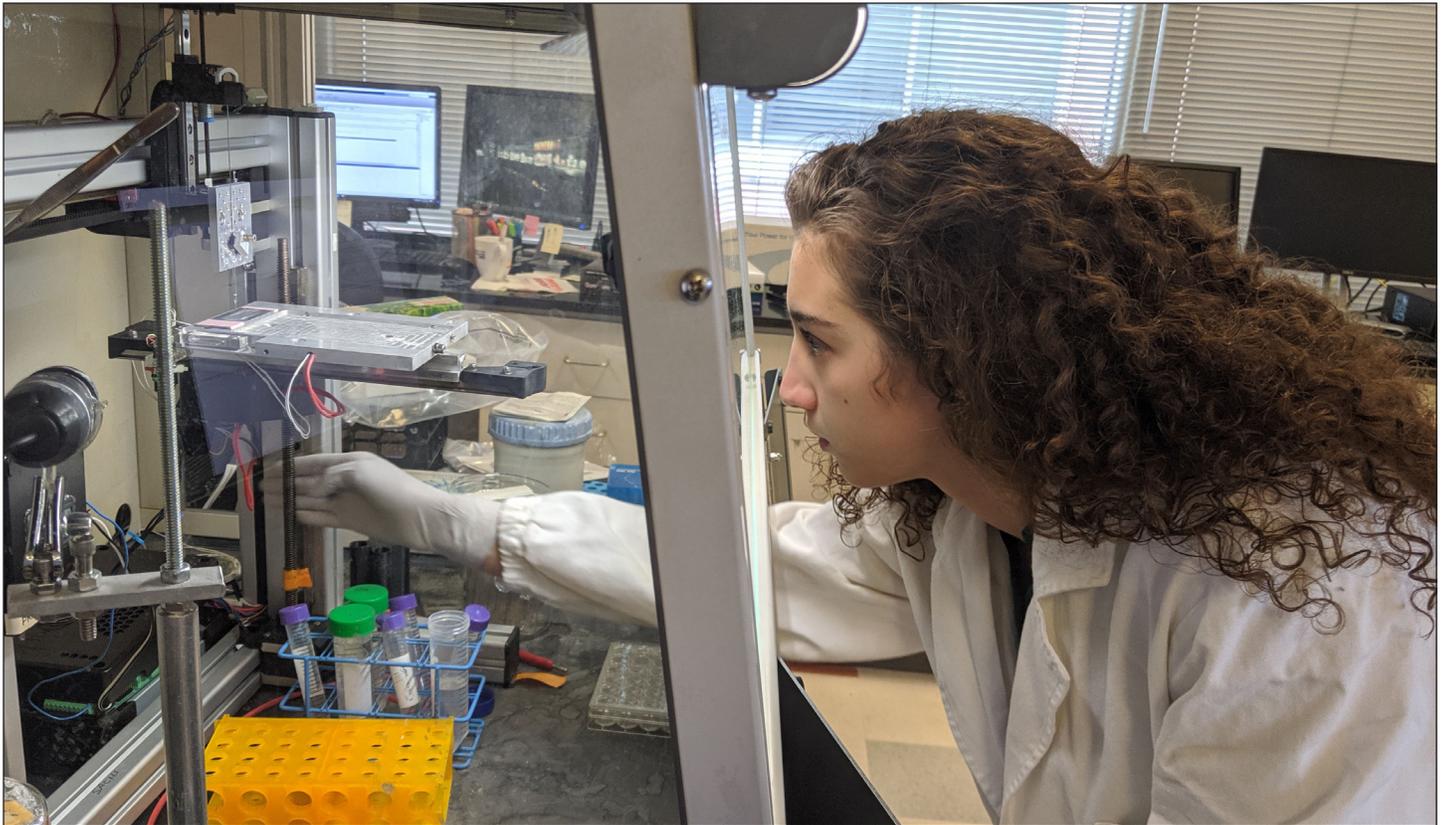


**Above:** Elizabeth Locke from Rehabilitation Sciences  
**Left:** Dean Bonnie Van Lunen, Provost Austin Agho and Ying Thaviphoke, president of the International Student Advisory Board



**Left:** Dr. Gary Karlowicz  
**Above:** Dr. Muge Akpinar-Elci, My Ngoc Nguyen and Michele Kekeh

# Powerful possibilities



Graduate student Martina Zamponi works with the 3D printer as she researches cells and reaction to their environment.

## Stem cell research could hold key to fighting disease, developing organs

By Irvin B. Harrell

Associate Professors Robert Bruno and Patrick Sachs have been chiseling away at a fundamental process in the field of genetics: the division and differentiation of cells.

“If we can understand how those things happen, then it’s kind of sky is the limit on how so you can direct tissue engineering and you can better understand developmental disorders that happen in humans,” Bruno said.

Using funds from a National Institutes of Health Academic Research Enhancement grant, Bruno and Sachs along with a few students are using a three-dimensional printer to create a way to study single cells in a 3-D environment, in hopes of gaining insight on the ways that cells divide. The total grant is \$451,210 over a three-year period.

In organisms, there are two types of cell division: asymmetric and symmetric. Asymmetric division occurs when a cell divides

producing two different cell types and symmetric division conversely results in two identical cell types. The key is finding what environmental triggers cause these specific cellular behaviors.

Because of such unpredictable differentiation, “printing cells in the shape of a heart doesn’t make a heart,” Bruno said. “There’s a communication between cells that started from a single cell or a clump of cells – all of us came from a single cell and then it developed in all

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these other cells.”

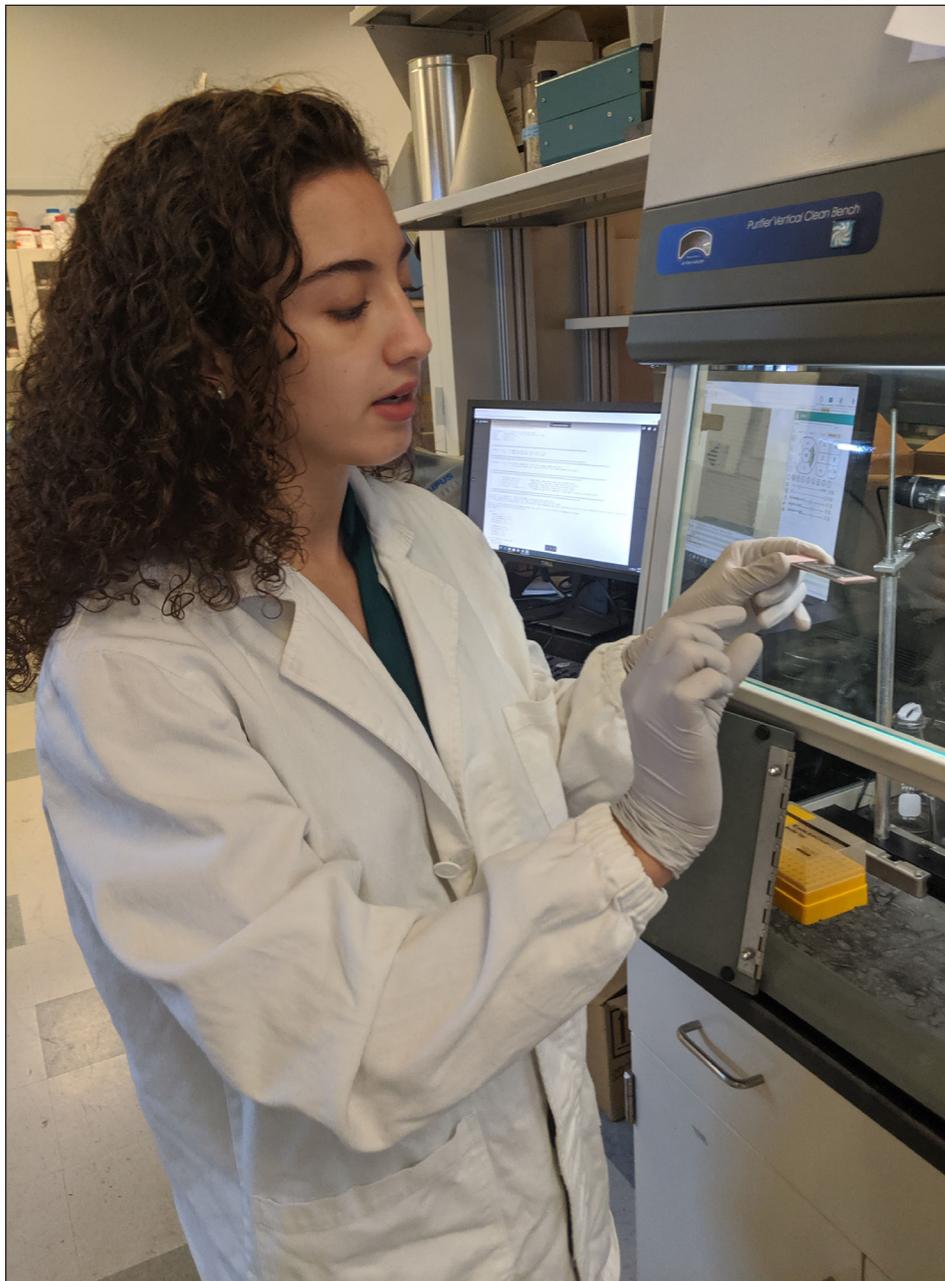
Bruno and Sachs – both principal investigators in the research project – hope to devise a way to place cells in the “proper context with proper environment cues and scaffolding” that will allow the research team to control the way the cells develop.

“While the name ‘stem cells’ tends to evoke images of scientific miracles that lead to transformative cures, the scientific community is still grappling with only a basic understanding of what a ‘stem cell’ is and how it behaves in the body,” Sachs said. “Our project aims to define some of the fundamental aspects that give stem cells their special position in the hierarchy of organismal generation and repair.”

Martina Zamponi, a second-year Ph.D. student in biomedical engineering, signed on two work with Bruno and Sachs about two and a half years ago. Zamponi, who received her bachelors in biology and masters in biomedical engineering at Old Dominion University, says her biology background and her interest in stem cell study made their research a good fit for her.

“We’re looking at how stem cells behave,” she said. “We are looking at how some particular proteins in contact with a cell can affect the division process.”

Jorge Zamudio, an undergraduate student in mechanical engineering, and Saad Jafri, an undergradu-



ate in biology, are also taking part in the project.

While Bruno and Sachs are responsible for the direction of the project, including engineering the printer, designing the experiments, and interpreting the data, Sachs is very complimentary of the contributions by the students.

“They have all been a real plea-

sure to work with,” he said. “Martina is an extremely intelligent, extraordinary motivated individual who has spearheaded some of the more difficult components of the project. She regularly is breaking new ground and fighting through experimental adversity to further

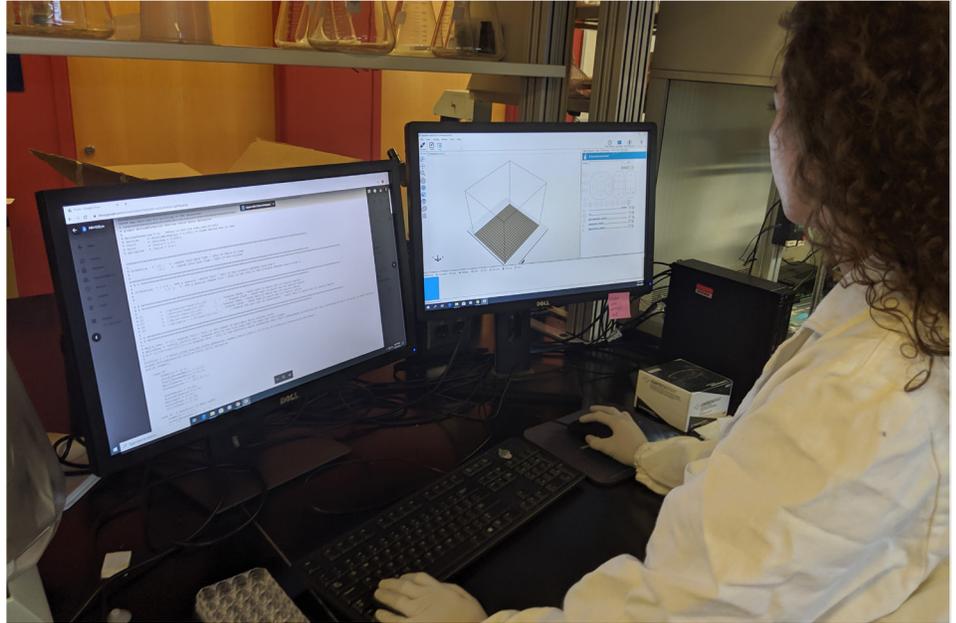
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the goals of the project.”

Using a re-adapted 3D printer, Zamponi has been focusing on injecting cells in a “coordinate-based” fashion into a 3D substrate, in an effort to resemble the conditions that typically happen in the body with cells as they divide.

The objective is to get to the point where the research team will be able to culture the cells and examine what happens during differentiation of single cells, she says.

The research being explored has huge potential and a science-fiction nature to it. Bruno likens one far-off possibility to a scene in the 1997 movie “The Fifth Element,” where the character played by actress Mila Jovovich is genetically printed from a cellular code. But other more tangible possibilities may not be all that distant,



he adds.

“This research could eventually shed a light on the development of diseases like cancer, and neurodegenerative diseases,” he said.

Sachs emphatically agrees.

“By understanding some of these stem cell fundamentals we

can more accurately generate any cell type in the human body,” he said. “These cells could then be used for any disease where a population of cells has been specifically impacted such as diabetes, heart disease, Alzheimer’s, Parkinson’s etc... The potential is really limitless!”

### Site Visit Notice

On May 18 and 19, 2020, the Old Dominion University (ODU) Master of Public Health (MPH) Program will have a Site-Visit conducted by the Council on Education for Public Health (CEPH). If you feel that you have relevant information about the ODU MPH Program and would like an opportunity to provide written input into the deliberations of the site visit team, please mail your written comments or contact via email the CEPH site team coordinator. Email and mailing addresses are listed below. Please send all comments to CEPH directly. All comments written or emailed must be received by CEPH 30 days prior to the site visit. The final day to submit your comments is April 18, 2020.

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## Faculty members win research seed funding

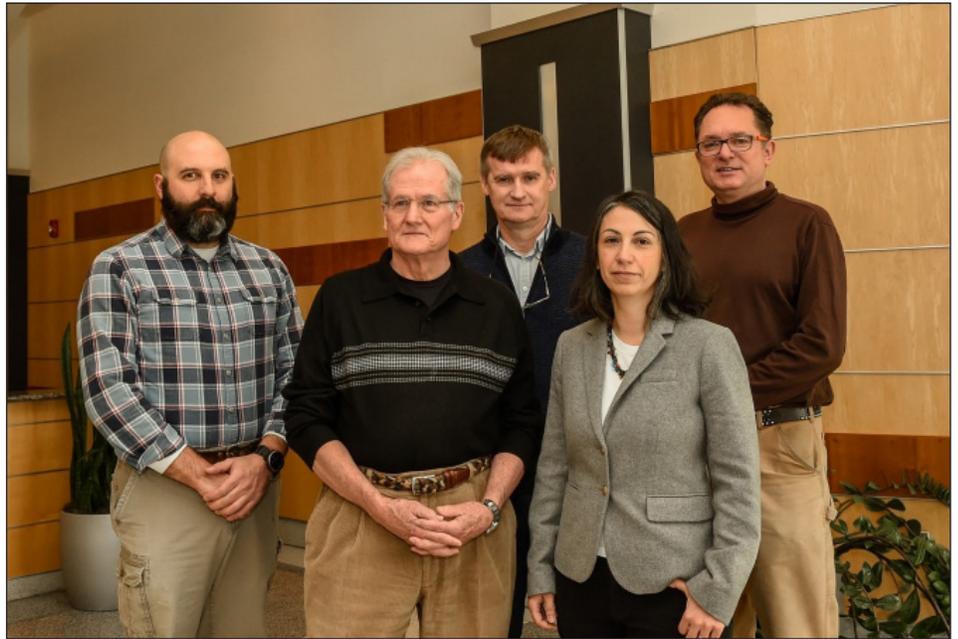
By Sarah Huddle

Six Old Dominion University faculty members - three teams composed of two researchers - were recently awarded \$24,000 per team for interdisciplinary research through the Multidisciplinary Biomedical Research Seed Funding grant.

The grant was established by a consortium of ODU's biomedical research leadership, including Gymama Slaughter, director of the Frank Reidy Research Center for Bioelectrics (CBE), and the deans from the Colleges of Engineering and Technology, Health Sciences, Sciences and the Graduate School.

Originally, one or two grants were to be awarded. But the committee and review panel were so impressed by the highly competitive proposals that three grants were funded.

The grant recipients include Peter Mollica, assistant professor in the College of Health Sciences' School of Medical Diagnostic and Translational Sciences, and Shu Xiao, associate professor at the CBE, who will investigate the potential of pulse electric fields in disrupting intracellular protein aggregates found in human neurodegenerative diseases, such as



From left: Peter Mollica, Stephen Beebe, Piotr Kraj, Esin Sozer and Willy Wriggers. *Photo Chuck Thomas/ODU*

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Huntington's and Alzheimer's.

Piotr Kraj, associate professor in the Department of Biological Sciences, and Stephen Beebe, research professor in the Frank Reidy Center, will focus on developing

strategies to eliminate tumors by combining electric pulses, which induce tumor cell death, with immunotherapy to enhance Th cell responses to tumor-associated antigens.

Esin B. Sözer, research assistant professor at the CBE, and Willy Wriggers, professor in the Department of Mechanical and Aerospace Engineering, proposed to research how molecules breach a cell membrane that is exposed to electrical pulses for biomedical applications such as gene editing and targeted killing of tumor cells.

**ODU's College of Health Sciences**  
Explore the possibilities!

**Preparing Your Preferred Health Professional**

# Online program ranks among top in nation

By Keith Pierce

Old Dominion University's College of Health Sciences is once again among the nation's best for distance-learning education, according to recently released U.S. News & World Report's 2020 Best Online Programs rankings.

The online rankings include public and private colleges and universities with degree-granting programs. Categories include bachelor's programs and graduate programs in nursing, business, information technology, criminal justice, education and engineering.

Old Dominion's rankings are:

No. 61 (tie), Best Online Nursing Programs (out of 178).

No. 78 (tie), Best Online Master's Education Programs (out of 303).

No. 51 (tie), Best Online Master's Engineering Programs (out of 99).

No. 31, Best Online Information Technology Programs, information systems, computer science, computer engineering and software engineering (out

of 67).

No. 47 (tie), Best Online MBA Programs (out of 326).

No. 73 (tie), Best Online Bachelor's Programs (out of 350).

"We are proud to be recognized again by U.S. News & World Report for the breadth and quality of ODU's online degree programs," said Andy Casillo, associate vice president for distance learning. "Our faculty and staff work hard every day to deliver high-quality education and outstanding student support online. These rankings reflect our ongoing commitment to make diverse, academically rigorous programs available to students right where they are."

Also recognized for outstanding online education for military, the University earned Best Online Bachelor's Program, Best Online MBA Programs and Best Online Master's Education Program for Veterans.

U.S. News & World Report assessed schools based on criteria such as student engagement, student services and technology, admissions selectivity, faculty credentials and training, and peer reputation.

## INTERPROFESSIONAL HEALTH EDUCATION AND RESEARCH

# Virginia Beach health fairs target adults, kids

By Irvin B. Harrell

Health professionals and students from Old Dominion University have scheduled a series of community health fairs this semester for adults and children.

The fairs, part of an Interprofessional Health Education and Research (I-hear) project, will provide dental, vision, and hearing screenings, physical assessments, as well as speech-language and mental health screenings. Interventions may include needs assessments and recommendation for local resources.

The first session was held Jan. 30 from 10 a.m. to

3:30 p.m. The other sessions will be held Feb. 11, 1-5 p.m.; Feb. 13, 10 a.m.-3:30 p.m.; and April 16, 10 a.m.-3:30 p.m. at the Virginia Beach Library – Oceanfront Branch, 700 Virginia Beach Blvd.

Lisa Koperna (rehabilitation sciences), Sharon Stull (dental hygiene), Carolyn Rutledge (nursing), and Karen Higgins (nursing) are among ODU faculty members from the College of Health Sciences participating in the effort.

For more information of the health fairs, call 757-683-4228.

# An Alumni Slam Dunk!



The ODU College of Health Sciences is holding an event for its alumni. Watch the ODU Monarch men's basketball team take on the UTEP Miners while renewing old friendships with fellow college alumni and catching up with your favorite faculty members.

**Thursday, Feb. 6, 2020**  
**Doors open at 6 p.m.; Tip-off at 7 p.m.**  
**Chartway Arena, Club Level, Norfolk, Va.**

*RSVP online no later than Feb. 4 (<https://bit.ly/2RD1z9i>)  
Please respond quickly as limited complimentary game tickets are available. The reception is open to all alumni and their guests.*

**Questions? Please call 757-683-4960**