

# THE SCOPE

THE OFFICIAL NEWSLETTER OF THE COLLEGE OF SCIENCE & MATHEMATICS / SCHOOL OF HEALTH PROFESSIONS

## Message from the Dean

The past year has been particularly exciting for our College and School, and I am happy to share with you some of the many achievements by our faculty and students.



While this newsletter showcases our most recent accomplishments, they are the result of many years of hard work and dedication. Our faculty have developed a reputation for being among the best at preparing their students for careers that make an impact on the world. They have made discoveries, developed novel technologies, and designed more effective ways to disseminate knowledge.

Within these pages you will find stories about our research prominence, student success, outstanding service, and impactful community involvement. From publishing in some of the best international journals to developing new degrees and securing ample resources aimed at enhancing teaching and research, the CSM|SHP faculty and students continue to be at the forefront of Rowan's meteoric rise.

Thank you all for your efforts, support and outstanding results!

**Cristian E. Botez, Dean**  
**College of Science & Mathematics**  
**School of Health Professions**



## NIH awards Psychology Assistant Professor Career Development Award

A \$700,000 grant from the National Institutes of Health (NIH) may very well advance Dr. Danielle Arigo's research career and the health of mid-life women in New Jersey and beyond.

The NIH recently presented Arigo, an assistant professor of psychology, with a Career Development Award. That's a first for a professor on Rowan's main campus in Glassboro, but it's significant for more than that.



**Dr. Danielle Arigo**

Career Development Awards are an investment of sorts: according to the NIH, the organization presents them to recipients "to bring candidates to the point where they are able to conduct their research independently and are competitive for major grant support."

The value is not lost on Arigo who is matter of fact in acknowledging how much one means to someone who is early in her career, believing the funding can "open infinite doors," including those to major NIH funding.

"It's a pretty big deal. It's awarded to investigators who show unique potential to become leading experts in a particular field. I don't know that I can put into words how much this means to me," she said. "I worked my whole career to work on something this big and important. It's a testament to the work we proposed and that they saw a lot of promise in me."

Arigo, who also is an adjunct assistant professor of family medicine at the Rowan School of Osteopathic Medicine, is trying to improve the health of those women by studying and promoting their physical activity.

Menopause, weight issues and other conditions can impact the cardiovascular health and mortality of midlife women. Arigo is using her NIH award, which runs through February 2023, to research the psychosocial barriers that women ages 40 to 60 years old confront in maintaining physical activity, which is critical to reducing the risk of cardiovascular disease and early death.

**Fall/Winter 2018-19**

## Psychology Ph.D. students earn NJPA awards for research

By Dr. Jim Haugh, Dr. Meredith Joppa, and Dr. DJ Angeleone, Psychology

Three Rowan University Department of Psychology doctoral students were honored by the New Jersey Psychological Association (NJPA).

Krista Herbert is a third-year doctoral student in the Clinical Psychology Ph.D. program and a member of the Research on Anxiety and Depression (R.O.A.D.) lab. Her project is part of her doctoral dissertation and in collaboration with the Department of Family Medicine at the School of Osteopathic Medicine. The goal of the project is to examine the efficacy of mobile health (e.g., mobile apps) for individuals with depression in a primary care setting. She will be comparing two different types of mobile apps with the goal of understanding a) is such a program feasible and acceptable to patients, b) is one app more effective than the other, and c) do the apps help reduce symptoms and improve functionality. She will also explore whether matching a patient to their preferred mobile app results in greater overall clinical outcomes and adherence when compared to individuals who are randomized to an intervention.

Nicole Cantor and Ebru Yucel are the joint recipients of the NJPA Foundation Award for Research on Diversity Issues. The title of their project is "Alcohol's Effect on Risk Perception Among Sexual Minority Females: A Laboratory Paradigm." Cantor is a third-year student and Yucel is a second-year student in the doctoral program. Both work in the Aggression, Substance, and Sexuality Research Team (ASSeRT) under the mentorship of Dr. D.J. Angelone and Dr. Meredith Joppa. Given the high prevalence of sexual assault among lesbian and bisexual women, and the link between alcohol use and sexual victimization, their groundbreaking work will examine factors that contribute to risk perception in an effort to enhance future sexual assault prevention interventions.



**Krista Herbert**



**Nicole Cantor**



**Ebru Yucel**

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## Psychology Professor named to prestigious professional committee



**Dr. Georita Frierson**

Dr. Georita M. Frierson, professor and head of the psychology department and director of clinical training of the clinical psychology doctoral program just completed her first three-year term (2016-2019) as a Commissioner for the American Psychological Association (APA) Commission on Accreditation. As of January 1, 2019, she has been re-elected to a second, 3-year term as a Commissioner representing the Council of Graduate Departments of Psychology organization.

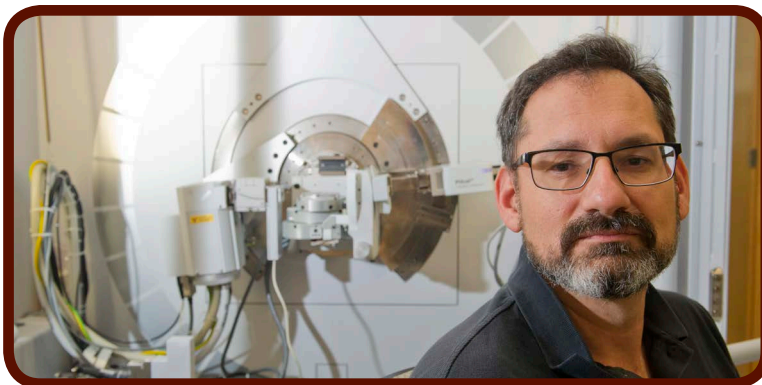
Dr. Frierson is one of 31 elected commissioners to hold this prestigious position. Within the Commission on Accreditation, she is a member of its Executive Board, prior Co-Chair of the Research and Outcomes Committee, regularly Chairs panel reviews every three months, and currently is the Chair of the Training Committee that trains Site Visitors and persons completing accreditation applications. Presently, she is the only commissioner from a New Jersey university or college.

## Physics Professor reaches h-index 50, the highest at Rowan

Dr. Samuel Lofland, professor in the physics department, knew when he was seven years old that he wanted to be a scientist. Throughout school he thought about being a theoretical physicist where he could help develop exotic models to explain the origins of the universe and the myriad of mysterious subatomic particles governed by quantum mechanics. However, near the end of Lofland's time as an undergraduate, he gravitated toward something where his efforts might have more immediate impact.

Not to say that theoretical physics cannot be useful in ordinary situations—consider that Einstein's theory of General Relativity is central to the implementation of GPS. Experimental condensed matter physics has had substantial impact on the development of technology. Note that Nobel prizes have been awarded for transistors, light emitting diodes, and integrated circuits, all of which have transformed the way we live.

As the problems have become ever more complex and challenging, to tackle these issues has required an interdisciplinary approach, and as a result, materials science and engineering has become a major research focus. Lofland has had the privilege to work with chemists, physicists, and engineers on a wide variety of problems, and the synergistic collaboration has allowed him to reach a career milestone of an h-index of 50. That is, of Lofland's 250+ peer-reviewed papers, 50 of them have at least 50 citations each.



**Dr. Samuel Lofland**

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## NIH funds collaboration between Rowan and Cumberland CC

The NIH presented a \$1.3 million, five-year grant to Dr. Alison Krufka, a Rowan associate professor in biological sciences, to lead the initiative, which is part of NIH's focus on fostering diversity in the biomedical workforce.

"It is designed to take students at the community college and get them acclimated to a four-year college, to help them develop the academic and scientific skills they will need to be successful in a bachelor's program," Krufka said.

This year, the students spent most of their time at CCC and its environs, including working on a summer-long research project characterizing viruses that infect bacteria in local water source Crystal Lake, about five minutes from the CCC campus. Working with Rowan's Dr. Gregory Hecht, associate professor of biological sciences, and CCC's Dr. Mark Randa, assistant professor of biology, the students learned in the lab and in the field about microbiology, molecular biology and the local environment.

Randa said the program also included presentations on research by three Rowan biology professors and one chemistry professor and a talk by Rowan's pre-med advisor about medical and veterinary schools, while Krufka visited the CCC campus every other week to conduct research workshops.

"Students also get a paid research experience at Rowan so they do not have to get another job. Research takes time. The students, who will work in biology and biochemistry labs, will gain that time thanks to the paid research experience," Krufka said.

"The most exciting thing is the students at Cumberland County College transferred here in September," Krufka said.

In addition to welcoming the first cohort of six incoming juniors to Glassboro for 2018/19, the program began its second cohort at CCC.



**Dr. Alison Krufka**

## Get FIT, an outreach program by the School of Health Professions, celebrates its 10th anniversary

Welcome to Get FIT @ Rowan, an outreach program of the School of Health Professions founded and directed by Dr. Leslie Spencer, professor in the Department of Health and Exercise Science. There, Rowan health and exercise science majors worked one on one with young adults diagnosed with differing levels of various types of developmental (and some physical) disabilities – and in some cases provided suggestions and words of encouragement to their parents and guardians as well.

A collaborative effort between Rowan University and the non-profit Family Resource Network of New Jersey and funded in part by the Horizon Foundation for New Jersey, Get FIT @ Rowan is part of the national Get FIT program that improves access to fitness, nutritional and wellness programs.

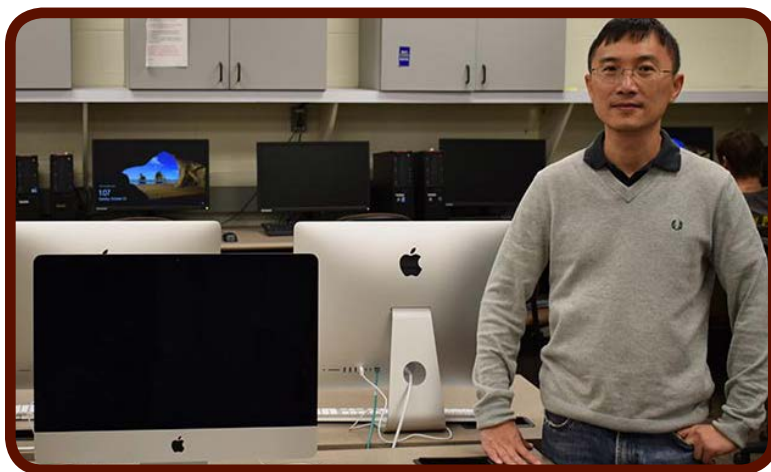
“We cater to people whose disabilities are severe enough that it really wouldn’t be possible for them to join a fitness facility where they would have to be independent and working around other people,” said Spencer. Caregivers may participate in activities. “We really want the caregivers to be full participants. They get their own trainer,” Spencer said. “This is a chance to care for them.”

GetFIT celebrates its 10th anniversary this year, and to date faculty and students have helped more than 150 young adults learn – and enjoy – exercise fundamentals, from lifting weights to using exercise machines to walking to tossing a ball – working toward building strength, increasing balance and stability, and improving cardiovascular health.



**Dr. Leslie Spencer**

## Computer Science Assistant Professor awarded NSF Grant



**Dr. Shen-Shyang Ho**

*By Dr. Anthony Breitzman, Computer Science*

Dr. Shen-Shyang Ho was recently awarded a National Science Foundation (NSF) grant to develop new computational techniques to identify and predict anomalous human activities in an urban environment. In general, the outcomes of the developed techniques support timely resource management such as the reallocation of security personnel to locations with unusual spike in human traffic activity. Dr. Ho is a world-class machine learning researcher who has spent recent years investigating and developing robust techniques for anomaly prediction and detection, that is, forecasting and identifying events that deviate from normal.

This research interest started during his post-doctoral fellowship at the NASA Jet Propulsion

Laboratory/California Institute of Technology when he was tasked with studying cyclogenesis (development or strengthening of cyclonic circulation in the atmosphere) from multiple satellite data sources. His recent research on anomaly detection include detecting anomalous flight behavior, associating radar data of unknown vessels to monitor their trajectories, identifying defects on turbine blades during the manufacturing process, and identifying anomalous bike sharing usage in major US cities. Prior to joining the Computer Science department at Rowan, Dr. Ho was an assistant professor at Nanyang Technological University in Singapore where he worked a number of industrial projects for BMW and Rolls-Royce.

## Molecular & Cellular Biosciences Associate Professor publishes in *Nature Communications*

Molecular & cellular biosciences assistant professor Dr. Mary Alpaugh has 20 years of experience in the field of cancer biology, with particular expertise in the study of inflammatory breast cancer. Her research focus is determining the molecular mechanisms of metastatic progression. In this effort she has established many patient-derived xenograft models. Most significantly, she established the first (and only) human transplantable inflammatory breast cancer (IBC) xenograft, MARY-X, in immune deficient mice, which precisely captures the human IBC signature phenotype.

Dr. Alpaugh has also made significant contributions in the area of precision medicine by establishing an ex vivo technique as well as fluorescent probes/live cell sensors of targeted therapy. Both

are used to identify patients more likely to respond to the experimental drug of interest. In a recent *Nature Communications* publication the fluorescent probe/live cell sensor of a targeted therapy of HSP (heat shock protein) 90 was re-purposed to identify distinct pools of stress HSP90 in Parkinson disease.



**Dr. Mary Alpaugh**

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## Chemistry Assistant Professor makes 40 under 40 “Power List”

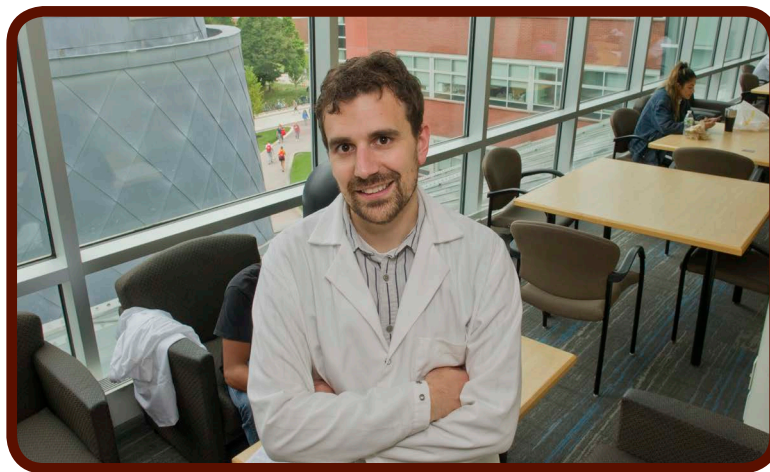
The *Analytical Scientist* magazine named Dr. James Grinias, assistant professor in chemistry and biochemistry, to its 40 under 40 “Power List” for 2018.

Grinias spent the past several years researching the fundamentals of liquid-phase separations in capillary and microfluidic columns as well as applications in neuroscience, molecular physiology and pharmaceutical fields. Grinias’ work led to numerous presentations and nearly 20 peer-reviewed journal articles. He also studies the use of new technology to enhance educational outcomes in the undergraduate analytical chemistry curriculum.

Grinias received his bachelor’s degree in chemistry from Eastern Michigan University and his doctoral degree in analytical chemistry from the University of North Carolina at Chapel Hill. Grinias also completed a post-doctoral research fellowship at the University of Michigan. He has received many honors for his work including a National Science Foundation Graduate Research Fellowship, National Institutes of Health National Research Service Award Post-doctoral Fellowship, 2013 Csaba Horvath Young Scientist Award and the 2017 Eastern Michigan University Young Alumnus of the Year award.

Since 2010 Grinias has been a member of the American Chemical Society and its Chromatography and Separations Chemistry subcommittee. He is an executive committee member of the Chromatography Forum of Delaware Valley and regularly serves as a reviewer for four separations-related journals.

The *Analytical Scientist* publication celebrates technology and innovations shaping measurement science. To learn more visit [theanalyticalscientist.com](http://theanalyticalscientist.com).



**Dr. James Grinias**

## Rowan hosts grand re-opening of the Edelman Planetarium



**Ric Edelman & Dr. Ali Houshmand**

Rowan University students, faculty, staff, and donors enjoyed a presentation on the night sky and a program on dark matter as part of the grand re-opening of the Jean and Ric Edelman Planetarium on November 14.

This fall the College of Science & Mathematics, home to the 14-year-old planetarium, upgraded equipment and software that opened the door to new programming for the University community, K-12 students and others from throughout South Jersey. The upgrade includes a digital planetarium system that features three graphics computers, full-featured digital planetarium software with an extensive library of models and lessons, an Xbox controller, a virtual reality system and more.

The Edelmans, who graduated from Rowan in the 1980s and are well-known for their financial

services firm and philanthropy, donated \$1 million toward the planetarium at its start and more funds to sponsor young students to attend shows there.

Both were on hand at the grand re-opening for a brief ceremony, the new programs presented by the planetarium director, Amy Barraclough, and a reception.

Dr. Ali Houshmand, president of Rowan, referred to them as a “Renaissance couple” who “invested their wealth in making the lives (of so many youths) better for generations to come.” He noted that the Edelmans, who also contributed \$25 million to the fossil park that bears their name in nearby Mantua Township, have “done wonders for the University” in the areas of STEAM (science, technology, engineering, arts and mathematics).

Jean Edelman said that Rowan is her and her husband’s home, and that made it an excellent place to support. “I think life is about making an impact,” she said, noting there was no better place to do that than at the University.



**Jean Edelman**



**Dr. Cristian Botez**

Ric Edelman said supporting the planetarium – as well as the fossil park – is important for the future. “We need to keep our country number one as the global economic power,” he said. He noted that the only way to do that is to continue to encourage people to excel in science, technology, engineering and mathematics fields, and the best way to interest people in pursuing such fields is to “get them when they’re young.”

According to the dean of Science & Mathematics, Dr. Cristian Botez, 32,000 guests visited the planetarium last year, including 13,000 students who attended shows for free via the program the Edelmans established to cover admission costs for school field trips. Barraclough said the recent upgrades to the facility would not have been possible without the Edelmans’ support.

## Cybersecurity expert expands Rowan's computer science curriculum through his research



**Dr. Vahid Heydari**

*By Jack Myers, Computer Science*

Few careers have experienced the same meteoric rise in demand as cybersecurity. The need for skilled professionals who can manage security services and design cyberdefense is burgeoning, outstripping the supply of qualified professionals. Rowan University is striving to close this gap through new academic programs and research in the field of cybersecurity. Dr. Vahid Heydari, director of Rowan's Center for Cybersecurity Education and Research, published cybersecurity expert and computer science faculty member, has been working with the National Security Agency (NSA) and the Department of Homeland Security to develop new cybersecurity curriculum.

Under the guidance of Dr. Heydari, the computer science department has created programs in Cybersecurity Defense and Cybersecurity Operations and is currently seeking NSA/DHS recognition of Rowan University as the National Center of Academic Excellence for these programs. Dr. Heydari, assisted by Rowan students, is conducting research on the design of novel approaches for thwarting cyberattacks on the world's increasingly exposed infrastructure. His approach revolves around the idea of rapidly changing the network addresses of connected devices to create virtual "moving targets."

Cybersecurity is further engrained into Rowan culture through the Cybersecurity Club where students explore the newest cutting-edge cyber security strategies and issues. New courses in cybersecurity operations, cloud computing and the Internet of Things have also been created.

## Aubrie Weyhmiller's summer spent at NIST



**Aubrie Weyhmiller**

Senior Aubrie Weyhmiller spent her summer at the National Institute of Standards and Technology (NIST) Center for Neutron Research in Gaithersburg, MD. She participated in their Summer Undergraduate Research Fellowship (SURF) program. Weyhmiller, a biophysics major, worked specifically for their health physics group creating an online application for predictive dose calculations.

"I absolutely loved the SURF program and working at NIST," remarked Weyhmiller. "I am a commuter student and live with my parents so this was my first opportunity to go out on my own."

Although she went into the summer with very little coding experience and no experience in web development, by the end Weyhmiller successfully created a website that performs bounding predictive dose calculations for external, internal, and skin doses. "Our goal is for the website to be deployed on a server and eventually be integrated in other neutron facilities," stated Weyhmiller. "This project helped us realize how various health physics resources are not yet digitized. Creating programs and databases/applications such as mine could significantly benefit the field. My mentors and I are going to keep in contact, and this project is going to be continued by other interns."

"NIST is a wonderful workplace," explained Weyhmiller. "Everyone I met there was friendly and never hesitated to help me when I had a question, or they would find someone who could. They fully supported us as students and respected our ideas and thoughts."

Weyhmiller's summer experience also brought into focus what her future may hold. "This summer has helped me realize that I want to obtain a degree in medical physics. I am currently in the process of searching for a graduate program."



**COLLEGE OF SCIENCE & MATHEMATICS  
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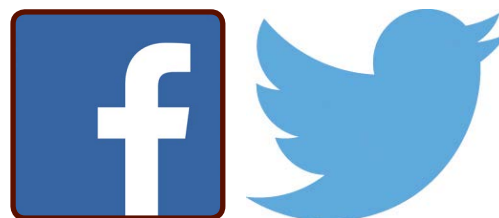
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## THE SCOPE - Fall/Winter 2018-19

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