RIT | College of Science

DEAN'S BULLETIN

January 2022 in Review

View from Chester F. Carlson Center for Imaging Science

photo credit: Jonathan Leung

Message from the Dean

It's a new year and a renewed opportunity to realize our goals. When the College of Science developed its 2nd Strategic Plan in 2019, we had big goals to reach by 2025. As we pass the midway point, we have much to celebrate and an ambitious vision for what remains.

This month, the Faculty Senate voted to approve a new **BS program in Neuroscience**. This program will be housed in the Integrated Sciences Academy and will involve extensive collaboration between the Program of Color Science and the Department of Psychology. Through the implementation of our two strategic plans, several other new academic programs have been added to our college's portfolio. An update is included in this bulletin.

This year we are also working on **Student Success** initiatives to improve 1st and 2nd year persistence rates and overall graduation rates, on **Research and Scholarship** by continuing to build the strong research culture in our college, on **Expanding our Graduate Education**, and on **Diversity Equity and Inclusion** by continuing to be a leader in creating a culture of inclusion and diversify our faculty, staff, and students.

We have already put in a lot of hard work, dedication, and demonstrated innovative spirit, passion and agility to achieve our goals. I am grateful and proud of our faculty, staff, and the COS leadership team for their contributions to the mission of our college. I am looking forward to working with them to keep the COS community strong and to inspire our students to develop the self-confidence they need to be change makers, to embrace social justice, and to identify and solve the major challenges facing our world.

SOPHIA MAGGELAKIS

Dean, RIT College of Science

Student & Alumni News

2021-2022 Distinguished Alumni: Laurie E. Axelrod

Every year, RIT honors an **exceptional class of alumni** who have brought distinction at the highest levels to their college and RIT through professional, community or philanthropic achievements. This year's College of Science awardee is **Laurie E. Axelrod BS '86**, Co-Founder & CEO of Wheelhouse Group Inc., a professional services firm that guides executive leaders as they drive transformational technology changes in their organizations.
The full class of 2021-2022 Distinguished Alumni were honored at a reception held at the Lobozzo Alumni House on January 31.

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Women's Leadership Summit

Laurie Axelrod, 2021-2022 College of Science Distinguished Alumna, gave the keynote address at the **Women's Leadership Summit**, hosted by the Leadership Academy at Saunders. Our college sponsored twenty students to attend the Summit, which was held on January 30 in the Student Alumni Union and Campus Center.

The mission of the Women's Leadership Summit is to inspire, connect, and educate women & allies to become tomorrow's future leaders. Now in its second year, the WLS focuses on driving leadership excellence in all industries from arts, sciences, to technology. Attendees participated in interactive workshops, professional development seminars, RIT TED Talks, BE STEAM Challenge and the most anticipated C-Suite Panel.

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Undergraduate research on the rise at RIT

Marissa Schroeter chose RIT for its science expertise and the chance to join a research lab in her first semester. Now Schroeter, a fourth-year **biomedical sciences** and **biotechnology and molecular sciences** double major, splits her time as a student researcher in labs located in the **College of Health Sciences and Technology** and in the **College of Science**.

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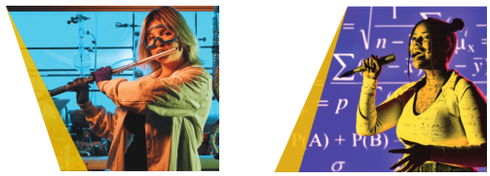

Setting the Stage for the Performing Arts

RIT students have never had as many ways to pursue their love of performing arts as they do now. From scholarships, new clubs and classes, private music lessons, community partnerships, and exciting new venues being built on campus, performing arts for RIT students is literally becoming a show stopper.

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RIT students to perform in Ovation next Friday

RIT students will have a chance to show their talents and compete for cash prizes during **Ovation: RIT Performing Arts Showcase**, from 7 to 9 p.m. on Friday, February 4 in the Robert F. Panara Theatre in Lyndon Baines Hall. Three of the performances will include College of Science students:

- Pandemic step team – including member **Amyria Kimble** '24, chemistry
- "Desperado" – **Taylor Greider** '24, applied mathematics
- "Need Somebody to Love" – Eight Beat Measure including members:
  - **Matthew Kelsey** '25, biology
  - **Troy Church** '24, imaging science
  - **Noah Thornton** '22, applied statistics and actuarial science

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Transfer Student Strengthens Communication and Professional Skills Through Research

Transitioning from community college to RIT gave **Deanna Abid** '22 opportunities to participate in research programs that strengthened her communication and professional skills.

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Analyzing Alligator Blood to Identify Toxic Chemical Effects

MaKayla Foster was able to dive into research during her MS program in chemistry at RIT. Today, she's analyzing the effects of chemicals on alligators.

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How Mathematicians Move Business Forward

Emily (Kiesel) Wert has shown business leaders how valuable mathematicians are on any data analysis and problem-solving team.

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Our Stories

Professor helms program for NASA's newest space telescope

When the James Webb Space Telescope (JWST)—the long-awaited successor to the Hubble Space Telescope—becomes operational this year, **Jeyhan Kartaltepe** will co-lead a team of nearly 50 researchers to map the earliest structures of the universe.

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RIT scientists confirm a highly eccentric black hole merger for the first time

For the first time, scientists believe they have detected a merger of two black holes with eccentric orbits. According to a **paper published in *Nature Astronomy*** by researchers from Rochester Institute of Technology's **Center for Computational Relativity and Gravitation** and the University of Florida, this can help explain how some of the black hole mergers detected by LIGO Scientific Collaboration and the Virgo Collaboration are much heavier than previously thought possible.

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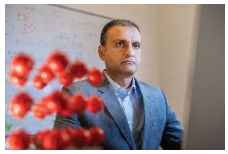

Scholars earn coveted early career awards

Three faculty members, including two from the College of Science, who chose to start their research careers at RIT received prestigious **National Science Foundation CAREER Awards** in 2021. Their research aims to advance the foundations of machine intelligence, artificial intelligence, and clean energy.

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Tait Preserve becoming hotbed for interdisciplinary research

RIT has an emerging new hotspot for interdisciplinary research about 25 minutes from the main campus.

In 2021, the Tait Preserve of RIT served as an important location for experiments by researchers in imaging science, environmental science, mathematics, chemistry, and engineering.

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Honors, Recognition, and Awards

Please join me in congratulating our colleagues who have been awarded **Leaves of Absence for Professional Development for the Academic Year 2022-23**. Congratulations, everyone and best wishes for a productive sabbatical!

Professor **Mark Fairchild**, head of the Integrated Sciences Academy and director of the Munsell Color Science Laboratory (MCSL) and the program of color science, was awarded the Godlove Award by the Inter-Society Color Council. The Godlove Award is the most prestigious award bestowed by the ISCC and honors long-term contributions to the field of color.

Fairchild is the third RIT recipient, following MCSL founder Franc Grum in 1985 and Professor Emeritus Roy Berns in 2009.

Maureen Ferran, associate professor in the Thomas H. Gosnell School of Life Sciences, joins the Editorial Board of Current Protocols, the leading resource of peer-reviewed, laboratory protocols in the life sciences. She will serve as the virologist within the Microbiology subject area. Editorial Board Members are active researchers, recognized as experts in their respective fields, and play a key role in curating and soliciting content and providing advice on journal strategy, policy, and scope.

Congratulations to Cassandra Nickels, COS Marketing Director, for successful completion the Cultural Humility Certificate program through the Division of Diversity and Inclusion. Cassandra is the 8th member of the COS staff to complete the program this year.

College Updates

State of our Academic Programs

In 2010, we launched the *COS 2012–17 Strategic Plan* which was developed with the participation of our faculty, staff and students. This plan was completed by the end of the Academic Year 2017 when we initiated the process of drafting the *COS 2019–25 Strategic Plan* which we are currently implementing. These strategic plans were used to provide a focused direction, identify our collective opportunities and possibilities, inform our budget and decision-making process, and to answer questions such as: What kind of college do we want to be? What should distinguish the College of Science from the rest of the colleges at RIT and from other educational institutions?

Through the implementation these two strategic plans, we were able to launch the following new academic programs:

New Ph.D. Programs:

- **Ph.D. in Mathematical Modeling**
- **PhD in Cognitive Science**, joint program with the College of Liberal Arts, the Golisano College of Computing and Information Science, the Kate Gleason College of Engineering, and the National Technical Institute for the Deaf

New BS Programs:

- **BS in Applied Statistics and Data Analytics** (changed title and curricula of BS in Applied Statistics and Actuarial Science).
- **BS in Integrated Sciences and Business**, joint program with the Sunders College of Business (to be submitted to NYSED)
- **BS/BA in Neuroscience,** joint program with the College of Liberal Arts (to be submitted to NYSED)

New MS Programs:

- **MS in Physics**
- **MS in Computational Finance,** joint program with the Sunders College of Business
- **MS in Data Science,** joint program with the Golisano College of Computing and Information Science
- **MS in Artificial Intelligence,** joint program with the Golisano College of Computing and Information Science, the Kate Gleason College of Engineering, and the College of Liberal Arts

New BS/MS Programs:

- **BS/MS in Biotechnology and Molecular Bioscience/Bioinformatics**
- **BS/MS Physics/Public Policy**
- **BS/MS Chemical Engineering/Materials Science**
- **BS/MS Biology/Environmental Science**
- **BS/MS Physics/Sustainable-Systems**
- **BS/MS Physics/Physics**
- **BS/MS Packaging Science/Materials Science** (to be submitted to NYSED)

New Minors:

- **Art of Science/Science of Art**
- **Applied Cognitive Neuroscience**
- **Environmental Science**
- **Actuarial Science**

New Double Majors:

- **Biotechnology and Biochemistry**
- **Chemistry and Mathematics**
- **Applied Mathematics and Physics**
- **Environmental Science and Biology**
- **Environmental Science and Economics**

New Immersions:

- **Biology - Cellular and Molecular**
- **Biology - Ecology and Evolution**

Transferred Programs (from the Kate Gleason College of Engineering)**:**

- **MS in Applied Statistics**
- **Advanced Certificate in Applied Statistics**

I am grateful and proud of our faculty, staff, and the COS leadership team for their contributions to the mission of our college and for the time and great work they devoted towards developing these innovative programs. Their dedication to our students and to COS/RIT is commendable. We are all working very hard to maintain and improve the quality of all academic programs.

More updates on the progress we are making towards achieving the goals and objectives of our strategic plan will follow in the upcoming Dean's Bulletins.

Peer Reviewed Publications

Ke Xu, assistant professor in the School of Physics and Astronomy and faculty of Microsystems Engineering and the Future Photon Initiative at RIT, is co-first author of "Photoluminescence Switching Effect in a Two-Dimensional Atomic Crystal," published in the journal ACS Nano. Dr. Xu and his research group use the interplay between ions and electrons at the molecular level to design next-generation electronic and photonic devices.

Dina Zohrabi Alaee, postdoctoral associate in the School of Physics and Astronomy, was the lead author of "Impact of virtual research experience for undergraduates experiences on students' psychosocial gains during the COVID-19 pandemic." Co-authors are **Micah Campbell** '21 (physics), a data science graduate student, and Ben Zwickl, associate professor in the School of Physics and Astronomy. The article was designated as an Editor's Suggestion by the journal Physical Review Physics Education Research.

Emily Myers '21 Ph.D. (imaging science); her advisor, John Kerekes, research professor in the Chester F. Carlson Center for Imaging Science; and collaborators from the USDA Agricultural Research Service published "Effects of Satellite Revisit Rate and Time-Series Smoothing Method on Throughout-Season Maize Yield Correlation Accuracy" in the IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing.

Yang Goh '18 (chemistry) and **Samantha Lauro** '18 (chemistry) published an article "Cleaner production of flexographic ink by substituting carbon black with biochar" in the Journal of Cleaner Production. The article was based on research they conducted with mentor Scott Williams, professor, and head of the Materials Science and Engineering Program, and the Thomas Trabold research group in the Golisano Institute for Sustainability. The results indicate that it is possible to replace fossil fuel-based carbon black with biomass-derived biochar, potentially resulting in cleaner production of flexographic printing inks.

Speaker Series

Inclusive Excellence Distinguished Seminar

On January 19, the **Inclusive Excellence** group hosted a Q&A with the authors of *Did that Just Happen?! Beyond "Diversity" -- Creating Sustainable and Inclusive Organizations*. Stephanie Pinder-Amaker, assistant professor at Harvard Medical School and Lauren P. Wadsworth, founder and director of the Genesee Valley Institute of Psychology shared their journey in researching and writing this book with a virtual audience of 50 faculty, staff and students.

Sponsored Research

Paul Craig, SCMS, is the PI with co-PI **Suzanne O'Handley** (SCMS) on a $588,632.00 grant from NSF-National Science Foundation to support a project titled "Collaborative Research: Sustainable CURE implementation: Characterizing the role of flexible design and instructor supports across diverse institution types."

Emmett Ientilucci, CIS, is the PI on an $83,717.00 grant from Labsphere, Inc. to support a project titled "Support to FLARE Project, Year 3."

Kaeti Stoss, GSoLS, is the PI on a $3,300.00 grant from the National Oceanic and Atmospheric Administration / St. John Fisher College to support a project titled "Our Lakes, Streams, and Rivers: Online and Online and Field-based Hybrid Teacher Training."

Scott Williams, SCMS, is the PI with co-PI **Dennis Comier** (KGCOS) on a $20,316.00 grant from Corning Incorporated to support a project titled "Printed Conductors."

Michael Zemcov, SoPA, is the PI with co-PI **Dorin Patru** (KGCOE) on a $333,224.00 grant from NASA-National Aeronautics and Space Administration to support a project titled "Composing the History of Near-IR and Optical Light Production with the Cosmic Infrared Background Expeirment-2 (CIBER-2)."

COS in the Media

Space.com – Jan 21
Researchers detect 1st merger between black holes with eccentric orbits
Space.com reports on research led by RIT scientists on a merger of two black holes with eccentric orbits.

WROC-TV – Jan 21

Rochester and Corning in space: How New York connections are powering James Webb Space Telescope
WROC-TV talks to **Don Figer**, director of the Center for Detectors, about his work on the James Webb Space Telescope.

City News – Jan 20
Enveloped by 'Beyond Van Gogh'
City Newspaper talks to **Roy Berns**, retired professor of color science, about the "Beyond Van Gogh: The Immersive Experience" art exhibit.

The Conversation – Jan 19
CORBEVAX, a new patent-free COVID-19 vaccine, could be a pandemic game changer globally
Essay by **Maureen Ferran**, associate professor in the Thomas H. Gosnell School of Life Sciences, published by *The Conversation*.

WXXI Connections – Jan 3
Discussing the themes in the film, "Don't Look Up"
WXXI's "Connections" program features Professor Emeritus **Roger Dube**.

WHAM – Dec 30
Livingston Co. distributes KN95 masks to its residents amid omicron spike
WHAM-TV talks to **Andre Hudson**, professor and head of the Thomas H. Gosnell School of Life Sciences, about the benefits of KN95 masks versus cloth masks.

WXXI News – Dec 25
RIT scientists have a role in the James Webb Space Telescope research
WXXI features **Jeyhan Kartaltepe**, assistant professor in the School of Physics and Astronomy, and the program she is leading to use the James Webb Space Telescope to study thousands of the earliest galaxies in the universe.

WHAM-TV – Dec 24
Rochester researchers, engineers involved in launch of Webb telescope
WHAM-TV features **Jeyhan Kartaltepe**, assistant professor in the School of Physics and Astronomy, and the program she is leading to use the James Webb Space Telescope to study thousands of the earliest galaxies in the universe.

WROC-TV – Dec 23
Adam Interviews RIT professor to explore galaxies through new telescope
WROC-TV features **Jeyhan Kartaltepe**, assistant professor in the School of Physics and Astronomy.

The Conversation – Dec 22
2021: a year physicists asked, 'What lies beyond the Standard Model?'
Essay by **Aaron McGowan**, principal lecturer in physics and astronomy, published by *The Conversation*.

The Atlantic – Dec 20
We Have One Shot to See the Universe Like Never Before
The Atlantic talks to **Jeyhan Kartaltepe**, assistant professor in the School of Physics and Astronomy, about the program she is leading to use the James Webb Space Telescope to study thousands of the earliest galaxies in the universe.

The Conversation – Dec 20
Genomic sequencing: Here's how researchers identify omicron and other COVID-19 variants
Essay by **Andre Hudson**, professor and head, and **Crista Wadsworth**, assistant professor, Thomas H. Gosnell School of Life Sciences, published by *The Conversation*.

Do you have news you want amplified? Submit the details using the new COS Newsmakers Form, and we'll help you share it. "COS Newsmakers" is a quick and easy way to acknowledge the professional and academic accomplishments of COS faculty, students, and staff for acknowledgement in upcoming monthly newsletters, web and social media, or even RIT news!
Examples of achievements may include:

- publishing an article in a scholarly peer-reviewed journal
- presenting research at a conference
- sponsored research awards
- earning a scholarship
- winning an award
- …and more!

COS Newsmaker Submission Form

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