RIT | College of Science

DEAN'S BULLETIN

# March 2021 in Review

## Message from the Dean

"Luck is what happens when preparation meets opportunity." This quote, attributed to the stoic Roman philosopher Seneca 2000 years ago, sums up how I feel about the time we are living in… We are lucky to be alive in a time when we have scientists who are so well prepared to solve the "opportunities" facing humanity: climate change, the pandemic, exploration of life here on earth, and mysteries of the universe. Opportunities abound!

And as a university, we are preparing the next generation of scientists and mathematicians to meet the opportunities they will face in the future. This past month we heard from our alumni who are involved in vaccine development, variant identification, and genome sequencing in our **Tigers Fight Back** panel discussion, and read about an alum creating facemasks that fight bacteria. What luck that their preparation has brought them to this moment in time! This past month we also welcomed accepted students into our community through a series of virtual open house events, 1-1 emails and calls, and in-person visits with our faculty. We're thrilled to be able to show families around our renovated labs and beautiful campus while still following safety protocols.

March is always an amazing month in the Academic World. Honors and Awards are announced and presented at this time of the year and once again, the College of Science is home to students and faculty who are rightfully being recognized for outstanding accomplishments. We're proud of the legacy of high caliber teaching throughout the college, and this year we are excited to share the news that three of the highest teaching honors were awarded to members of our college: Assistant Professor **Emmett Ientillucci**, Associate Professor **Nate Barlow** and PhD candidate in the Mathematical Modeling program **Bridget Torsey**. Congratulations to each of them for the recognition of their dedication to our students!

As we crossed the one year anniversary of the declaration of the pandemic, I was proud to share my thoughts on the outstanding work that our COS faculty have done over this past year to fight the COVID-19 pandemic with the larger Rochester community in an opinion piece written for the *Rochester Beacon*. I hope you will read it and know how incredibly proud I am to lead such an outstanding scientific community.

The end is in sight… but we will continue to prepare for the next opportunity!

SOPHIA MAGGELAKIS

Dean, RIT College of Science

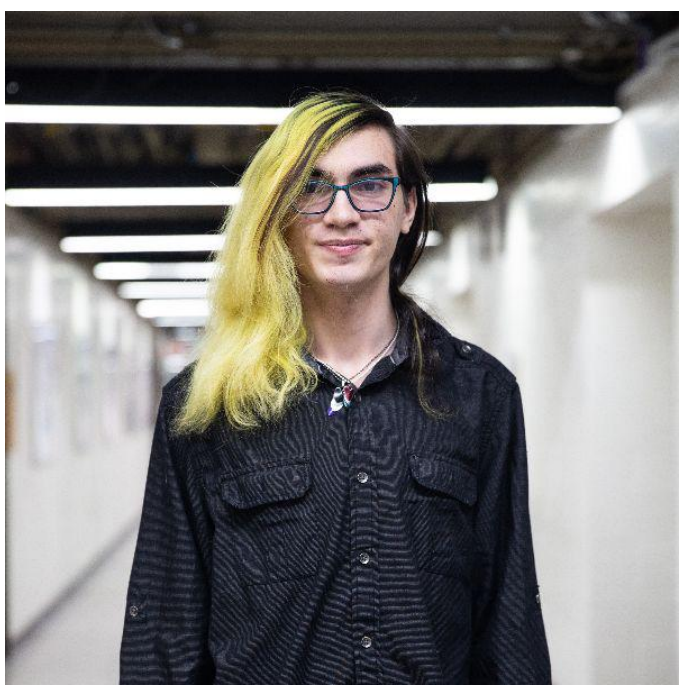
# Student & Alumni News

## Ph.D. student wins Provost's Outstanding Graduate Teaching Award

**Bridget Torsey,** a Ph.D. student in RIT's mathematical modeling program from Buffalo, N.Y., has received the Provost's Outstanding Graduate Teaching Award. Along with taking rigorous courses, Torsey has been teaching at RIT for eight semesters and working part-time as an engineer at Ortho Clinical Diagnostics in Rochester. Torsey was part of the first cohort of Ph.D. students who led their own sections of calculus workshops at RIT. Later, she was one of the first Ph.D. students to run a recitation for a large-section math course at RIT. In these roles, Torsey has received glowing evaluations from the undergraduates she has taught.

**Read More >**

---



## Mathematics student named Goldwater Scholar

Fourth-year Applied Mathematics major Quinn Kolt has been named a 2021 Goldwater Scholar. The Barry M. Goldwater Scholarship is the premier undergraduate research scholarship in the fields of math, natural sciences and engineering in the United States. Quinn is the 28th College of Science student to receive this national honor since 2005. Quinn was mentored by School of Mathematical Sciences Professors Akhtar Khan, James Marengo and Assistant Professor Olalekan Babaniyi. Quinn's stated career goal is to obtain a Ph.D. in Mathematics, perform research in operator algebras and inverse problems, give lectures, and provide academic support to students as a professor at the university level.

---

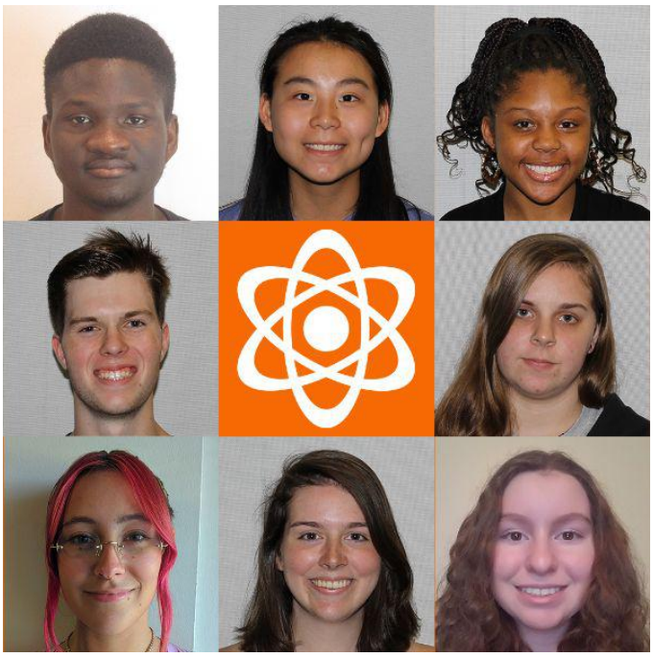
## First Year student wins prestigious fellowship opportunity

Science Exploration student, **Nidhi Baindur**, was named a 2021-2022 Newman Civic Fellow, The Newman Civic Fellowship recognizes and supports community-committed students who are changemakers and public problem-solvers at Campus Compact member institutions. Fellows are nominated by their president or chancellor on the basis of their potential for public leadership.

While this is just her first year at RIT, Nidhi is enthusiastic about engaging in our local community as a College of Science Student Ambassador while working towards her larger goal of “contributing to a world where quality education for all is a necessity and not a privilege.”

**Read More >**

---



## Outstanding Undergraduate Scholars

Since 1976, RIT has honored the top 1% of students who are able to maintain a record of academic excellence while also giving back to their community through civic or volunteer work, conducting research, or being engaged in co-op or work in their field of study. A virtual celebration was held on March 18 to honor the 2020-2021 Outstanding Undergraduate Scholars, including eight from the College of Science:

- **Nana Aikins** – Biochemistry BS
- **Virginia Aswad** – Biotechnology & Molecular Bioscience BS
- **Niaya Jackson** – Biochemistry BS
- **Jake Koerner** – Applied Statistics & Actuarial Science BS and Computational Mathematics BS
- **Ashley Martsen** – Physics BS
- **Celia Mercovich*** – Physics BS
- **Gabriella Wolf** – Computational Mathematics BS
- **Emalee Wrightstone*** – Biotechnology & Molecular Bioscience BS

**Scholar is a member of the RIT Honors Program*

**Read More >**

---

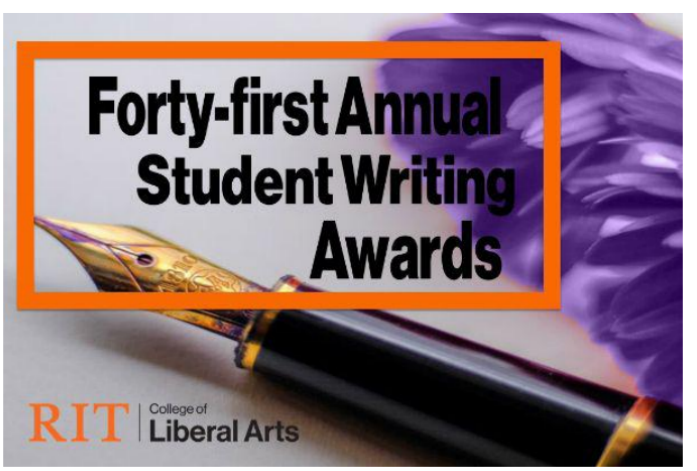
## Baldwin Scholars Announced

The David M. Baldwin Memorial Scholarship awards outstanding scholars with recognized service to RIT, the Thomas H. Gosnell School of Life Sciences, and the wider community.  Congratulations to the 2020-21 Baldwin Award winners:

- **Virginia Aswad** – Biotechnology and Molecular Bioscience-BS
- **Ashley Tucker** – Biology-BS and Biomedical Sciences-BS
- **Rachael Hoh** – Biology-BS
- **Jay Wickard** – Biology-BS
- **Margo McBrearty** – Biology-BS
- **Safiya Gazali** – Biology-BS

**Read More >**

---

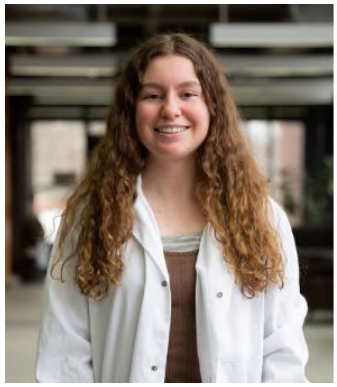



## College of Liberal Arts honors students for writing excellence

The College of Liberal Arts honored 15 students with the 41st Annual Student Writing Awards. Fourth-year physics major, **Zachary Gazzillo**, was among the award winners. His essay, *The Problems of Time and Power: A Case for Avoiding Corporate Cooperation in Environmental Conservation* won the Kearse Award from the Department of Philosophy.

**Read More >**

---



## RIT undergraduate students receive research funding from Rochester Academy of Science

An essential part of the research process, two RIT undergraduate students, learn that the grant writing process is more of an art than a science.

**Read More >**

---

## From RIT to PharmD: It's More Than Filling Prescriptions

**Joy Snyder** '13 (biochemistry BS) took full advantage of RIT's science, business, and liberal arts programs, preparing her for the complex needs of overseeing Monroe County's COVID-19 vaccine efforts.

**Read More >**

---

## RIT students discover hidden 15th-century text on medieval manuscripts

RIT students used an imaging system they developed as freshmen to reveal hidden text by using ultraviolet-fluorescence imaging. Now their work is going viral.

**Read More >**

---

### From RIT to MD: Part of the Team that Saves Lives

**Kyle Grimaldi** '12 loved biology, chemistry, and being part of a team. Today, Kyle is among doctors, PAs, NPs, nurses, techs, and ancillary staff helping people every day.

**Read More >**

---

### Tigers Fight Back

COS alumni have been hard at work combating COVID-19 through vaccine development, variant identification, and genome sequencing. On March 16, Associate Professor Maureen Ferran led a panel discussion with three alumni panelists **Alex Freyn** '16, **Kaitlin Marquis** '15, and **Callie Donahue** '18 as they shared their expertise on their research aspects and implications.

---

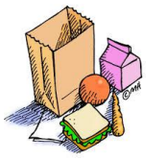
### How'd she get there?

On March 18 alumna, **Dr. Teresa Ayela-Uwangue** '02 shared the story of her journey from RIT to internal and pediatric medicine.

---

### Learning Assistant conversations

The Center for Advancing STEM Teaching, Learning and Evaluation - CASTLE held a session of their Learning Assistant Brown Bag Lunch Conversation series for students and mentors involved in the Learning Assistant program. The March discussion focused on Student Motivation – ways to help students stay motivated and how to actualize these ideas in the classroom.



## Our Stories

### Alumnus Creates Mask that Provides Defense and Offense Against Coronavirus

Is your mask a personalized petri dish? Learn how RIT alumnus and serial entrepreneur, **Ken Reed** ‘71, partnered with his wife Shirley to develop a state-of-the-art face mask that kills bacteria and viruses on the surface.

**Read More >**

---

### RIT researchers helping to develop artificial intelligence systems capable of playing 'Starcraft II'

A team of Rochester Institute of Technology researchers that develops artificial intelligence systems capable of learning over time is putting its work to a unique new test: creating machines capable of playing the popular video game *Starcraft II*. Christopher Kanan, an assistant professor at RIT’s Chester F. Carlson Center for Imaging Science, received nearly $210,000 from the Defense Advanced Research Projects Agency (DARPA) to work on phase two of the Lifelong Learning Machines (L2M) program this year.

**Read More >**

---

### RIT’s Pratik Dholabhai earns NSF CAREER Award to study materials in solid oxide fuel cells

A Rochester Institute of Technology faculty member has earned a prestigious National Science Foundation award to conduct fundamental physics research on complex materials in solid oxide fuel cells. Assistant Professor Pratik Dholabhai from RIT’s School of Physics and Astronomy received an NSF Faculty Early Career Development (CAREER) award and grant for his five-year project.

**Read More >**

---

## Honors, Awards & Recognitions

## COS Faculty members receive RIT's highest teaching honors

Teaching excellence is a pillar of the RIT academic/core strengths. This year, two COS faculty are among the recipients of RIT's highest teaching award honors:
The Richard and Virginia Eisenhart Provost's Award for Excellence in Teaching recognizes tenure-track faculty who excel in teaching and leadership on campus.
Emmett Ientilucci, assistant professor in the Chester F. Carlson Center for Imaging Science, is the recipient of the 'The 2020-21 Richard and Virginia Eisenhart Provost's Award for Excellence in Teaching.'

The Eisenhart Awards for Outstanding Teaching is RIT's highest honor for tenured faculty. Annually, it recognizes up to four faculty members who excel at teaching and enhancing student learning.
Nathaniel Barlow, Associate Professor in the School of Mathematical Sciences, is one of the recipients of 'The 2020-21 Eisenhart Award for Outstanding Teaching.'

Thank you Emmett and Nate for your dedication to our COS students!

---

Kalathur "KSV" Santhanam, a professor in the School of Chemistry and Materials Science, has accepted an invitation to serve on the Editorial Board of *MDPI Journal of Composite Science*. As a pioneer in academic open access publishing, MDPI fosters scientific exchange in its various forms across all scientific disciplines.

---

Assistant Professor Jeyhan Kartaltepe, of the School of Physics and Astronomy and Director of the Laboratory for Multiwavelength Astrophysics, was awarded nearly 300 hours of research time using the James Webb Space Telescope in the coming research cycle which will last about one year beginning May 1, 2022 and ending on April 30, 2023. In this very competitive application process, there were 1084 proposals were submitted to request time using the telescope, adding up to over 25,000 requested hours of which only 6000 hours were available for outside researchers.

---

Nourridine Siewe, assistant professor in the School of Mathematical Sciences, was awarded a scholarship to the National Center for Faculty Development and Diversity (NCFDD) Faculty Success Program sponsored by the RIT Office of Faculty Affairs and Faculty Career Development. The virtual summer program runs May 16 to August 7. The program is designed to teach tenure-track and tenured faculty the skills to increase research and writing productivity while maintaining a healthy work-life balance.

# College Updates

Images courtesy of Uprising, LLC

### Inclusive Excellence hosts discussion groups

The **Inclusive Excellence** group hosted three discussions in March:

An Inclusive Excellence brown bag discussion "**Unpacking the Title IX Process at RIT**" was an opportunity for faculty, staff and students to share their perceptions, questions and thoughts about Title IX and learn from the experts about the Title IX process at RIT.

Discussion of the film "**Picture a Scientist**" was held in collaboration with RIT/ADVANCE, looking at the inclusion or exclusion of women in the field of science throughout the years.

The **COS Staff Inclusivity Survey** results from April 2019 were shared and discussed, focusing on what College of Science staff had to say about their perceptions of where the college is in the movement towards a healthier inclusive environment.

### COS Distinguished Speaker Series – Small RNAs: Small but Powerful

The **College of Science Distinguished Speaker Series** continued in March with an exploration of small RNAs, with guest speaker **Dr. Xuemei Chen**, hosted by the Thomas H. Gosnell School of Life Sciences. Dr. Chen is a distinguished professor at the Department of Botany and Plant Sciences at the University of California, Riverside where she studies RNA modifications along with the molecular mechanisms underlying the biogenesis, degradation, and modes of action of small RNAs in plants. In 2006, Dr. Chen received the Charles Albert Shull award from American Society of Plant Biologists. She was elected an AAAS Fellow in 2011 and a member of the National Academy of Sciences in 2013.

**Read More >**

# Peer Reviewed Publications

Gregory Babbitt, associate professor in the Thomas H. Gosnell School of Life Sciences, is the lead author of a computational cancer drug study (with collaborators at HWI-Buffalo and Georgetown University Medical Center). Based on machine learning software/method published earlier in the year and presented at the 2020 Biophysical Society Meeting, the work was part of a long-term intellectual collaboration with Ernest Fokoue, professor in the School of Mathematical Sciences at RIT.

In honor of **Andreas Langner**, professor of chemistry who passed ten years ago, the paper "H3PO4-Induced Micellization of Styrene-Ethylene Oxide Block Copolymers in Toluene Solutions" was published in the *Journal of Applied Polymer Science*. Authors include **Mufadal Ayubali** ('06), Professor Michael Kotlarchyk in the School of Physics and Astronomy, and Professor Thomas W. Smith in the School of Chemistry and Materials Science.

---

Laura Munoz, assistant professor in the School of Mathematical Sciences (SMS), and **Elizabeth Cherry**, associate professor at Georgia Tech and research affiliate professor in SMS, along with **Mark Ampofo** '19 (applied and computational mathematics), published a paper titled "Controllability of Voltage- and Calcium-driven Cardiac Alternans in a Map Model" in the journal *Chaos*. This study provides insight into the feasibility of controlling alternans driven wholly or partially by voltage or intracellular calcium instabilities.

---

Kalathur "KSV" Santhanam, a professor in the School of Chemistry and Materials Science, authored the paper "Electrochemical approaches towards sensing viruses: A mini-review," published in the *Medical Devices and Sensors* journal. This mini-review focuses on the development of electrochemical sensors for a variety of viruses.

Additionally **Dr. Santhanam**, was lead author along with undergraduate student, **Bao Ha**, and graduate students, **Hayley Richardson'** 19, **Charles Bopp** '18, and **Reeba Thomas'** 21 on the publication, "Electrodeposition from a Graphene Bath: A Sustainable Copper Composite Alloy in a Graphene Matrix" in the *Journal of Composites Science*.

# Presentations & Workshops

Dina Newman, associate professor in the Thomas H. Gosnell School of Life Sciences, presented "The DNA Landscape": A Novel Framework for Teaching and Learning Molecular Genetics Concepts" at the X-DBER 2021 online conference hosted by the University of Nebraska - Lincoln. Co-authors of the talk included Leslie Kate Wright, associate professor in the Thomas H. Gosnell School of Life Sciences, and fourth-year Biotechnology & Molecular Bioscience undergraduate students **Emalee Wrightstone** and **Lauren Trumpore**.

---

Raluca Felea, professor in the School of Mathematical Sciences, gave a presentation during the Southeastern Analysis Meeting (SEAM) at the University of Florida on March 14 (on Zoom). Her talk, "Fourier Integral Operators in the borehole geometry," described the microlocal properties of the forward operator F, which maps the image to the data, and the normal operator F*F, which is used to find the image. These operators appear in the dense array borehole seismic inverse problems.

---

Gregory Howland, assistant professor in the School of Physics and Astronomy presented his paper, "Efficiently quantifying entanglement in high-dimensional quantum photonic systems" March 11 during the Quantum Computing, Communication, and Simulation session of the SPIE Photonics West conference, held virtually March 6-11, 2021.

RIT College of Science students **Kristina Chomiak** (Environmental Science MS), **Mechelle Cureaux** (Chemistry MS), **Olivia Martin** (Chemistry BS), **Juliette Daily** (Mathematical Modeling Ph.D.), and Associate Professor Christy Tyler presented at the State of Lake Ontario Conference. Organized by the International Association of Great Lakes Research, the conference focused on the Lake's current health.

The work they presented is part of an interdisciplinary study on the transport, fate, and impact of microplastic pollution in Lake Ontario, with co-authors across RIT, including Drs. Nathan Eddingsaas (SCMS), Matthew Hoffman (SMS), André Hudson (GSOLS), and Steven Day (Biomedical Engineering).

---

Inverse problems and learning from data are essential tools in computational sciences. A symposium at the Society for Industrial and Applied Mathematics (SIAM) Conference on Computational Science and Engineering brought together researchers working on optimization and learning algorithms. Mathematical Modeling Ph.D. student, **Sophie Kotak** gave a talk "Bias Towards Loss Valleys for Inductive Transfer Learning" along with Nathan Cahill, associate professor in the School of Mathematical Sciences.

---

Emmett Ientilucci**,** assistant professor in the Chester F. Carlson Center for Imaging Science, is co-chair of the fourth UAV STRATUS (Systems and Technologies for Remote Sensing Applications Through Unmanned Aerial Systems ) Conference, to be held virtually May 17-19.

# Sponsored Research

Peter Bajorski, SMS, is the PI on a $11,261.00 grant from Rochester General Hospital Research Institute to support a project titled "Statistical Methods for the Investigation of Vaccine Responsiveness and Other Medical Research Topics."

Seth Hubbard, SoPA, is the PI with key personnel **Stephen Polly** (GIS-NPRL) on a $97,239.00 grant from DOD Department of the Air Force, Materiel Command/Applied Technology Associates to support a project titled "Improving efficiency and radiation hardness in multijunction solar cells using back surface reflectors."

Guoyu Lu, CIS, is the PI with co-PI Jan van Aardt (CIS) on a $583,703.00 grant from the National Science Foundation to support a project titled "Elements: A Deep Neural Network-based Drone (UAS) Sensing System for 3D Crop Structure Assessment."

# COS in the Media

*Rochester Beacon*
The power of science
Essay by Sophia Maggelakis, dean of the College of Science, published by the *Rochester Beacon*.

*WROC-TV*
New AI from RIT researchers can play Starcraft II; project is DARPA-funded
*WROC-TV* talks to Christopher Kanan, assistant professor in the Chester F. Carlson Center for Imaging Science, about an artificial intelligence project.

*Nature*
How microbes in permafrost could trigger a massive carbon bomb
*Nature* talks to Carmody McCalley, assistant professor in the Thomas H. Gosnell School of Life Sciences, about climate models not accurately accounting for microbial activity in Arctic permafrost and Arctic lakes.

*The Conversation*
How good is the AstraZeneca vaccine – and is it really safe? 5 questions answered
*The Conversation* asks Maureen Ferran, associate professor in the Thomas H. Gosnell School of Life Sciences, about the AstraZeneca COVID-19 vaccine.

*Fast Company*
This is how the Johnson & Johnson vaccine is different from Pfizer and Moderna's shots
*Fast Company* talks to Maureen Ferran, associate professor in the Thomas H. Gosnell School of Life Sciences, about why the efficacy of the Johnson & Johnson COVID vaccine appears to be less than the Pfizer and Moderna vaccines.

*Space.com*
Integrating diverse satellite images sharpens our picture of activity on Earth (op-ed)
Essay by **Amanda Ziemann** '10, '11 MS (applied mathematics), a remote sensing scientist at Los Alamos National Laboratory, published by *Space.com*.

*WROC-TV*
RIT to develop new solar technology
*WROC-TV* talks to Seth Hubbard, professor of physics, about developing low-cost, high-efficiency solar cells.

*The Conversation*
If everyone on Earth sat in the ocean at once, how much would sea level rise?
Tony Wong, assistant professor of mathematical sciences, explains volume and displacement for the "Curious Kids" series published by *The Conversation*.

*Intersections*
Intersections: The RIT Podcast Ep. 45 Addressing Mental Health Challenge for Students of Color
As our society reckons with issues of racial disparity and mental health, RIT's Counseling and Psychological Services is working to address some of the unique mental health challenges facing RIT's students of color. Three mental health therapists who identify as people of color—Odessa Despot, Jaime Castillo, and Isabel Chandler—discuss issues related to mental health stigma, the impacts of racism and racial trauma, and ways to support those experiencing mental health issues.

---

**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**

*Copyright © 2019 *Rochester Institute of Technology*, All rights reserved.*

**Our mailing address is:**
College of Science
84 Lomb Memorial Dr
Rochester NY 14623