

UNIVERSITY OF ROCHESTER DEPARTMENT OF

# BIOLOGY

Newsletter 2022



Rochester biologist **Nancy Chen** is mapping the evolutionary forces affecting an endangered species of Florida birds, and raising fundamental questions about how and why species go extinct.

University of Rochester photo / J. Adam Fenster



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## Searching for Nests

In the field, the researchers search for new nests. When they find a nest, they tag the nestlings with a metal band that is a US Fish and Wildlife tracker. Each bird is also tagged with a unique combination of colored bands to identify it. The year 2019 marks the 50th anniversary of the Florida Scrub-Jay study. “There’s a half century worth of data, and it’s this gold mine,” Chen says.

**Read more:** [rochester.edu/newscenter/florida-scrub-jay-endangered-birds-398332](https://rochester.edu/newscenter/florida-scrub-jay-endangered-birds-398332)

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## Supporting the Department of Biology is easy!

### Watch for opportunities in this issue.

Gifts to the biology department help create academic and research opportunities for students and faculty that will have a profound effect on human health. To make your gift or discuss opportunities to support the department, please contact

#### **Ashley Smith**

*Senior Director of Advancement  
for the School of Arts & Sciences*  
585-276-6561  
[ashley.smith@rochester.edu](mailto:ashley.smith@rochester.edu)

**Or donate online at**  
[rochester.edu/giving/biology](https://rochester.edu/giving/biology)

# A Message from the Chair

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**Michael Welte**

Our newsletter has been on hiatus for a while as we all grappled with the COVID pandemic and the profound disruptions it caused to research, teaching, and life. I am happy to report that the collegial and congenial spirit of the department is alive and well. Department members from all

different groups came together, redoubled their efforts, and kept us going. They got us through the dark months when teaching had to abruptly move online, research labs were shut down, and Hutchison Hall was almost completely deserted. They helped with planning and implementing the restart of operations, adjusted to a year of online teaching, and supported each other as everybody struggled with severely disrupted lives. I have always been proud of our department but no more so than over the last two years, when the dedication and perseverance of staff, faculty, and students were so palpable, and everybody worked tirelessly to make the best of a challenging situation. This spirit of the department reassures me that we will continue to successfully deal with the remaining challenges of living under COVID and we will not simply muddle through but thrive. The biology department is an amazing place, not just because of our excellence in teaching and research, but also because we care about each other and strive to do ever better.

The stories in this newsletter celebrate many accomplishments in the department over the last two years in research, teaching, community engagement, and diversity efforts. I would like to especially highlight that two of our faculty were recognized by the University for their extraordinary contributions to teaching: Dr. Elaine Sia was one of the winners of the 2021 Goergen Award for Excellence in Undergraduate Teaching, and Dr. Sina Ghaemmaghmi received a Mercer Brugler Distinguished Professorship, which supports improvements in undergraduate education. Both of them have had—and are continuing to have—broad, deep, and sustained impact on undergraduate education at Rochester, and it is gratifying to have their successes publicly recognized. As many of

our faculty are also excellent teachers, expect to hear about them winning similar awards in future newsletters.

Early this year, we lost a beloved department member, Stanley (“Stan”) Hattman to COVID. Stan had been on the faculty in the department from 1968 to 2004. As a scientist, he made fundamental contributions in molecular biology and as a teacher influenced and mentored countless young minds. Although I arrived here only after Stan had retired, I got to know him as a jovial and personable member of the department. Even as emeritus, he regularly came to Hutchison Hall, continued to have an office there, attended scientific seminars, and chatted with staff and faculty alike. Please check out the piece in this newsletter celebrating his contributions.

But there were also happier transitions: last December, Cindy Landry, our long-time graduate coordinator, retired after 34½ years of service to the department. For most of those years, Cindy was the face and soul of our graduate program and shepherded well over 250 graduate students to their PhDs and provided tireless and excellent service to our faculty. Cindy exhibited great devotion to the department and the University, as well as an incredible spirit of service. It was so obvious that she cared deeply for “her” students and the department as a whole. Although we greatly miss her, we are excited that she gets to enjoy a well-deserved retirement.

Three of our long-standing faculty also chose to retire during the last two years: John Jaenike, Thomas Eickbush, and David Goldfarb. Among them, they have served the department for well over a hundred years. Luckily for us, they decided to stick around as professors emeriti and still have offices in Hutchison Hall, so we hope to benefit from their insights and wisdom for years to come.

Last year, our departmental graduation ceremonies were all online. This year, we were able to conduct them in person, with masking and social distancing. We hope that in 2022 we will be able to return to normal in-person events not only for graduation but also for Meliora Weekend. I am looking forward to being able to welcome you back to campus, so that we can hear from you directly, both about your memories of life in Hutchison Hall and your successes after moving on from our department.

# Faculty Press Releases

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## **Grant helps Jenn Brisson study ‘complex interplay’ of nature and nurture on genes (February 17, 2022)**

Many organisms have the ability to change certain traits in response to their environment. This ability, known as phenotypic plasticity, is an important evolutionary strategy in allowing an organism to better survive.

**Read more:** [rochester.edu/newscenter/grant-biologist-nature-nurture-genes-511342](https://rochester.edu/newscenter/grant-biologist-nature-nurture-genes-511342)

## **Amanda Larracuenta appointed to the Genetics Society of America (GSA) Board of Directors (January 28, 2022)**

As a Director, Larracuenta will advocate for the support and accessibility of genetic tools and resources, contribute to GSA initiatives that engage students and foster collaboration between educators across our community, and support the expansion of existing GSA efforts to broaden the participation of underrepresented groups in the society and contribute to the professional development of trainees.

**Read more:** [genestogenomes.org/new-members-of-the-board-of-directors-2022-2024](https://genestogenomes.org/new-members-of-the-board-of-directors-2022-2024)

## **Meyer Lab develops novel 3D printing technique to engineer biofilms (November 5, 2021)**

Anne S. Meyer, an associate professor of biology at the University of Rochester, and her collaborators at Delft University of Technology in the Netherlands, recently developed a 3D printing technique to engineer and study biofilms—three-dimensional communities of microorganisms, such as bacteria, that adhere to surfaces.

**Read more:** [rochester.edu/newscenter/engineered-biofilms-3d-printed-499022](https://rochester.edu/newscenter/engineered-biofilms-3d-printed-499022)

## **Elaine Sia: Teaching the ‘how’ as well as the ‘what’ in science (October 27, 2021)**

Elaine Sia's first experience teaching came as a graduate student at the Columbia University Medical Center.

**Read more:** [rochester.edu/newscenter/elaine-sia-teaching-the-how-as-well-as-the-what-in-science-497712](https://rochester.edu/newscenter/elaine-sia-teaching-the-how-as-well-as-the-what-in-science-497712)

## **Elaine Sia to receive Goergen Award for Excellence in Undergraduate Teaching (October 27, 2021)**

The diversity of subjects in which University of Rochester undergraduates find exceptional teachers may best be illustrated by this year's recipients of the Goergen Award for Excellence in Undergraduate Teaching.

**Read more:** [rochester.edu/newscenter/meet-the-recipients-of-the-2021-goergen-awards-for-teaching-excellence-497742](https://rochester.edu/newscenter/meet-the-recipients-of-the-2021-goergen-awards-for-teaching-excellence-497742)

## **Gorbunova, Seluanov, and Zhao show how selfish genetic elements that can cause tumors may also trigger the death of cancer cells (October 22, 2021)**

Selfish genetic elements were once thought to be merely parasites of the genome. But researchers at the University of Rochester have discovered that this so-called “junk DNA” may actually be key to preventing tumors.

**Read more:** [rochester.edu/newscenter/is-junk-dna-a-key-to-killing-cancer-cells-495992](https://rochester.edu/newscenter/is-junk-dna-a-key-to-killing-cancer-cells-495992)

## **Bob Minckley explains the San Bernardino Valley is home to 500 bee species—a record (September 23, 2021)**

In a recent paper published in the Journal of Hymenoptera Research, Bob Minckley, a professor of instruction in the Department of Biology, and Bill Radke, manager of the San Bernardino National Wildlife Refuge, found that 497 species of bees live within just over six square miles of the San Bernardino Valley, a modest area for such a study—10 times smaller than Washington, DC.

**Read more:** [nationalgeographic.com/animals/article/highest-bee-diversity-on-earth-found-in-arizona-desert](https://nationalgeographic.com/animals/article/highest-bee-diversity-on-earth-found-in-arizona-desert)

## **Vera Gorbunova discusses the strange life of naked mole rats (May 25, 2021)**

There's no single force that drives cellular aging; it's a network of feedback loops. Enzymes read genes like a grocery list of different proteins to prepare, and those proteins might protect that enzyme, or that gene, or some body-wide process.

**Read more:** [wired.com/story/long-strange-life-worlds-oldest-naked-mole-rat](https://www.wired.com/story/long-strange-life-worlds-oldest-naked-mole-rat)

## **Meyer Lab uses 3D printing to create a novel, environmentally friendly material made of algae (May 3, 2021)**

Living materials, which are made by housing biological cells within a nonliving matrix, have gained popularity in recent years as scientists recognize that often the most robust materials are those that mimic nature.

**Read more:** [rochester.edu/newscenter/will-your-future-clothes-be-made-of-algae-476562](https://www.rochester.edu/newscenter/will-your-future-clothes-be-made-of-algae-476562)

## **Dan Bergstrahl receives the National Science Foundation's CAREER Award (April 22, 2021)**

The award—the NSF's most prestigious recognition for early-career faculty members—"embodies NSF's commitment to encourage faculty and academic institutions to value and support the integration of research and education" and recognizes individuals "who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization."

**Read more:** [rochester.edu/newscenter/2021-nsf-career-award-recipients-research-projects-475212](https://www.rochester.edu/newscenter/2021-nsf-career-award-recipients-research-projects-475212)

## **Multidisciplinary collaboration will create a new light-sheet microscope on campus (February 22, 2021)**

A new multidisciplinary collaboration between the University of Rochester's departments of biology, biomedical engineering, and optics and the Goergen Institute for Data Science will establish an innovative microscopy resource on campus, allowing for cutting-edge scientific research in biological imaging.

**Read more:** [rochester.edu/newscenter/rochester-to-advance-research-in-biological-imaging-through-new-grant-470072](https://www.rochester.edu/newscenter/rochester-to-advance-research-in-biological-imaging-through-new-grant-470072)

## **Justin Fay explains three things you may not know about yeast (February 19, 2021)**

The COVID-19 stay-at-home orders have fostered a trend of at-home baking, in which amateur breadmakers, like master bakers and brewers, are beginning to experiment with various strains of baker's yeast and sourdough starters.

**Read more:** [rochester.edu/newscenter/attention-at-home-bakers-three-surprising-things-you-might-not-know-about-yeast-469552](https://www.rochester.edu/newscenter/attention-at-home-bakers-three-surprising-things-you-might-not-know-about-yeast-469552)

## **Nancy Chen hopes to save the Florida scrub-jay from an inbreeding crisis (January 19, 2021)**

Human development has caused the bird's gene pool to shrink. An ambitious experiment to relocate scrub-jay families could bring reprieve, while also pointing the way to preserving other threatened species.

**Read more:** [audubon.org/magazine/winter-2020/how-researchers-hope-save-florida-scrub-jay](https://www.audubon.org/magazine/winter-2020/how-researchers-hope-save-florida-scrub-jay)

## **Anne Meyer's research may lead to more effective antibiotics, less antibiotic resistance (October 1, 2020)**

Doctors often treat ear infections, strep throat, and urinary tract infections with antibiotics that kill the bacteria causing these infections. Sometimes, however, bacteria mount strong responses to stressors such as antibiotics, allowing these "stressed" bacteria to survive. This is especially the case when a person takes multiple antibiotics.

**Read more:** [rochester.edu/newscenter/understanding-stressed-bacteria-route-to-better-antibiotics-453262](https://www.rochester.edu/newscenter/understanding-stressed-bacteria-route-to-better-antibiotics-453262)

## **Doug Portman's research shows biology blurs line between sexes, behaviors (August 17, 2020)**

A new study led by Douglas Portman, an associate professor of biomedical genetics, of biology, and of neuroscience, identifies a genetic switch in brain cells that can toggle between sex-specific states when necessary, findings that question the idea of sex as a fixed property.

**Read more:** [urmc.rochester.edu/news/publications/neuroscience/study-biology-blurs-line-between-sexes-behaviors](https://www.urmc.rochester.edu/news/publications/neuroscience/study-biology-blurs-line-between-sexes-behaviors)

### **Dragony Fu and Jack Werren selected for 'rapid research' on COVID-19 (July 17, 2020)**

Dragony Fu, an assistant professor of biology, and Jack Werren, the Nathaniel and Helen Wisch Professor of Biology, will apply their expertise in cellular and evolutionary biology to research proteins involved in infections from COVID-19.

**Read more:** [rochester.edu/newscenter/rochester-biologists-explore-coronavirus-and-proteins-and-covid-19-444562](https://rochester.edu/newscenter/rochester-biologists-explore-coronavirus-and-proteins-and-covid-19-444562)

### **Gorbunova and Seluanov Think Bats May Offer Clues to Treating COVID-19 (July 13, 2020)**

"We've been interested in longevity and disease resistance in bats for a while, but we didn't have the time to sit and think about it," says Gorbunova, the Doris Johns Cherry Professor of Biology at Rochester. "Being in quarantine gave us time to discuss this, and we realized there may be a very strong connection between bats' resistance to infectious diseases and their longevity."

**Read more:** [rochester.edu/newscenter/bats-offer-clues-to-treating-covid-19-443332](https://rochester.edu/newscenter/bats-offer-clues-to-treating-covid-19-443332)

### **Anusha Naganathan Wins Grant Supporting Outreach to Incarcerated Students (June 29, 2020)**

Anusha Naganathan, a Research Associate in Gloria Culver's lab, has won an ASCB Public Engagement Grant to bring science education to students in a local prison.

**Read more:** [sas.rochester.edu/bio/news-events/outreach/2020\\_06\\_29\\_a.naganathan\\_corrections.html](https://sas.rochester.edu/bio/news-events/outreach/2020_06_29_a.naganathan_corrections.html)

### **Fu lab's research into RNA structure and function provides key information for developing coronavirus treatments (April 29, 2020)**

"Our strength as a university is our diversity of research expertise, combined with our highly collaborative nature," says Dragony Fu, an assistant professor of biology on the River Campus and a member of the Center for RNA Biology.

**Read more:** [rochester.edu/newscenter/covid-19-rna-coronavirus-research-428952](https://rochester.edu/newscenter/covid-19-rna-coronavirus-research-428952)

### **Meyer Lab joins Helen Arney, the Waterbeach Brass Band and chemists from around the world in an updated version of Tom Lehrer's Elements Song, from Chemistry World (December 10, 2019)**

Members of the Meyer Lab present Calcium (1:29)

**Read more:** [sas.rochester.edu/bio/news-events/archive/2019/2019\\_12\\_meyer\\_lab\\_song.html](https://sas.rochester.edu/bio/news-events/archive/2019/2019_12_meyer_lab_song.html)

### **Nancy Chen Seeks to Understand an Endangered Species, Bird by Bird (September 27, 2019)**

According to a recent analysis published in the journal *Science*, the number of birds in the United States and Canada has declined by nearly 3 billion—a shocking 29 percent of the total—since 1970.

**Read more:** [rochester.edu/newscenter/florida-scrub-jay-endangered-birds-398332](https://rochester.edu/newscenter/florida-scrub-jay-endangered-birds-398332)

### **Jack Werren Says Genetics Models Move Beyond Drosophila and the Humble Lab Mouse (September 10, 2019)**

Geneticists tend to crowd around a few favorite organisms that have long histories in research and a wealth of practiced protocols for manipulating their genes. But those organisms aren't always the best choice to answer a scientific question, leading some researchers to use other, less popular models.

**Read more:** [the-scientist.com/lab-tools/genetics-models-move-beyond-drosophila-and-the-humble-lab-mouse-66340](https://the-scientist.com/lab-tools/genetics-models-move-beyond-drosophila-and-the-humble-lab-mouse-66340)

### **Anne Meyer says CRISPR Now Cuts and Splices Whole Chromosomes (September 3, 2019)**

Imagine a word processor that allowed you to change letters or words but balked when you tried to cut or rearrange whole paragraphs. Biologists have faced such constraints for decades. They could add or disable genes in a cell or even—with the genome-editing technology CRISPR—make precise changes within genes. Those capabilities have led to recombinant DNA technology, genetically modified organisms, and gene therapies.

**Read more:** <https://www.science.org/content/article/forget-single-genes-crispr-now-cuts-and-splices-whole-chromosomes>

# Faculty Awards

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## Elaine Sia appointed as new Associate Dean of Academic Affairs in the College in January 2022 (December 15, 2021)

Elaine Sia, a professor of biology, has been appointed as the inaugural associate dean of academic affairs in the College. Working closely with Deans Gloria Culver and Jeffrey Runner, Sia's role will focus on guiding special curricular initiatives in Arts & Sciences and advising on undergraduate academic policies in the College. She will also serve ex officio on the College Curriculum Committee and support accreditation efforts in Arts & Sciences. Sia brings extensive experience to this new role, as codirector of the Undergraduate

Program in Biology and Medicine, a long-standing member of the Administrative Committee, and current Chair of the Board of Academic Honesty. In her department, Sia has also served as interim department chair, as faculty advisor to the Rochester Early Medical Scholars (REMS) program, and serves as advisor to molecular genetics majors. In all these efforts, Sia has demonstrated a focus on promoting student success and a commitment to honesty, integrity, and transparency. Sia will formally begin her new appointments this January, with a term running through June 2025.

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## Elaine Sia to receive Goergen Award for Excellence in Undergraduate Teaching (September 13, 2021)

Sia joined the University in 2000 and was named a professor in 2014. She earned her bachelor's degree from Michigan State University in 1987 and her doctoral degree in microbiology from Columbia University in 1994, followed by postdoctoral fellowships at Columbia and the University of North Carolina-Chapel Hill.

**Read more:** [rochester.edu/newscenter/three-professors-to-receive-goergen-award-for-excellence-in-undergraduate-teaching-491762](https://rochester.edu/newscenter/three-professors-to-receive-goergen-award-for-excellence-in-undergraduate-teaching-491762)



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## Sina Ghaemmaghami receives the Mercer Brugler Distinguished Teaching Professorship at the University of Rochester (June 21, 2021)

The University's Mercer Brugler Distinguished Professorships, established in 1979, are announced every three years and are held by the recipients until the next round of awards.

**Read more:** [rochester.edu/newscenter/2021-mercero-brugler-professorships-honor-outstanding-educators-484472](https://rochester.edu/newscenter/2021-mercero-brugler-professorships-honor-outstanding-educators-484472)

## Do you have fond memories of a University of Rochester professor?

**Help support our faculty:** endowed professorships help to attract and retain faculty of the exceptional talent. They are also visible honors recognized across the University and by other top institutions. An endowed professorship can link your—or your loved one's—name to academic excellence and innovation.

# Graduate Student News

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## John Bettinger awarded a University of Rochester Elon Huntington Hooker Dissertation Fellowship for 2021-2022 (June 18, 2021)

Department of Biology graduate student, John Bettinger has been awarded a University of Rochester Elon Huntington Hooker Dissertation Fellowship for 2021-2022. This fellowship was first endowed by the Hooker family in 1947 to support graduate students across disciplines in the sciences. It is one of the University's most competitive dissertation fellowships for the sciences and is given to students who display exceptional ability and promise.

**Read more:** [sas.rochester.edu/bio/news-events/archive/2021/2021\\_06\\_16\\_bettinger\\_award.html](https://sas.rochester.edu/bio/news-events/archive/2021/2021_06_16_bettinger_award.html)



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## Emery Longan recipient of the 2020 Edward Peck Curtis Award for Excellence in Teaching by a Graduate Student (June 10, 2020)

A total of 13 Rochester graduate students have been recognized for their outstanding dedication as teachers and mentors who work closely with undergraduates. The honorees are the recipients of the 2020 Edward Peck Curtis Awards for Excellence in Teaching by a Graduate Student.

**Read more:** [rochester.edu/newscenter/university-recognizes-graduates-students-for-excellence-as-teachers-mentors-438542](https://rochester.edu/newscenter/university-recognizes-graduates-students-for-excellence-as-teachers-mentors-438542)



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## Rose Driscoll offered National Science Foundation Graduate Research Fellowship (May 12, 2020)

Eighteen current and former University of Rochester students have been offered National Science Foundation Graduate Research Fellowships, part of a federally sponsored program that provides up to three years of graduate study support for US students pursuing doctoral or research-based degrees in STEM, STEM education, and social science fields.

**Read more:** [rochester.edu/newscenter/18-current-former-rochester-students-earn-nsf-fellowships-432472](https://rochester.edu/newscenter/18-current-former-rochester-students-earn-nsf-fellowships-432472)

## Consider a Gift that Keeps on Giving—Support Graduate Education

Are you more interested in our PhD program? Create or contribute to a **graduate scholarship**. Competitive graduate fellowships and stipends help us to attract the most qualified students.

Check out some of the existing Graduate Fellowships and Awards:

[sas.rochester.edu/bio/graduate/fellowships.html](https://sas.rochester.edu/bio/graduate/fellowships.html)



# Alumni News

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## **Jillian Ramos awarded the RNA Society/Cold Spring Harbor Laboratory Press Award for Research Excellence by an Underrepresented Scientist in 2022**

Dr. Jillian Ramos, a Postdoctoral Research Scientist in the Kieft Laboratory at the University of Colorado - Anschutz Medical Campus was awarded the RNA Society/Cold Spring Harbor Laboratory Press Award for Research Excellence by an Underrepresented Scientist in 2022. Dr. Ramos has been involved in RNA research since her undergraduate studies at University of California at Santa Cruz. She obtained her Ph.D. in biology at the University of Rochester under the mentorship of Dr. Dragony Fu. In the Kieft lab she is developing RNA-centric tools as potential future therapeutics. Dr. Ramos was celebrated for creating a "welcome and inclusive atmosphere in the lab that made it a joy to work with her."

## **Biology students, alumni awarded Fulbright grants for overseas study (May 25, 2021)**

Five University of Rochester students and alumni have won 2021-22 grants in the prestigious Fulbright US Student Grant program.

**Read more:** [rochester.edu/newscenter/five-students-alumni-awarded-fulbright-grants-for-overseas-graduate-study-research-or-teaching-482302](https://rochester.edu/newscenter/five-students-alumni-awarded-fulbright-grants-for-overseas-graduate-study-research-or-teaching-482302)

## **Biology undergraduates receive Goldwater Scholarships for science achievement (May 18, 2021)**

"With three outstanding students chosen as Goldwater Scholars this year, the University of Rochester continues an excellent record of attracting talented students in various STEM fields," says Cheeptip Benyajati, an associate professor in the Department of Biology who serves on the University's interdisciplinary STEM faculty committee.

**Read more:** [rochester.edu/newscenter/three-undergraduate-goldwater-scholarship-recipients-481242](https://rochester.edu/newscenter/three-undergraduate-goldwater-scholarship-recipients-481242)

## **Ching-Ho Chang is the 2021 recipient of the prestigious Larry Sandler Award for best PhD dissertation in the Drosophila community (March 23, 2021)**

The Larry Sandler Memorial Lecture is given by an outstanding recent PhD graduate on the opening night of the Drosophila Research Conference.

**Read more:** [genestogenomes.org/ching-ho-chang-to-give-larry-sandler-memorial-lecture-at-dros21](https://genestogenomes.org/ching-ho-chang-to-give-larry-sandler-memorial-lecture-at-dros21)

## **Ching-Ho Chang is a recipient of the DeLill Nasser Award for Professional Development in Genetics (February 13, 2020)**

Ching-Ho Chang, a graduate student in the Larracuenta lab, is a recipient of the DeLill Nasser Award for Professional Development in Genetics for Fall 2019.

**Read more:** [genetics-gsa.org/awards/delill-nasser-award-for-professional-development](https://genetics-gsa.org/awards/delill-nasser-award-for-professional-development)

## **Damani Eubanks is the First Recipient of the Dr. Richard Payne Graduate Fellowship**

Eubanks is the inaugural recipient of the Dr. Richard Payne Graduate Fellowship, which strives to recognize excellence in graduate students within the University of Maryland's (UMD's) College of Computer, Mathematical, and Natural Sciences by supporting innovative and actionable research that directly links social and environmental sciences. The fellowship honors Dr. Payne's outstanding professional and personal contributions to the University of Maryland, including serving as a Professor in the Department of Biology, a member of the University Senate, and a dedicated instructor and mentor for students and postdocs.

**Read more:** [sesync.org/opportunities/fellowships/the-dr-richard-payne-graduate-fellowship](https://sesync.org/opportunities/fellowships/the-dr-richard-payne-graduate-fellowship)

## **Glenn Stambo, MD ('86) publishes article about Pediatric Emergency Care**

Dr. Stambo is a Vascular and Interventional Radiologist in Tampa, FL. He thought it would be nice to share this article with all U of R staff, former biology club and biology majors, alumni and students. He hopes everyone is staying safe!

**Read more:** <https://pubmed.ncbi.nlm.nih.gov/32304523>

# iGEM Team Develops Noninvasive Endometriosis Test

By Lindsey Valich and Anne S. Meyer

[rochester.edu/newscenter/student-team-develops-noninvasive-endometriosis-test-461622](https://rochester.edu/newscenter/student-team-develops-noninvasive-endometriosis-test-461622)

## Problem solving with synthetic biology

Early in 2020, the University of Rochester Department of Biology launched a class composed of 12 undergraduates to compete in a worldwide synthetic biology competition with the goal to solve a real-world problem using innovative biological ideas. Synthetic biology involves creating new biological parts or systems using materials already found in nature. During the iGEM competition ([https://old.igem.org/Main\\_Page](https://old.igem.org/Main_Page)), the undergraduates present to a panel of judges the projects they have designed and implemented.

Rochester's iGEM team (<https://sites.google.com/site/annemeyerlab/home>) is advised by Anne S. Meyer, an associate professor of biology. "iGEM is so unique as a research experience for undergraduates, since the students come up with a project of their own choosing," Meyer says. "iGEM projects only run for nine months, which is a very short time to brainstorm, plan, and execute a brand-new scientific project."

The 2020 team tackled as their project the difficult problem of diagnosing endometriosis. Today, approximately 1 in 10 women worldwide are affected by endometriosis during their reproductive years, yet invasive laparoscopic surgery is the only current technique used to diagnose—and then treat—the disease. Because of a lack of awareness of the condition and of research in the field, many women can experience a delay in diagnosis of up to 11 years from the onset of symptoms. That can mean several years of pelvic pain, severe cramps, and possible infertility while endometrial-like tissue grows outside of the uterus.

## A novel endometriosis test

After deciding that endometriosis would be the subject of their project, the Rochester iGEM team spent the following months developing a novel test for diagnosing the disease. When COVID-19 hit at the beginning of the year, the team was met with additional challenges as they were forced to conduct the majority of their research online and

hold meetings via Zoom. They also did not have access to labs to test their designs. Although the pandemic changed many of the testing plans, the group developed detailed written protocols for running experiments and troubleshooting problems that might arise. The device developed by the Rochester iGEM team is based on detecting six biomarkers in menstrual fluid that are indicative of endometriosis.

The team created a new type of menstrual cup to collect samples of menstrual fluid in endometriosis patients and a lateral flow assay—similar to a pregnancy test stick—that changes color based on either the presence or absence of the six biomarkers in the menstrual sample. This involved using a strain of *Escherichia coli* (*E. coli*) bacteria to produce the antibodies needed to detect each biomarker. The team also developed an imaging station to determine the actual quantity of biomarkers in a sample using only your own cell phone's camera.

The group envisions doctors providing patients with the menstrual cup. The patient would take the cup home and collect a menstrual sample during her next period. The test kit would include a mini-incubator, and the patient would put the sample in the incubator, either ship it or bring it back to the doctor, and the doctor would run the test.

This inexpensive, non-invasive test could potentially complement or even replace surgery as a diagnostic, making it more accessible to women around the world. Rochester's team also developed endometriosis education tools for physicians and the general public to increase awareness of the disease and encourage further research. The team's educational materials, which they had translated into many different languages, are all available in an open access format.

The 2020 Rochester iGEM team was the most-awarded iGEM team in North America. Out of 248 teams from around the globe, the Rochester team won the awards for Best Diagnostics Project and the Inclusivity Award, as well as a gold medal. The team was additionally nominated for the awards for Best Integrated Human Practices, Best Education, and Best Software.

# Community Engagement

**By David Goldfarb**

The department's Community Engagement Committee seeks to expand the educational mission of the College outside the borders of our campus to the greater Rochester community. In recent years the committee has developed a repertoire of diverse activities that are increasingly mature and sustainable. No longer are outreach activities "one-offs" that faculty, students, and staff participate in when their primary duties allow, and which come to us from the outside. We now identify needs and create programs that best serve the community. Most of our programs are collaborative in nature. We have learned that effective engagement depends on our listening and adapting to our stakeholders' diverse life experiences and agencies. Our efforts are funded at local and national levels, include credit-bearing courses within and outside the College, and extend to urban, suburban, and rural communities. We serve folks of all ages in many circumstances, including incarcerated men. While social distancing requirements during the last year felt at times anathema to the spirit and practice of engagement, most of our programs adapted and successfully surmounted the pandemic's challenges. Without doubt, we look forward to a post-pandemic era!

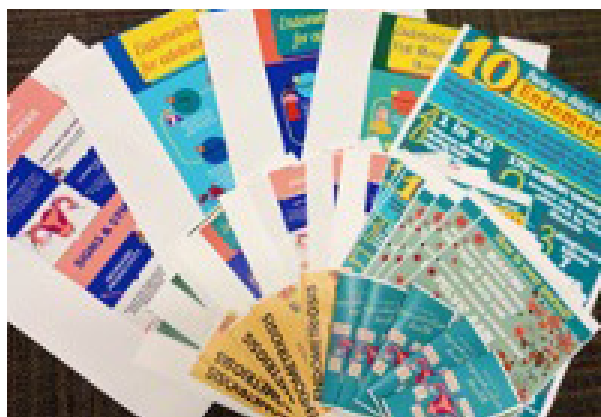
**Following are short descriptions of our main activities during the last year—**

## Upward Bound

For several summers now, Department of Biology faculty, undergraduate students, graduate students, and staff have contributed to the Kearns Center's Upward Bound program, which serves mostly minority middle and high school students attending Rochester City Schools. The Upward Bound program provides an unusual amount of support and enrichment to these kids. This summer, Jenn Brisson coordinated six teams, led by Profs. Brisson, Meyers, Fu, Bergstralh, Larracuente, and Chen, who provided biology-related activities, mostly through pre-recorded videos that included fun, interactive components on fascinating topics such as fireflies and, believe it or not, the magic of microfluidics.

## iGEM

The Department launched its first-ever iGEM (International Genetically Engineered Machines) team in 2020, composed of 12 undergraduate students in a credit-bearing course, coming from both biology and biomedical engineering majors, mentored by Anne Meyer as the head advisor together with Nancy Chen, Alexis Stein, and three teaching assistants. A multi-pronged outreach endeavor, iGEM students taught a 9-module course for the Upward Bound program, taught 4 science lessons for Camp Sonshine elementary-school-age summer camp students in Maryland, and taught 4 science lessons for grade 5 students at a Rochester public school.

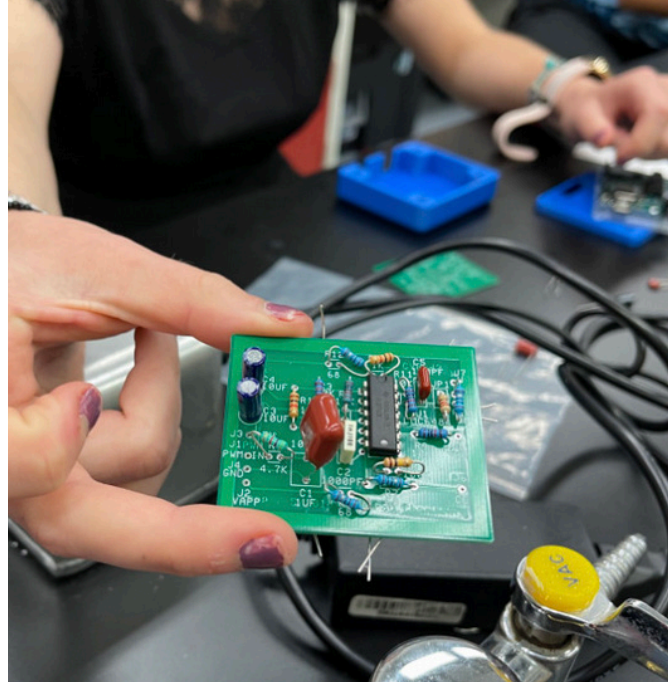


***The award-winning iGEM team was able to engage with different audiences by creating their own infographics, posters, and brochures.***

iGEM students also ran a public education campaign to raise awareness about the disease endometriosis. The team created a website, infographics, and brochures that provide information about endometriosis. The information was targeted to a number of different groups: adolescents, adults, postmenopausal adults, and healthcare providers, as well as a section including information about general women's health. This educational material was distributed to the public through the team's social media platforms, several national and international endometriosis foundations, an article in Rochester's Democrat and Chronicle, an hour-long interview on NPR, a virtual live workshop with a panel of experts organized by

the team, and multiple physician offices and clinics throughout the University of Rochester Medical Center and Strong Memorial Hospital, as well as Virginia, Connecticut, and Puerto Rico.

For their efforts, the 2020 iGEM team was nominated by the iGEM judges for the Best Education award, recognizing our efforts as among the top 5 undergraduate teams in the international 249-team competition. The current 2021 iGEM team is again busy with active education and outreach efforts targeted to a variety of local stakeholders and students.



*Early sepsis can turn into full-blown septic shock within an hour after the first symptoms emerge. A team of undergraduate students have developed a new device to instantaneously diagnose sepsis based on biomarkers in a person's sweat.*

## UR Science stories

In collaboration with the Rochester Education Justice Initiative (REJI), Anusha Naganathan created video content and, with contributions from a number of faculty, taught biology both on-line and in-person to students incarcerated at the Groveland Correctional Institution. These highly motivated and engaging students are seeking associate's degrees. Anusha won grants from the American Society for Cell Biology (ASCB) and Science sandbox to pay professional videographers to create four terrific short films on the nature of research, featuring department research labs (@URSciencestory).

### Watch the videos:

- Meyer: [vimeo.com/563758185/1acbaa7e98](https://vimeo.com/563758185/1acbaa7e98)
- Fu: [vimeo.com/562944043/b929fc41ec](https://vimeo.com/562944043/b929fc41ec)
- Bergstralh: [vimeo.com/563652152/ac00bf206a](https://vimeo.com/563652152/ac00bf206a)
- Uy: [vimeo.com/563804135/dedc76ae2a](https://vimeo.com/563804135/dedc76ae2a)

## Rochester Science Café

Now entering its' 13th year, the Rochester Science Café is a collaboration between David Goldfarb (Biology) ([facebook.com/david.goldfarb55](https://facebook.com/david.goldfarb55)) and Josh Faber at the Rochester Institute of Technology. These public events serve mostly, but not exclusively, suburban retirees who are eager for continuing education. This season, 7 STEM experts presented on topics such as the SARS-CoV-2 pandemic, particle physics, and even the political science of the 2020 elections. Instead of holding our events in-person at the Pittsford Barnes & Noble bookstore, the fall and spring seasons were offered by Zoom. This last year we also provided guidance and support for a successful student-organized Science café spin-off at Brighton High School.

## Community Engagement Practicum (BIO399)



*Like almost all community engagement activities, the BIO399 Community Engagement class was virtual.*

A diversification course in biology, BIO399 was offered for the fifth time in spring 2021 to 14 biology undergraduates. Directed by David Goldfarb, BIO399 is a collaboration with the Warner School of Education faculty Michael Occhino and Michael Daley). The course trains biology undergraduate to teach in Rochester City School District (RCSD). Though the pandemic presented challenges, our undergraduates turned in stellar performances, reporting satisfying personal growth and productive engagements. BIO399 piloted several science-communication exercises that will be trialed in three fall 2021 Biology courses. Providing our students with opportunities to practice explaining basic course-specific biology terms and concepts in nontechnical language should increase their confidence and cement their technical and conceptual understanding of modern biology.

## Onward!

Given the background of the pandemic, our community engagement programs succeeded beyond expectations. A remarkable variety of community groups were served, including many Department members whose lives were enriched by the experience. Institutional support from the College and Department that welcomed the addition of credit-bearing courses to our undergraduate curriculum is especially gratifying.

### Interested in directly affecting the experience of our undergrads?

- Help move the **lab experience** to the next level by providing resources to support people and state-of-the-art equipment and facilities.
- Contribute funds to enhance the **innovative workshop program** that enables peer-to-peer learning and one-to-one interactions for students, teaching assistants, and professors—even in large lecture classes.
- Help to fund the department's **community outreach program** ([sas.rochester.edu/bio/about/outreach.htm](https://sas.rochester.edu/bio/about/outreach.htm)) or **essential instrumentation** that makes computational biology and bioinformatics possible and keeps Rochester competitive.

# Faculty Highlights

## Bright Spots in a Tough Year

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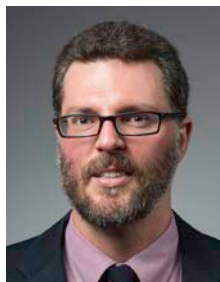


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### Danielle Presgraves Discusses the Power of Saying Yes on the Gwen M. Greene Center's Podcast Series

Danielle Presgraves is an Assistant Professor of Instruction and the Associate Director for Student Affairs in the biology department at the University of Rochester. She teaches courses that she dreamed of taking during her undergrad days, like Intro to Programming for Biologists and Biostatistics. Tune in to her podcast to hear her share her journey as a first-generation college student hailing from Canada to finding her true passion at the intersection of math and biology. In addition, she shares how taking time before graduate school was helpful for her, gives advice on how to put your best application forward, and the power of saying "yes."

Hear the Podcast: <https://careers-unfiltered.simplecast.com>



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### Jon Holz named a Zero Cost Hero during Education Week 2021

[library.rochester.edu/services/open/open-education-week-2021](https://library.rochester.edu/services/open/open-education-week-2021)

As part of Open Education Week 2021, librarians from the University of Rochester joined forces with faculty and students to introduce the first-ever "Zero-Cost Heroes." These heroes are instructors and faculty who, for a number of reasons, have chosen to select or create course materials that are free for their students. Each day the library highlighted one hero, sharing their motivations for championing free course materials, how they've worked with librarians to make it happen, and what their students have to say about zero-cost materials.



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### Sina Ghaemmaghami named a Zero Cost Hero during Open Access Week 2021

[library.rochester.edu/services/open/open-access-week-2021](https://library.rochester.edu/services/open/open-access-week-2021)

Since the first round of zero-cost heroes, the OER Working Group of the River Campus Libraries has been hard at work, developing an OER grant program and identifying more low-cost/increased-access champions across campus. As part of Open Access Week 2021, RCL proudly announces six new zero-cost heroes, three of whom have been awarded an Open Education Resource grant to develop course materials that will lower costs for students and increase their level of learner engagement.



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### Bob Minckley receives anonymous donation to support bee biodiversity

The main projects in Bob Minckley's lab are cataloging and archiving the specimens and correspondence associated with the University of Rochester Natural History ([wardproject.org](http://wardproject.org)), and understanding what contributes to the extraordinary diversity of bee species in the deserts of the southwestern United States and northeastern Mexico. This past year an anonymous donor provided funds to support

undergraduates for the work on bee biodiversity. A student from computer science (who was unexpectedly stranded in Rochester for the summer because of Covid) is now streamlining the process that allows the biodiversity data on bees to remain continuously up-to-date and made publicly available for other researchers to use. Two undergraduates from biology who are interested in museum-based research are curating new material and retroactively adding information from historical specimens. The funds are a boon to the lab; not only do they provide new research opportunities to undergraduates, but they also accelerate the pace that the rich collection of bees can be used to answer new questions.

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## The Presgraves and Uy labs receive support from the National Science Foundation to explore the origin of species in island birds

Schemed on a front porch during the pandemic, a collaborative proposal between the labs of Daven Presgraves and AI Uy received funding from the National Science Foundation this summer. The work explores how new species evolve by taking advantage of two Solomon Island bird species, the cardinal honey-eater and the sooty honey-eater, that recently came into contact after being separated for millions of years. The recent contact has resulted in the two species producing partially fertile hybrids, which provides the opportunity to determine which genes and/or chromosomes are responsible for reproductive incompatibility between species. Interestingly, these honey-eaters possess both old and recently evolved sex-limited chromosomes; hence, the team will also explore the evolution of new sex-limited chromosomes, and their role in generating reproductive incompatibilities. The work combines long-term field observations and experiments with cutting-edge genomic approaches, and is spear-headed by Dr. Christina Muirhead and Dr. Elsie Shogren, an NSF postdoctoral fellow.



*A male cardinal honey-eater foraging for nectar among coconut blossoms.*



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## Danielle Presgraves and Alexis Stein collaborate with Kaplan to design pre-college course

Danielle Presgraves and Alexis Stein collaborated with Kaplan to design and implement a fully online pre-college course. Over the course of several months in the summer of 2020 they developed a personalized medicine course that focused on molecular genetics and genomic approaches to improving healthcare. They generated course content, interactives, and activities with the aid of the Kaplan curriculum development team. The course was filmed with the professional Kaplan crew at various locations around River Campus in October of 2020.

Students enroll through the University of Rochester pre-college program and it will run for either 4- or 6-week intervals. Current University of Rochester undergraduates and graduate students are hired by Kaplan to serve as course mentors that help the students' progress through the online course. It is designed as a tool to help expose high school students to the University and potentially help in recruiting top students. Both Presgraves and Stein agree that it was an enlightening experience in online course design and implementation.

**Read more:** [rochesteronline.precollegeprograms.org](https://rochesteronline.precollegeprograms.org)

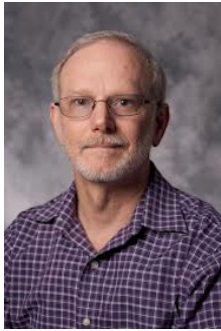


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## Dragony Fu's Lab is helping to fight COVID-19

Due to the COVID19 pandemic, there is an urgent need to understand the biology of coronaviruses such as SARS-CoV2. Using the machinery of the host human cell, coronaviruses make proteins called proteases that act like scissors to cut the virus's own proteins into usable pieces. Through studies performed at the University of California, San Francisco, a novel connection was made between a SARS-CoV2 protease and a human protein called TRMT1. Our lab had previously found that TRMT1 modifies the chemical structure of RNA molecules in human cells. We had been studying TRMT1 for several years before the current pandemic so this was an entirely unforeseen association between our research and COVID19.

Based upon this chance connection, we were awarded a research grant by the National Science Foundation to understand why the SARS protease interacts with TRMT1. We hypothesize that the SARS-CoV2 protease cuts TRMT1 into inactive fragments. By preventing TRMT1 from performing its normal function, the RNA in human cells is no longer modified and this could affect other processes in the cell. We plan on testing this idea using molecular biology methods developed by our lab. Through our research, we hope to find biological pathways that are affected by SARS-CoV2 infection that could be targets for therapeutic intervention.



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## Jack Werren's approach predicts novel 'protein partners' that could contribute to COVID-19 symptoms

**Read more:** [rochester.edu/newscenter/ace2-protein-partners-covid-19-complications-492372](https://www.rochester.edu/newscenter/ace2-protein-partners-covid-19-complications-492372)

Angiotensin-converting enzyme 2 (ACE2) is the cell receptor that the coronavirus SARS-CoV-2 uses to enter our cells and cause COVID-19. Although SARS-CoV-2 is a respiratory virus, it also causes diverse manifestations that go well beyond those typical for a respiratory disease, ranging from systemic thrombosis (clotting), to severely overactive inflammatory responses ("cytokine storms"), to organ failure and neurological symptoms. A significant number of people also experience long-term chronic illness (the long-haul syndrome), even after the virus is no longer detected. The cause of these problems remains unclear. The goal of our study is to identify proteins that normally interact with ACE2. We reasoned that infections by SARS-CoV-2 will disrupt ACE2's normal functions, thus contributing to the unusual set of pathologies observed in severe and long-term COVID-19. Identifying the normal partners of ACE2 can therefore provide possible avenues for treatment.

To investigate the web of ACE2's protein partners, we undertook an atypical computational approach to identify mammalian proteins that "coevolve" with ACE2, called evolutionary rate correlation (ERC). This exploratory method identifies proteins that show similar rates of change with ACE2 over evolutionary time. Using this method, we have uncovered a number of key ACE2 protein partners not previously reported, but with clear potential implications to covid-19 disease. In particular ACE2 is part of a protein network (based on the ERC approach) with proteins crucial to blood coagulation, including the fibrinogen proteins involved in clot formation, which can be relevant to the unusual systemic clotting observed in the disease. Another ACE2 protein partner, called Clusterin, functions to remove misfolded proteins from blood. Disruption of this process could have wide systemic consequences. ACE2 also shows evolutionary rate correlations with key proteins in cytokine and immunity signaling, an unexpected result suggests possible functional interactions with ACE2.

At this point, the novel protein interactions predicted using this evolutionary approach are preliminary, and will require validation to determine their potential relevance to COVID-19. But, the ERC approach has promise as a tool for predicting protein interactions that are involved in many different biological functions and in disease. Time will tell whether the method will fulfill this possibility. The work was conducted by John (Jack) Werren and two (former) undergraduate students, Austin Varela and Sammy Cheng. Austin graduated in May 2020, and stayed on to help finish the COVID-19 project. He is now in graduate school in computational biology. Sammy Cheng graduated in May 2021, is now working as a Medical Scribe. The work was funded by an NSF RAPID grant on COVID-19, and by support for students in the project from Nathaniel and Helen Wisch. The resulting paper has been published in PEERJ.



# Spotlight on New Staff

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The Department of Biology has welcomed several new administrative staff to our team! Each of them has contributed quickly and in countless ways and we take a moment here to highlight them.



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## Patricia DiGiorgio

**Graduate Program Coordinator, Started January 2021**

I'm an almost life-long Rochester native and live in Greece. Outside of work, I enjoy running, biking, and snowshoeing throughout the area's beautiful parks, trails, and canals. I'm also a RYT-200 in Hatha and Anusara yoga as well as a Certified Fitness Instructor and teach several classes during the week. My husband and I are vegetable gardeners and we grow just about everything. Our family includes two children, their spouses, and two grand-dogs.

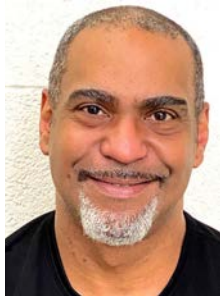


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## Brian Hopkins

**Undergraduate Course Coordinator, Started August 2021**

I was born and raised here in Rochester, New York. I grew up an avid fan of our local sports teams, and spent my undergraduate years studying engineering & management at Clarkson University. I played baseball and worked as an aide for Clarkson's Golden Knights ice hockey games. I enjoy reading, taking walks with my pug Gus, and kickball league which I do in the spring and summer seasons. Working here in the biology department is a blessing and I am thankful to benefit each day from the people I work with and the University of Rochester community as a whole.



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## Aaron Lewis

**Facilities Assistant, Started November 2019**

I was born and raised in southwestern Pennsylvania outside of Pittsburgh. I moved to Rochester in the 90's and now call this area home. I consider myself a collector of many things such as watches, comic books, sneakers, and anything else that catches my interest. I am an avid movie watcher. I love all types of movies. I am an only child, but try not to act like one. I started here in the biology department a little over a year ago, and I have to say everyone has been so friendly, accepting, understanding, and helpful. I truly feel lucky and honored to work here.

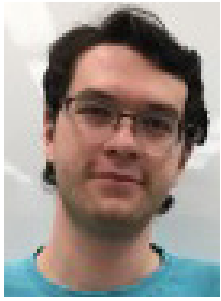


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## Sarah Marvin-Foley

**Undergraduate Course Coordinator, Started November 2021**

I grew up near Cleveland, Ohio, but moved to Rochester with my husband in 2020. Before joining the UPBM team, I worked in public education in Illinois and Ohio for five years. I taught middle school English/Language Arts, and even though I left the classroom behind, I'm still happy to talk about books and writing! When not at work, I'm experimenting with recipes, exploring the trails, herding cats, or amassing more board games for our growing collection. I'm excited to start a new chapter of my career with the lovely people in the biology department!



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## Michael Seluanov

**Teaching Lab Assistant, Started October 2020**

I started my position in October 2020 as a Laboratory Technician III in the Teaching Lab. I am feeling excited to be part of the biology department and I enjoy the dynamic and friendly atmosphere at work. I was born in Israel, but I do not remember anything from my time there because soon after my family moved to Canada, where my first memories begin. After some time, we moved to Texas; then we finally moved to New York State, where I grew up in the Rochester area as the eldest of three siblings. I started to work for the University of Rochester as a student assistant and gained plenty of laboratory experience. Also, I had a summer internship in Professor Steve Horvath's lab at the University of California, where I learned how to code in R to analyze big biological databases. Currently, I plan to continue working here and take classes to complete my education. Outside of work, I enjoy birdwatching and hiking in the parks in the Finger Lakes region.



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## Elena Rydkina

**Teaching Lab Manager, Started August 2020**

In August of 2020 I started working as the manager of the Teaching Lab. Day to day life of the Teaching Lab is very dynamic and full of challenges. We work in close contact with many faculty instructors, TAs, students, the business office, the undergraduate office, the stockroom team. The goal is to organize lab exercises in the most efficient way in order to give students the best opportunity to learn experimental biology. This task was even more challenging during the COVID-19 pandemic. I graduated with a Master's degree in soil microbiology from Moscow State University, the best University of the former USSR. I was working in the Gamaleya Research Institute of Epidemiology and Microbiology, Moscow, developing methods of genotyping of rickettsia. I was incredibly lucky to work in the Universitee de Mediterranee, Marseille, France, under the leadership of Professor Didier Raoult, and got my PhD in Tropical Medicine. I have been working for the University of Rochester for more than 15 years now, starting in January 2000, and in the Department of Biology starting in 2018. As a biologist I love all living things, have quite a few dogs and cats, and I enjoy cooking.



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## Connor Zerniak

**Stockroom Clerk, Started October 2021**

I was born and raised in Macedon, NY and have lived there my entire life. I have a cat with no tail, Levi, and my boyfriend, Dan. In my free time, I enjoy being outdoors. The Adirondacks is my home away from home and I usually go camping or climb a mountain there every weekend over the summer. My goal is to try to get all 46 high peaks done. I love hiking, kayaking, playing tennis, and going on day trips around the area. I also have a minor addiction to houseplants. Dan and I love to cook together, and I'm always trying new recipes. I also love to paint when I have the time.

## How You Can Help: Supporting the Department of Biology is easy!

Gifts to the biology department help create academic and research opportunities for students and faculty that will have a profound effect on human health.

To make your gift or discuss opportunities to support the department, please contact

**Ashley Smith**, Senior Director of Advancement for the School of Arts & Sciences  
585-276-6561 or [ashley.smith@rochester.edu](mailto:ashley.smith@rochester.edu)

# Scoring More Fun Points Than Runs: The Story of UR Biology Kickball 2021



The Kickball League of Rochester has played host to adult kickball fun in the Rochester area since 2007. For the uninitiated, kickball is a sport much like baseball, and it makes for a roaring good time when played with friends and colleagues after a long day of experiments. In 2018, the biology department at the University of Rochester began their foray into this athletic endeavor and ever since, has fielded a team in the Summer. Coming off of two consecutive seasons with losing records, the Summer 2021 UR Biology kickball team sought redemption, but more importantly the team sought to have a whole lot of fun! This is the story of the 2021 season:

## **As the preseason for kickball 2021 ramped up,**

the UR Biology team prepped with a renewed enthusiasm after the 2-year layoff since 2019. In that time our former star player, Jillian Ramos, and our former head coach, Kyle Swovick, had graduated and moved on. After a rough 2019 with the team going 2-6, it was time for a rebuild year. Luckily among those returning were Omid Ziabari, Jon Gigas, Lauren Gregory, and of course our undisputed ace from the faculty, Justin Fay. Despite those returning providing a solid foundation in the outfield and on the mound, there were still some big shoes to fill in the infield. General manager Nancy Chen quickly made an aggressive play for some faculty free-agents, signing herself, Dragony Fu, and Sina Ghaemmaghami to one-year negative \$17 contracts. In addition, some other players such as Maria Castano, Roger White, and Lynn Sidor were also signed for multi-year deals (with a qualifying examination stipulation).

## **The season opener began with UR Biology as the home team against the lime green team.**

Emery took to the mound with Pakinee Phromsiri behind the plate. With field conditions quite wet, the

team had some issues catching the slippery ball, and the lime green team mounted some serious offense. However, in the bottom of the first, UR Biology struck back with four runs of their own with great kicks by Omid, Emery, Claire Makowski, and Odochi Uwazurike. In later innings, the UR Biology defense came together with strong plays by Hayley Wnuk who made some excellent catches and held strong for a force out at second base even when the opposing player slid towards her at full speed! Although UR Biology put up a valiant effort, the final score was 19-9 in favor of the lime green team. Despite support from our very enthusiastic mascot, Minka “Sabre tooth” Chen, UR Biology fell to 0-1 after the first week.

**The second week,** UR Biology indeed bounced back against the yellow team! Emery led off the game with a single and was quickly batted in by Hayley to take an early lead! This theme of consistent offense throughout the game was kept up by excellent kicks from Odochi and Omid. Of note Songeun Lee, Kim Dao, and Lynn made excellent accounts of themselves at the plate. On the defensive end, UR Biology set up in our tactical shift, with second basewoman Hayley standing nearly atop the base for each at bat. This strategy proved extremely fruitful with Wnuk catching many balls kicked right at her! Lucas “Mad-dog” Hemmer earned his nickname that week with some excellent (and at times ruthless) defensive efforts. One particular play saw “Mad-dog” Hemmer catch a ball at first base and then run all the way to third to double up a baserunner for a force-out that ended in a collision! With Lynn covering third, she asked the media after the game, “Was my jersey not blue enough? Did he not see me?”. When all was said and done, Maria pitched a great game and only gave up 4 runs to the other team. UR

Biology had tightened up its defense significantly and walked away with an 8-4 victory over the yellow team. Following this important win, a chant of “1,2,3 MODEL ORGANISMS” could be heard for miles around as UR Biology moved to 1-1.

**After a loss in week three,** UR Biology continued to struggle with offense and defense in week four. Despite excellent kicks from many of the players, nobody was able to reach second base until the 5th inning when Kim led a rally that saw UR Biology scoring 6 runs! Felix Beaudry also made an amazing catch in center field as the game wrapped up! However, the damage was already done, and despite Roger White winning a push-up challenge, UR Biology lost 12-6 in a hard-fought game and fell to 1-3.

**In week five,** UR Biology lost again 16-6. Despite the third loss in a row, a quick look at the standings revealed that UR Biology was in fact tied for first place in the league for fun points! In a league of 48 teams, despite the troubles on the field, UR Biology had actually lost their way to the top! After game five, the team crossed the halfway point of the season 1-4 with 29 fun points tied for first place. A chant of “1,2,3, fun points!!!” echoed marvelously through all of Genesee Valley Park.

Despite two more losses in weeks six and seven, the referee was (actually) quoted as saying, “You guys are the politest team I have ever officiated for in my 15 years with this league.” Even with these losses, UR Biology racked up a lot of fun points and was still in third place in the league of 48.

**In the penultimate week of the kickball season,** UR Biology was the home team, and was faced not only with another opponent, but also with the elements. During the game the rain did not stop! Despite multiple very muddy falls from Pakinee and Marcus, the team fought a grueling game with the score 8-5 going into the top of the seventh in favor of the opponent. With runners on first and second, a force out at third base that would have given UR Biology their second out was challenged by the opposing team. Despite the out being very clear, Emery was bested in the challenge and the result led to the opposition scoring two more runs. With the game hanging in the balance, UR Biology went into the bottom of the seventh down 10-5 and needing 5 runs to force extra innings. The team rallied with many hits in a row and brought the score to 10-8. With Lynn Sidor on first, a grounder was kicked to the second baseman. In an amazing display of awareness, Lynn cowered in fear as she

made her way to second and the opposing player tried to take mercy on her by not throwing the ball at her but failed to tag her! The umpire inexplicably called her out. UR Biology won the challenge due to a wonderful effort from Odochi. UR Biology managed to tie the game and force extra innings with the score 10-10. Due to some good kicking, the opposition was able to score a single run in the top of the eighth, once again putting UR Biology’s back against the wall. The bottom of the eighth luckily saw some of the strongest kickers up to bat. First would be Pakinee, then Emery, and then Omid. Pakinee managed to keep the ball on the ground and gave her best effort despite the mud to beat the play at first. Sadly, she was thrown out. Emery then followed this up with a single up the middle, but then Omid kicked a flyout. With two down and UR Biology down by a run, it was all up to Lynn. Her kick was a soft ground ball to third and in trying to win the game for his team, the opposing third baseman aggressively fielded the ball and threw it to first. Upon reading that the throw was going to first, Emery immediately rounded second to take third if Lynn was able to beat the throw. She did not beat the throw. However, it was a wild throw that was bobbled by the first baseman and went out of bounds!!! Emery Longan rounded third as the ball rolled out of bounds and was brought in to tie the game! Singles by Odochi and Roger brought in Lynn for the winning run and UR Biology won their second game in extra innings!

**Following a loss in the final week,** UR Biology’s kickball season came to an end with the final record being 2-7 and with an all-time best-64 fun points- making the team 3rd in the league of 48. Team captain Emery Longan closed the season with some words of encouragement and some team awards. For smashing the ball on the back of a cowering opponent so hard that the ball flew 25 feet in the air, Justin Fay was awarded the best play award. The leadership award went to Ellen Hemmer for her excellent coaching on the basepaths. The best defensive player award went to Hayley Wnuk for being the most reliable out in the field. And last but not least, Roger White was given the award for best challenge, for winning the push-up challenge and putting his pectorals on the line in the name of the team.

**Overall,** it was a wonderful season with excellent participation, kicking, catching, running, and fun-having from all those involved. Hopefully, the rich tradition of kickball among biologists at the University of Rochester will prove successful for many more years to come.

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# Remembering Dr. Stan Hattman

## A researcher, mentor, and colleague



By Lindsey Valich

[rochester.edu/newscenter/biology-professor-emeritus-remembered-as-researcher-mentor-and-colleague-465732](https://rochester.edu/newscenter/biology-professor-emeritus-remembered-as-researcher-mentor-and-colleague-465732)

University of Rochester biology professor emeritus Stanley Hattman is being remembered by colleagues and former students as a scientist who made foundational contributions to the field of molecular biology and as a teacher who shaped the course of students' academic careers. Hattman died December 20 at the age of 82 from complications of COVID-19.

Hattman, who joined the Department of Biology in 1968, was “a great colleague, who was always so kind and so bright,” says Cheeptip Benyajati, an associate professor of biology. Benyajati notes that Hattman’s work was integral to the field of genetics, specifically his research on the regulation of gene expression and enzymes that mediate DNA methylation—a biological process by which methyl groups are added to DNA molecules—in lower eukaryotes.

**“He provided a foundation for the field through his research in pure science,” Benyajati says. “With advances in mapping the human genome, the scientific world is now applying to humans some of this foundational research that Stan undertook.”**

Hattman was born in Brooklyn, New York, and attended the City College of New York, originally as a physics major with a minor in mathematics. During the fall of his junior year, he had what he called an epiphany when he took his first biology course. “It came during one of the first dissection exercises; viz. the earthworm,” Hattman wrote in a Department of Biology newsletter in 2004. “I was blown away when I discovered all that ‘stuff’ inside. Biology suddenly became interesting.”

He combined his interests in physics and biology as a biophysicist, focusing on the effects of radiation on viruses, bacteria, and phage-infected cells. He graduated from CCNY in 1960 with a degree in biophysics and received his PhD in microbiology from MIT in 1965. He held postdoctoral research appointments at the Max Planck Institute in Munich, Germany—where he became fluent in German—and the Albert Einstein College of Medicine in the Bronx before joining the Rochester faculty in 1968.

In 1963, he married Rosemarie, with whom he had three daughters, Heidi, Ursula '89, and Rebecca '91, and five grandchildren. Rosemarie later served as an administrator in the Department of English at Rochester, and their two youngest daughters attended the University as undergraduates.

A beloved professor in the biology department until his retirement in 2004, Hattman additionally served as director of the undergraduate program in biology and medicine for four years, mentoring and advising students.

“It was after I took Dr. Hattman’s wonderful introductory genetics course that I realized how fascinating and dynamic the cell is, so I promptly decided to major in molecular genetics and become involved in research,” says Hattman’s former student Max Popp '04, who is now a postdoctoral research associate at the University of Rochester Medical Center. “Dr. Hattman was, of course, a great teacher, but he was also a great mentor. When I was interested in working in a lab, he took the time to connect me with an old student

of his from when he was in grad school, who is currently a professor at MIT. This opportunity that Dr. Hattman opened up for me was really what made me decide to go to grad school.”

Even in retirement, Hattman was a regular presence on campus; he retained an office in Hutchison Hall and visited campus often until last year’s COVID-19 lockdown.

**“I arrived at the University of Rochester after Stan had retired, but I got to know him as a jovial and personable member of the department,” says Michael Welte, professor and chair of the biology department. “He still regularly came to Hutchison Hall and attended scientific seminars. He never failed to say hello and practice his German with me.”**

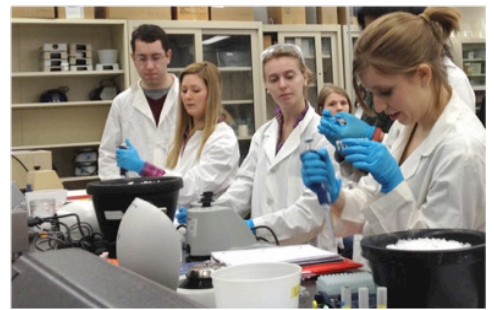
In addition to his research, Hattman was an avid swimmer, tennis player, African drummer, and photographer, pursuits he enjoyed in retirement and during his time at Rochester.

“When I arrived at Rochester from California in 1988, Stan was one of the most welcoming and supportive senior faculty,” says David Goldfarb, a professor of biology, who often swam with Hattman and had an office next to his. “We talked a lot during these swims, often about developments in his research field, but also a lot about our families and our kids’ pursuits. He was a top competitive masters-level swimmer who held New York State records and was nationally ranked, but he was also a confident scientist, with a great sense of humor and lack of an irritable ego. He was very easy to be around.”

This positive attitude and cheerful disposition, extended to everyone on campus, were hallmarks of Hattman’s personality. “He was particularly beloved by the staff,” says Brenna Rybak, biology department



*Biology professor Stanley Hattman, in 1995, plays an African drum for students in his lab. (University of Rochester photo / University Archives)*



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Michael Welte

Email: [michael.welte@rochester.edu](mailto:michael.welte@rochester.edu)

Phone: (585) 276-3897

**Administrator**

Brenna Rybak

Email: [brenna.rybak@rochester.edu](mailto:brenna.rybak@rochester.edu)

Phone: (585) 275-8837

**Department of Biology**

402 Hutchison Hall

Box 270211

Rochester, NY 14627-0211

Phone: (585) 275-3835

Fax: (585) 275-2070

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