BIOLOGY AT IOWA 2024 NEWSLETTER

Connect with us!

@uiowabiology *biology@uiowa.edu*
www.biology.uiowa.edu (319) 335-1050

Photo by Helaina Thompson

Dear Alumni and Friends,

Greetings from the Department of Biology! Biology's mission is to provide broad and rigorous training in biological sciences to our undergraduate and graduate students, and to lead work in cutting-edge biological research. In 2025, we will mark our 170th Anniversary in the Department of Biology! This year we are actively engaged in revising our two introductory biology courses to improve student success. Through the generous support of donors, we expanded the iBio PhD program entry class size; increasing the number of graduate students in Biology is critical for both our educational and research missions. We are also expanding our faculty and recruited three new tenure-track faculty – one in cell biology and two in neurobiology – and are actively recruiting an instructional track faculty member. We anticipate additional hires across the scope of biology in the coming years. This growth is critical to maintain the breadth of biological research and education in the department.

2024 has been a great year for Biology! In this newsletter, you will see highlights about our undergraduate student success and research experiences, graduate student and faculty accomplishments, new equipment in our research cores purchased with external funding, and updates on alumni. I look forward to sharing our successes in these and other areas in the coming years.

Tina Tootle, Ph.D.

Tina Tootle, **Ph.D.**. Chair and Professor, Department of Biology

IOWA | Department of Biology

Subscribe to the Department of Biology's email newsletter.

https://biology.uiowa.edu/news/department-biology-newsletter

NEW FACULTY

Katheryn Rothenberg

We were excited in August 2024 to welcome Assistant Professor **Katheryn "Katy" Rothenberg** to our department. Dr. Rothenberg comes to us from the Institute of Biomedical Engineering at the University of Toronto, where she was a postdoctoral researcher.

After growing up in Syracuse, New York, Dr. Rothenberg went on to attend Boston University, graduating with a B.S. in Biomedical Engineering. She obtained her Ph.D. from Duke University in 2018. She has really hit the ground running in her short time here so far. She is very pleased to be at the University of Iowa, appreciating the passion she finds in our students, faculty, and staff. "It feels like everyone has a reason for being here specifically, which makes the university feel like a community instead of just a collection of people." She was drawn to the breadth and quality of research being done at Iowa, as well as our open, welcoming atmosphere. "I knew that I would be well-supported and have excellent colleagues if I were to build my academic career in the Department of Biology at the University of Iowa."

Her research focuses on the study of collective cell migration — the movement of cells in coordinated groups. Her lab tries to understand how cells control and coordinate migration at the molecular scale. This is explored in part through the study of embryonic wound healing in fruit flies, which happens very rapidly without scarring. Her lab also works with adult human cells, looking for similarities and differences in the networks that govern adult cell migration. Dr. Rothenberg explains, "My research has specifically identified an important role for cell adhesions — the structures that cells use to attach to their environment and to each other — in allowing cells to sense and transmit key information."

Dr. Rothenberg has a long-time affinity for teaching, working as a teaching assistant early on in her college career, and enjoying the mentorship of top-notch professors. One professor she worked with early on would go on to receive the most prestigious teaching award at Boston University. As an undergraduate researcher, Dr. Rothenberg also recognized she liked the process of scientific discovery, leading her to further pursue research in graduate school rather than getting a job after obtaining her bachelor's degree. "Realizing that being a professor would allow me to continue research, teaching, and mentorship full-time made it a no-brainer that it was the path for me." Here in the UI Department of Biology, you can find her teaching Cell Biology in the fall semesters. Down the road, she'd like to develop a course on quantitative microscopy and image analysis for graduate students and upper-level undergraduates.

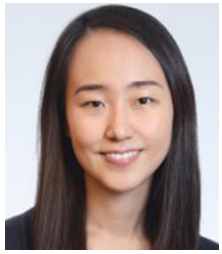
She and her husband live in Iowa City with their pet rabbits. When she's not at work, she likes to get outdoors for some hiking and camping. Additionally, she enjoys knitting and playing board games. She has hosted "murder mystery dinners" in Toronto and is hoping to find enthusiastic participants to continue doing that here.

We're happy to have Dr. Rothenberg in our department!

New Faculty in 2025

Anne Martin will be joining the Department of Biology in May 2025 as an Assistant Professor. Dr. Martin is currently a Postdoctoral Scholar in Dr. Adam Miller's Lab at the University of Oregon Institute of Neuroscience. Her research focuses on the overlap between electrical and chemical synaptogenesis using larval zebrafish.

We are excited that Dr. Martin will be joining our department in 2025!



Cathy Yea Won Sung, an NIH K99/R00 awardee, will be joining the Department of Biology in August 2025 as an Assistant Professor. Dr. Sung is currently a Postdoctoral Fellow in the Laboratory of Hearing Biology and Therapeutics at NIH's National Institute on Deafness and Other Communication Disorders (NIDCD). Her research focuses on identifying the role of macrophages during ototoxic drug-induced hearing loss with interests including investigating the biology of the blood-labyrinth barrier.

We are excited that Dr. Sung will be joining our department in 2025!

Pictured above (L to R): Chi-Lien Cheng, Mei-ling Joiner, Andrew Forbes, Sarit Smolikove, Michael Dailey, Bryan Phillips, Tina Tootle, Douglas Houston, John Manak, & Maurine Neiman

FUNDING HIGHLIGHTS

Chi-Lien Cheng, Professor of Biology

Title: "The evolution and development of fundamental reproductive structures: sporangia"

Sponsor: National Science Foundation (NSF)

Role: Principal Investigator

Total Award: $750,000

Time frame: 4 years (7/15/2024 – 6/30/2028)

Andrew Forbes, Professor of Biology

Title: "How do gall-forming insects escape diverse and evolving clades of parasitic wasps — and how do parasites catch up?"

Sponsor: National Science Foundation (NSF)

Role: Principal Investigator

Total Award: $898,359

Project Period: 4 years (8/1/2024-7/31/2028)

Sarit Smolikove, Professor of Biology

Title: "Protection from cosmic radiation"

Sponsor: Institute for Medical Research, Inc. (Prime Sponsor: NASA)

Role: Principal Investigator

Total Award: $200,000

Project Period: 2+ years (9/1/2024 - 5/31/2027)

Sarit Smolikove, Professor of Biology, Principal Investigator; **Michael Dailey**, Associate Professor of Biology, Co-Principal Investigator; **Bryan Phillips**, Professor of Biology, Co-Principal Investigator; **Tina Tootle**, Chair and Professor, Co-Principal Investigator

Title: "MRI: Track 1: Acquisition Of A Field-scanning Spinning Disk Confocal Imaging System For Super-resolution And Live Imaging Of Biological Systems"

Sponsor: National Science Foundation (NSF)

Total Award: $848,348

Project Period: 3 years (9/1/2024 – 8/31/2027)

Private funding is critical for our department's continued success as we seek to support student research, invest in state-of-the-art equipment, fund seminar series and lectureships, and attract and retain outstanding faculty members. To learn how monetary gifts can make a difference, please visit *www.givetoiowa.org/biology* or contact **Danni Zumwalt** at the UI Center for Advancement at *danni.zumwalt@foriowa.org*, 319-467-3416. We appreciate your support!

Mei-ling Joiner, Assistant Research Scientist (Eberl Lab)

Title: "Genetic basis of the evolution of insect hearing"

Sponsor: The Royal Society and University of Leicester

Role: Principal Investigator

Total Award: $5,740

Time frame: 1 year (3/31/2024 – 3/30/2025)

Andrew Forbes, Professor of Biology

Title: "Discovering eukaryotic symbionts across diverse insect communities"

Sponsor: National Science Foundation (NSF)

Role: Principal Investigator

Total Award: $290,025

Time frame: 3 years (4/1/2024 – 3/31/2027)

Sarit Smolikove, Professor of Biology

Title: "Mechanisms for the propagation of R-loop induced chromosomal fragments in the germline"

Sponsor: National Science Foundation (NSF)

Role: Principal Investigator

Total Award: $550,000

Time frame: 3 years (5/1/2024 – 4/30/2027)

Tina Tootle, Chair and Professor, Principal Investigator; **Michael Dailey**, Associate Professor, Co-Principal Investigator

Title: "Acquisition of DIVE Multi-Photon Laser System"

Sponsor: Roy J. Carver Charitable Trust

Total Award: $595,957

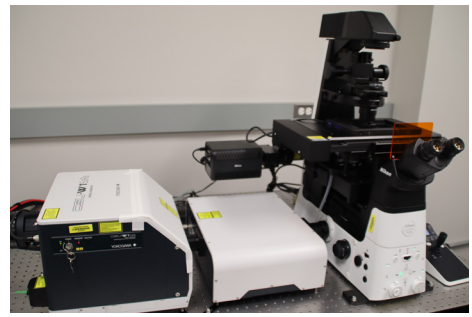
Project Period: 1 year (11/1/2024 – 10/31/2025)

The Biology faculty listed below received a one-time "Investment in Strategic Priorities" individual award up to $5,000 in 2024 to help bring research/scholarly projects to closure. The funding was provided through the UI Office of the Executive Vice President and Provost.

Douglas Houston, John Manak, and Maurine Neiman

CARVER CENTER FOR IMAGING (CCI)

CCI Update



The Roy J. Carver Center for Imaging (CCI), located in the basement of Biology Building East, plays a crucial role in advancing the research and teaching missions of the Department of Biology through its state-of-the-art light microscopy and imaging resources. Originating in the mid-1990s with a generous gift from the Roy J. Carver Charitable Trust, the CCI started with the acquisition of widefield fluorescence light microscopes. Over the years, strategic investments from the Carver Trust, National Institutes of Health, National Science Foundation, and institutional funds have continuously enhanced the CCI's capabilities in response to evolving imaging technologies.

The CCI is in the midst of a major expansion of instrumentation that will provide new, cutting-edge technology to advance the research and teaching missions of the department. In the past two years, two new imaging systems were added to the CCI. In 2023, the College of Liberal Arts and Sciences provided funds to purchase and install a Leica STELLARIS 8 laser scanning confocal microscope. This system's pulsed white light laser allows for a broader range and more precise tuning of exciting light to better match the spectra of fluorescent dyes used in combination to label complex biological structures. In 2024, the department (Co-Principal Investigators Professors Tootle and Dailey) requested and received an award of nearly $600,000 from the Carver Trust to further expand the capabilities of the STELLARIS system. This upgrade, which is planned for early 2025, adds a more powerful tunable laser that enables specialized techniques such as multiphoton excitation (imaging deep within tissues, up to 1 mm), second harmonic generation (enabling label-free visualization of biological structures such as collagen fibers), and laser ablation (to assess forces in biological structures). The system will also enable sophisticated analysis of Fluorescence Lifetime Imaging Microscopy (FLIM) to investigate cellular physiology and metabolism, and to explore fast molecular dynamics in living cells.

Moreover, in December 2024, a new Nikon SoRa field scanning spinning disk confocal imaging system was installed in the CCI. This system was purchased by an award of nearly $850,000 from the National Science Foundation (Principal Investigator Professor Smolikove with Co-Principal Investigators Professors Dailey, Phillips, and Tootle). The spinning disk system is especially valuable for its ability to more rapidly image light sensitive samples at high magnification and with super-resolution.

The CCI also houses a high-end computer workstation to support advanced image processing and 3D data visualization. This past year, the center upgraded the Imaris software to incorporate more powerful and user-friendly AI-based approaches to image processing.

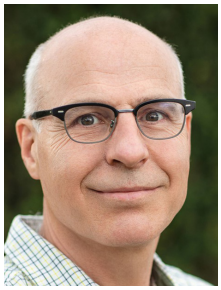
These upgrades will provide new tools in support of faculty research programs, as well as invaluable opportunities for training graduate students and affording collection of critical data for their thesis work within the department. The CCI has trained graduate and undergraduate students from many Biology faculty laboratories including those of Professors Dailey, Eberl, He, Manak, Phillips, Rothenberg, Smolikove, Summers, and Tootle. Moreover, students enrolled in upper-level laboratory courses (such as the Cell Biology Lab and Neurobiology Lab) are gaining hands-on experience with state-of-the-art biological imaging under the expert guidance of faculty members.

For more information about the CCI and available equipment, *visit biology.uiowa.edu/cci.*

Written by **Michael Dailey**, Associate Professor of Biology; Director, Carver Center for Imaging

THE EMERGENCE OF *Cicadas!*

Andrew Forbes



Daniel Eberl

Mei-ling Joiner

It was the year of the cicadas. Two different broods of periodical cicadas — the 13-year and 17-year cicadas — both emerged from the ground at the same time in the spring of 2024. Biology Professors **Andrew Forbes** and **Daniel Eberl** studied this natural phenomenon and were among those individuals interviewed by the local media such as KCRG-TV9, KGAN CBS 2, and other media outlets prior to and during the emergence of the cicadas. Forbes explained that emergences happen in the form of geographically connected groups called “broods.” Although there wouldn’t be an overlap of the two broods in any single county in Iowa, each part of the state would see different broods with the Cedar Rapids-Iowa City area seeing the 17-year cicadas (also known as the Northern Illinois Brood) and other parts of the state seeing the cicadas that emerge every 13 years (also known as the Great Southern Brood). Forbes added this rare occurrence “happens only in the eastern part of the United States and nowhere else in the world.” Each brood contains multiple species, each with slightly different shape and male chorusing songs, and they emerge in very large numbers, up to millions per acre. This large population allows them to lay enough eggs to ensure another generation.

The male cicadas congregate together in trees and “chorus” to attract females. Females then move to those chorusing centers to find mates. Adult cicadas only live for a few weeks feeding, mating, and laying hundreds of eggs in tree branches. The cicada nymphs (or baby cicadas) fall to the ground and go into the soil where they grow to the size of an adult and emerge again in another 13 or 17 years, depending on the species. Both types of cicadas require deciduous trees, or trees that drop their leaves, for the full duration of their life cycle, so they are only found in places with trees such as forests. It’s also important to note cicadas don’t harm people and only have a negligible effect on trees.

Dr. Eberl along with Biology Assistant Research Scientist, **Mei-ling Joiner**, collaborated with Professor Ben Warren, who was visiting from the University of Leicester in the UK and were also featured on KCRG-TV9. They study the hearing systems of insects and were doing field work at Macbride Nature Recreation Area as they studied the cicadas that emerged in the spring. The team, along with researchers from Michigan State University, spent days listening to the bugs in the trees and underground to not only study the cicada sounds above ground but potentially the sounds of cicada nymphs below ground.

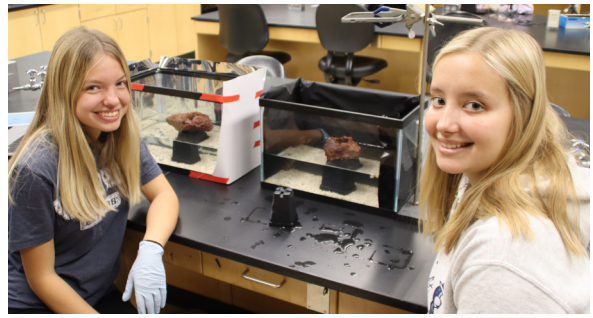
This cicada invasion where two different broods emerged at the same time hadn’t happened since 1803 and won’t happen again for over 200 years. Dr. Forbes summed it up best at the time of the cicadas emergence in 2024 by saying, “For biologists like me, this is our eclipse.”

FEATURED PUBLICATION

Stephanie Rocca and Danielle Saldana

Stephanie Rocca (B.S. in Biology, Genetics and Biotechnology track, Spring 2024) and **Danielle Saldana** (B.A. in Biology, Spring 2024) are co-first authors on a paper published in *microPublication Biology* based on their independent project studying the behavior of crayfish in the Animal Behavior Laboratory course (BIOL:3245) in the Fall 2023 semester. Additional collaborators include **Merve Addemir** (B.S. in Biology, Neurobiology track, 2021; and M.S. in Integrated Biology, Spring 2024); **Julianna Koenig**; **Bin He**, Assistant Professor of Biology; **Olga Miakotina**, Instructional Services Specialist; and **Daniel Eberl**, Professor of Biology.

Read the full paper at: *https://micropublication.org/journals/biology/micropub-biology-001184*



Danielle Saldana and Stephanie Rocca

Department of Biology faculty, staff, and students had over 50 papers published in 2024. For a full list of publications, visit *biology.uiowa.edu/research/publications*.

THE DEVELOPMENTAL STUDIES HYBRIDOMA BANK (DSHB)

DSHB Update

The Developmental Studies Hybridoma Bank (DSHB), a national resource initiated by the National Institutes of Health (NIH) and housed in the Department of Biology, has been actively distributing hybridomas and monoclonal antibodies (mAbs) to companies and research institutions worldwide since 1986. The DSHB Collection is rapidly expanding to over 5,000 monoclonal antibodies. **Douglas Houston**, Professor of Biology, has been the Director of the DSHB since 2021.

In 2024, the DSHB proudly debuted as exhibitors at the Society for Neuroscience (SfN) 2024 meeting, marking their first major conference engagement with the global neuroscience community. This event was a fantastic opportunity to showcase the DSHB's resources, meet emerging scientists, catch up with depositors, and share their passion for accessible research.

The DSHB also significantly expanded their hybridoma collection, adding over 500 new entries from the NIH's Brain Initiative Cell Census Network (BICCN) project. This expansion broadens the DSHB's catalog and enriches the toolkit available to researchers worldwide for advancing neuroscience research.

Additionally, the DSHB has increased its commitment to fostering academic discourse by providing over $10,000 in funding to support small meetings and sponsor academic attendees at larger conferences. This funding has been crucial in enabling student and postdoctoral participation.

For more information about the DSHB, visit *dshb.biology.uiowa.edu*.

New Staff

New staff at the DSHB includes **Leah Fuller** and **Kayla Garcia**. Leah joined the DSHB in July 2024 as a full-time Research Associate. She has over 20 years of experience in the Department of Biology and was most recently in the Weiner Lab since 2012. She previously worked in the Dailey Lab as a Research Assistant starting in 2001. Kayla joined the DSHB in August 2024 as a Research Assistant in the Production Lab.

RETIREMENT

Karla Daniels

After a long and distinguished career, **Karla Daniels**, **PhD**, retired from her role as Senior Scientific Curator at the Developmental Studies Hybridoma Bank (DSHB) at the University of Iowa in July of 2024. Dr. Daniels has been a pivotal figure in the DSHB, contributing significantly to its mission of providing affordable, high-quality monoclonal antibodies to the global research community.

Dr. Daniels earned her PhD in Anatomy and Cell Biology from the University of Iowa. Following her doctoral studies, she completed postdoctoral research at Harvard Medical School with renowned cell biologist Elizabeth "Betty" Hay, where she focused on cell motility and extracellular matrix. Dr. Daniels' early work introduced her to the utility of monoclonal antibodies, laying a strong foundation for her future contributions to the DSHB.

Dr. Daniels returned to the University of Iowa in 1991, working in the lab of **Dr. Michael Solursh** in the Department of Biology. Prof. Solursh was a key figure in the early days of the DSHB, which was founded in 1986 and partially operating from the Department of Biology. Dr. Daniels played a crucial role in expanding the bank's collection and ensuring its sustainability as it came under the direction of **Prof. David Soll** and became housed fully in Biology and self-funded from user fees. Under her helpful guidance, the DSHB collection has grown to house over 5,000 cell lines, which are essential for producing monoclonal antibodies used in various research fields including cancer, muscle biology, and neuroscience. In addition to her DSHB responsibilities, Dr. Daniels was an active research scientist in the Soll Lab publishing over 75 papers and receiving 4 patents with broad interests in neural crest and cancer migration, the human pathogen *Candida* sp. mating and biofilm formation, and three-dimensional model organ *in vitro* cultures.

One of Dr. Daniels' notable achievements was her advocacy for the open science model, which has made the DSHB's resources of renewable monoclonal antibodies accessible to researchers worldwide at a fraction of the cost charged by commercial distributors. DSHB became, as Dr. Daniels likes to say, something of an "antibody co-op." This model has not only democratized access to essential research tools but also fostered collaboration and innovation across scientific disciplines. Dr. Daniels' perspectives on the DSHB were featured in an article in *Iowa Magazine* in 2023 (Scan the QR code to the right or visit *https://magazine.foriowa.org/story.php?ed=true&storyid=2331*).

Beyond her professional accomplishments, Dr. Daniels was known for her warm and helpful nature. Colleagues often recall her willingness to help with antibody experiments and cell culturing, or in helping to test antibodies relevant to their work. Her mentorship has been invaluable to many young scientists, and she helped train numerous graduate students in the art of generating monoclonal antibodies using hybridoma technology. She also has a near-encyclopedic knowledge of most antibodies in the DSHB Collection, being able to recall the original investigator's work with the antibody as well as the best experimental conditions for using that antibody.

As Dr. Daniels steps into retirement, her legacy at the DSHB will continue to impact the scientific community. Her dedication to advancing research and supporting scientists globally has left an indelible mark on the field.

We wish Dr. Daniels all the best in her future endeavors and thank her for her invaluable contributions to the DSHB and the broader scientific community.

REU IN INTERDISCIPLINARY EVOLUTIONARY SCIENCES

Ten students from universities and colleges throughout the U.S. participated in the Summer 2024 REU (Research Experiences for Undergraduates) program at the University of Iowa led by **Andrew Forbes**, Professor of Biology. The focus of this REU is training in evolutionary science with students working on research projects across several disciplines. Throughout the 10-week program students received training in research best practices, participated in career workshops, created a digital poster based on their research, and made formal research presentations. Housing, a meal allowance, a stipend of $6,250, and a travel allowance are provided to students in the program.

For more information, visit *https://biology.uiowa.edu/reu*.

FACULTY AND STAFF UPDATES

New Staff

- **Olivia (Liv) Fortman**: Research Intern (Rothenberg Lab)
- **Mohamed (Mo) Ibrahim**: IT Support Analyst
- **Brenda (Bren) Linley**: Senior Academic Advisor
- **Anna Ramsey**: Research Intern (Tootle Lab)
- **Jeff Shander**: Research Associate (Kay Lab)
- **Christopher Tucker**: Greenhouse Manager

Pictured above (L to R): Olivia (Liv) Fortman, Mohamed (Mo) Ibrahim, Brenda (Bren) Linley, Anna Ramsey, Jeff Shander, & Christopher Tucker

Faculty Highlights

Lori Adams, Director of the Iowa Sciences Academy (ISA), received the College of Liberal Arts and Sciences' (CLAS) Distinguished Professor of Instruction Award, which recognizes candidates who excel in teaching, institutional and professional service, and their record of publications at time of advancement. The two-year award carries a one-time financial award, which may be used for research and teaching initiatives.

Dr. Adams was selected for the award among those individuals promoted to Professor of Instruction. She is interested in enhancing undergraduate biology education through research experience opportunities, mentoring, and the practice of scientific teaching. Dr. Adams teaches courses in communicating research, student development, and more.

Jan Fassler, Professor of Biology, was named the Director of Graduate Studies for the Integrated Biology (iBio) Graduate Program effective July 1, 2024. We thank **Bryan Phillips**, Professor of Biology, for his years of service as the Director of Graduate Studies since July 2019.

Andrew Forbes, Professor of Biology, was named the Associate Chair for the Department of Biology effective July 1, 2024. In this role, Dr. Forbes will serve as a strategic partner for the Department Chair, **Tina Tootle**. Dr. Forbes joined the Department of Biology in 2010.

Erin Irish, Associate Professor of Biology and Director of Undergraduate Studies, collaborated with members of the UI Department of Chemistry on a new patent entitled, "Compounds and methods for improving plant growth and crop yield." Like animals, plants are killed by moderate to high concentrations of hydrogen sulfide (H_2S), but at very low doses this gas improves many aspects of plant growth. This invention is a set of compounds that provide gradual release of H_2S gas at levels beneficial to plants yet not harmful to animals (including humans), with degradation products that are safe for the environment. Explore the full patent at: *https://patents.google.com/patent/US12016336B2/en*

John Manak, Professor of Biology, was named the Director of the Biomedical Sciences undergraduate program effective July 1, 2024. We thank **Jan Fassler**, Professor of Biology, for her years of service in this role.

FACULTY AND STAFF PROMOTIONS

Anna Gaw

Anna Gaw, Senior Academic Advisor for the Department of Biology, was promoted to Assistant Director with the College of Liberal Arts and Sciences Academic Advising. In this new role, Anna will continue to advise and support students in the Department of Biology along with additional administrative responsibilities to the college. Anna has been a professional academic advisor for over 23 years. She joined the Department of Biology in March 2015. Anna received a Master of Science in Education from Kansas State University and a Master of Liberal Arts from Spring Hill College.

Christopher Stipp

Christopher Stipp was promoted to full professor effective July 1, 2024. Dr. Stipp joined the Department of Biology in 2003. His research concentrates on cancer cell biology with a focus on tumor progression and metastasis, and how cancer cells develop resistance to anti-cancer targeted therapies.

Dr. Stipp has an excellent publication record. Since his last promotion in 2010 to Associate Professor, Dr. Stipp has published 21 peer-reviewed papers and is a corresponding author on 10 of these papers. Most of his publications are in high-impact, high-quality, peer-reviewed journals including three of his papers published in the *Journal of Biological Chemistry*, one of the oldest and most respected journals in the field. The research conducted by Dr. Stipp has had a significant impact on his field, evident from the high level of citations his published papers have received.

Dr. Stipp has been invited to present on his research at several international meetings and prominent national organizations such as the American Cancer Society and the Society for Melanoma Research. His research has been continuously funded through grants from the National Institutes of Health and Department of Defense. Since his last promotion, Dr. Stipp has been awarded over $3 million in external and internal funding.

Complementing his research, Dr. Stipp has been recognized for his teaching and mentoring. His primary teaching assignments have been in Cell Biology and Cell Biology Laboratory. He is a dedicated and innovative teacher and this is evident in the course evaluations from students. Several students remarked that he was the best professor they had encountered at the University of Iowa including this comment from a student, “Professor Stipp is hands down the best instructor that I have ever had in my 3 years at the University of Iowa.” Dr. Stipp has mentored two postdoctoral researchers, four Ph.D. students (two graduated, two in progress), and over 50 undergraduate students.

He has made major contributions to the department including serving on the Executive Committee (2013-2022) and two faculty search committees. He has also volunteered his time in many undergraduate recruiting events and activities and is currently serving a three-year term on the College of Liberal Arts and Sciences Scholarship Committee.

Lori Adams

Lori Adams, Director of the Iowa Sciences Academy (ISA), was promoted to Professor of Instruction in the Department of Biology effective July 1, 2024. Dr. Adams teaches undergraduate courses Ways of Knowing Science (BIOL:1808) in the fall semester, Communicating Research (BIOL:4898) in the spring semester, in addition to ISA student development courses and the two-course sequence as part of the Latham Science Engagement Fellowship Program.

Dr. Adams was also appointed as one of five faculty fellows from the UI Office of the Provost for fiscal year 2025 to work on various faculty and student success projects related to the UI 2022-2027 Strategic Plan. In her role, Dr. Adams will enhance faculty and student success initiatives such as developing a Teaching Portfolio Toolkit and collaborating on projects to enhance support and incentives for teaching excellence. She will also develop a mentoring framework for faculty and increase formal mentor training opportunities on campus.

YEARS OF SERVICE

** Years of service includes number of years an individual has been employed at the University of Iowa, not only the time spent in the Department of Biology.*

5 Years

- **Erin Edgar**: Instructional Services Specialist
- **Daniel Summers**: Assistant Professor

15 Years

- **Mark Holbrook**: Assistant in Instruction
- **Hanh Kratz**: Design Engineer
- **Mitch Larsen**: Administrative Services Coordinator, DSHB
- **Ana Llopart**: Associate Professor
- **Sarit Smolikove**: Professor
- **Tina Tootle**: Chair and Professor

20 Years

- **Douglas Houston**: Professor; Director, DSHB
- **Joshua Weiner**: Professor; Associate Dean for Research and Infrastructure, CLAS

25 Years

- **Nicole Kohler**: Administrative Services Coordinator, DSHB

30 Years

- **Marlys Boote***: Graduate Program Coordinator

45 Years

- **Chun-Fang Wu**: Professor

GRADUATE STUDENT AWARDS

Pictured above (L to R): Kelsi Mann, Jinye Liang, Briante Najev, Sydney Arlis, Danielle Talbot, & Israel Wipf

Michael J. Dykstra Graduate Scholarship

Kelsi Mann (Houston Lab), a Ph.D. student in the Integrated Biology (iBio) Graduate Program, received the Michael J. Dykstra Graduate Scholarship for Summer 2024. This scholarship provides support for a graduate student in the iBio Graduate Program. Kelsi is researching the genes that regulate axis patterning in early vertebrate development. The award has enabled her to explore the interaction between cortical rotation and the establishment of the dorsal mitochondrial leak metabolism during gastrulation in *Xenopus* embryos.

Carol B. and Robert G. Lynch Department of Biology Graduate Fund

Jinye Liang (He Lab), who earned her Ph.D. in Integrated Biology in Fall 2024, received the Carol B. and Robert G. Lynch Department of Biology Graduate Award for Summer 2024. This award is intended to support graduate students as they receive a combination of didactic training, research exposure, and tailored mentoring. The fund also supports career development in the form of graduate student travel to scientific meetings and publication costs. Jinye studied the evolution of acquired stress resistance in pathogenic microbial species. This award provided her the opportunity to explore the evolution of the catalase protein between multiple pathogenic microbial species.

The Lynchs received their PhDs in Zoology from the University of Iowa – the late Carol in 1971 and Robert (Bob) in 1972. Their bequest to the Integrated Biology (iBio) Graduate Program is in honor of their advisers, Hugh Dingle and Joe Hegmann.

Jerry Kollros Graduate Student Fund

The **Jerry Kollros Graduate Student Fund** named in honor of **Jerry J. Kollros**, Chairman of the former Zoology Department from 1955-1977, was established in 2008 to help support graduate student research. In his academic career, Dr. Kollros mentored 24 Ph.D. students and 32 M.S. students. He made many administrative and scientific contributions to the department, and we are grateful for this fund that continues to provide research opportunities for our graduate students. To recognize his many achievements, Kollros Auditorium in Biology Building East was named in his honor in 2001. Dr. Kollros retired in 1988 and later passed away in 2007 at the age of 89.

Additional Graduate Awards

College of Liberal Arts and Sciences (CLAS) Dissertation Writing Fellowship

Briante Najev (Neiman Lab) – Summer 2024 and Fall 2024
Project: "How do environmental stressors influence a snail with variable ploidy and reproductive modes?"

2023-2024 Outstanding Teaching Assistant Award from the UI Council on Teaching

Sydney Arlis (Manak Lab) – Ph.D. student in the Integrated Biology (iBio) Graduate Program
Nominated by **Albert Erives**, Associate Professor of Biology, for the course Introduction to Developmental Biology in the Fall 2023 semester

Danielle Talbot (Tootle Lab) – Ph.D. student in the Cell and Developmental Biology Graduate Program
Nominated by **Darren Hoffmann**, Associate Professor of Anatomy and Cell Biology, for the course Principles of Molecular & Cellular Biology in the Fall 2023 semester

Best Oral Presentation Award at NEUcrest Conference, Presqu'ile de Giens, Hyères-les-Palmiers, France, March 2024

Sydney Arlis (Manak Lab) – Ph.D. student in the Integrated Biology (iBio) Graduate Program
Title: "Defining the role of ISM1 in craniofacial development"

Predoctoral Training Grants

- **Sydney Arlis** (Manak Lab) – Ph.D. student in the Integrated Biology (iBio) Graduate Program

  National Research Service Award (NRSA T90) in Oral Health Research from NIH's National Institute of Dental & Craniofacial Research (NIDCR) for 2024

- **Hunter Brown** (Tootle Lab) – Ph.D. student in the Interdisciplinary Graduate Program in Genetics

  Interdisciplinary Graduate Program in Genetics Predoctoral Training Grant (T32) for 2024-2025

- **Baylee Bruce** (He Lab) – Ph.D. student in the Interdisciplinary Graduate Program in Genetics

  Interdisciplinary Graduate Program in Genetics Predoctoral Training Grant (T32) for 2024-2025

- **Adrianna Caro** (Green Lab) – Ph.D. student in the Integrated Biology (iBio) Graduate Program

  NIH National Research Service Award (NRSA) Predoctoral Fellowship (F31)

  Project: "Role of the immune response in spiral ganglion neuron death after hair cell loss"

UI Graduate College Fellowships and Awards

Award recipients below are Integrated Biology (iBio) Graduate Program students unless otherwise indicated.
**Interdisciplinary Graduate Program in Neuroscience **Cell and Developmental Biology Graduate Program*

Ballard & Seashore Dissertation Fellowship

- **Camille Hanes*** (Weiner and Dailey Labs) – Spring 2024
- **Danielle Talbot**** (Tootle Lab) – Fall 2024

Summer Fellowship (Summer 2024)

- **Ashley Goll**** (Tootle Lab)
- **Emily Hirsch** (Phillips Lab)
- **Brady Williquett** (Manak Lab)

Iowa Recruitment Scholarship

- **Dakota Thompson** (Manak Lab)

Post-Comprehensive Research Fellowship

- **Brady Williquett** (Manak Lab) – Fall 2024

Three Minute Thesis Competition

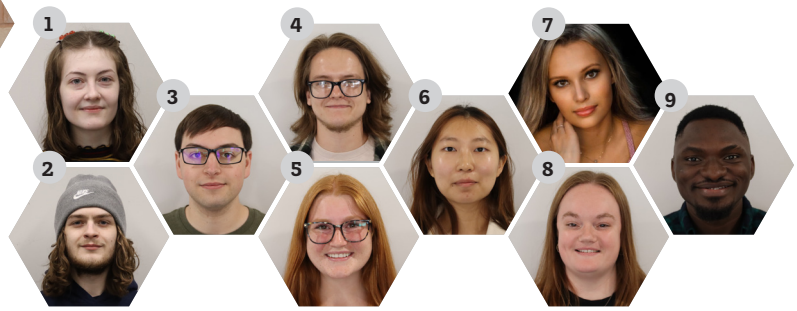
- **Israel Wipf**** (Tootle Lab) – 2024 Winner
  Project: "Fueling the Fire: Fruit Flies and the Obesity-Cancer Connection"

NEW GRADUATE STUDENTS AND POSTDOCS

The Department of Biology welcomed the following graduate students into the Integrated Biology (iBio) Graduate Program and postdoctoral research scholars in 2024-2025.

iBio M.S. Graduate Students

1. **Anika DeWald** (Cheng Lab)
2. **Bryan Joos** (Wu Lab)
3. **Nicholas (Cole) Kerns** (Fassler Lab)
4. **Hubert Kicinski** (He Lab)
5. **Margaret (Maisie) Laughlin** (Fassler Lab)
6. **Yiwei Li** (Smolikove Lab)
7. **Lily McGettigan** (Summers Lab)
8. **Emily O'Brien** (He Lab)
9. **Oluwasegun (Segun) Oladapo** (Logsdon Lab)

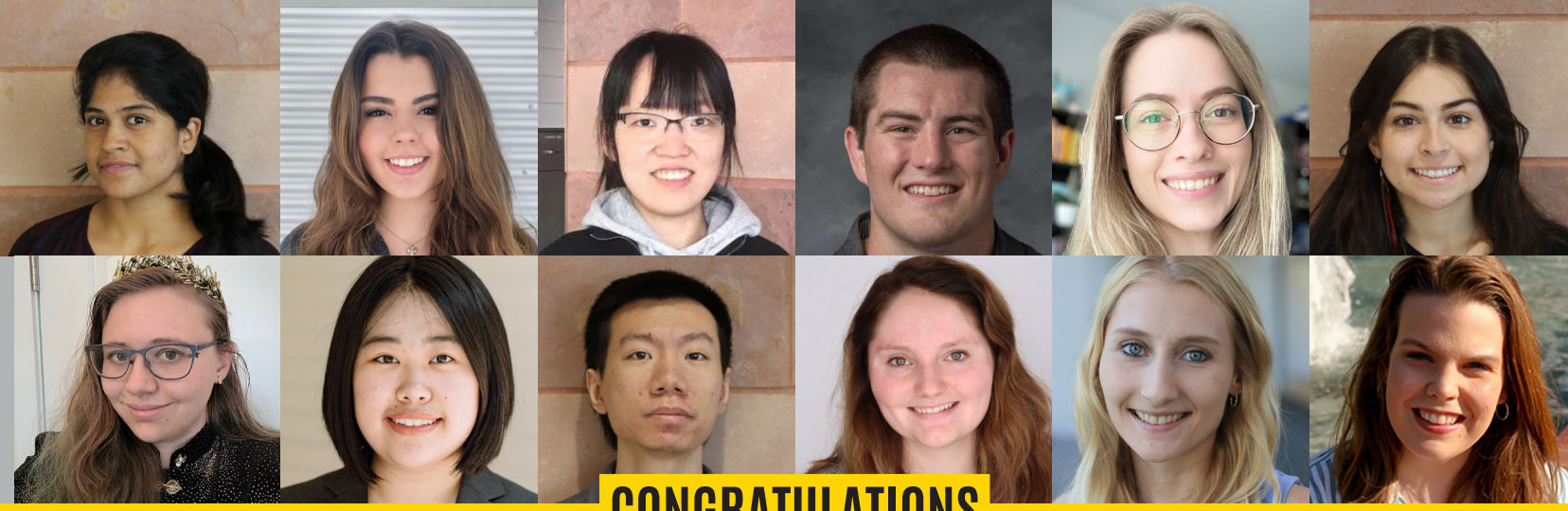


iBio Ph.D. Graduate Students

1. **Pouria Aghakhani** (Comeron Lab)
2. **Elizabeth Martin** (Rothenberg Lab)
3. **Hamza Mohammed** (Comeron Lab)
4. **Brianna O'Donnell** (Rothenberg Lab)
5. **Brie Salloum** (Dailey Lab)
6. **Dakota Thompson** (Manak Lab)
7. **Emma Valcourt** (Logsdon Lab)
8. **Rebekah Yarvis** (Cheng Lab)
9. **Zhenshen Zhang** (Green Lab)

Postdoctoral Research Scholars

1. **Tara Hicks** (Fassler Lab)
2. **Emma Thornburg-Suresh** (Summers Lab)



CONGRATULATIONS *Graduates!*

Integrated Biology (iBio) Graduate Program

Doctor of Philosophy (Ph.D.)

- **Abhishiktha Godthi** (Prahlad Lab), Summer 2024
  Dissertation: "Neuronal IL-17 Controls *C. elegans* Developmental Diapause Through CEP-1/p53"
- **Tara Hicks** (Smolikove Lab), Spring 2024
  Dissertation: "R-loops' effect on chromosome stability and temporal regulation of DNA double-strand break processing in the *C. elegans* germline"
- **Jinye Liang** (He Lab), Fall 2024
  Dissertation: "Evolution of Acquired Stress Resistance in an Opportunistic Yeast Pathogen"
- **Ryan Pellow** (Comeron Lab), Summer 2024
  Dissertation: "Impact of *de novo* Transposition on the *Drosophila melanogaster* Genome: Effects on the 3D Nuclear Architecture and Telomere Dynamics"
- **Kelley Renninger** (Cheng Lab), Spring 2024
  Dissertation: "Characterization of Phytohormone Signaling in *Ceratopteris richardii*: Reproductive Transition and Meristematic Activity"

Master of Science (M.S.)

- **Merve Addemir** (Summers Lab), Spring 2024
  Thesis: "The NGF Enigma; Exploring NGF in Axon Survival"
- **Athena Kvamme** (Cheng Lab), Spring 2024
  Non-thesis
- **Hanxi Tang** (He Lab), Summer 2024
  Thesis: "Divergence of Acquired Stress Resistance among Yeast Species and Establishing a Flow Cytometry-based Assay for Post-Stress Survival Quantification"
- **Zhenshen Zhang** (Green Lab), Spring 2024
  Thesis: "The adaptive immune response: a potential cause of spiral ganglion neurodegeneration after deafening"

Interdisciplinary Ph.D. Graduate Program

- **Camille Hanes** (Weiner/Dailey Labs), Neuroscience Program, Summer 2024
  Dissertation: "The γ-Protocadherin Family of Cell Adhesion Molecules Regulates Neurodevelopment via Shared and Isoform-Specific Mechanisms"
- **Lindsey Snyder** (He Lab), Genetics Program, Spring 2024
  Dissertation: "Evolution of Stress Response Transcription Factors and Adhesin Gene Families in Yeast Opportunistic Pathogens"
- **Emma Thornburg-Suresh** (Summers Lab), Neuroscience Program, Summer 2024
  Dissertation: "Unraveling the Role of Stathmin-2 Palmitoylation in Maintaining Axon Health"

Pictured Above: Top Row (L to R): Abhishiktha Godthi, Tara Hicks, Jinye Liang, Ryan Pellow, Kelley Renninger, Merve Addemir
Bottom Row (L to R): Athena Kvamme, Hanxi Tang, Zhenshen Zhang, Lindsey Snyder, Camille Hanes, Emma Thornburg-Suresh

Fall 2023 and Spring 2024 Undergraduate Honors Students

Listed below are undergraduate students who graduated with honors in the major. Students who graduate with honors must fulfill the regular requirements for a Bachelor of Arts (BA) or Bachelor of Science (BS) degree and maintain a grade point average of at least 3.33 (overall and in the major). Students must also conduct research in the laboratory of a faculty member, write an honors thesis, and give a brief oral presentation of their research findings, among other requirements.

Nicole Boodhoo (Buchanan Lab), B.S. in Biomedical Sciences with High Distinction, Spring 2024

Sarah Brumley (Kuehn Lab), B.S. in Biomedical Sciences with Distinction, Spring 2024

Korie Campbell (Smolikove Lab*), B.S. in Biology (Cell and Developmental Biology), Spring 2024

Nina Carnevale (Dodd Lab), B.S. in Biomedical Sciences, Spring 2024

Aasthika Das (Smolikove Lab*), B.S. in Biology (Integrative Biology), Fall 2023

Riley DeJohn (Ear Lab), B.S. in Biomedical Sciences with Distinction, Spring 2024

Sarah King (Howard Lab), B.S. in Biomedical Sciences, Spring 2024

Bailey Klemmensen (Boudreau and Stein Labs), B.S. in Neuroscience, Spring 2024

Lillie Lamont (Yang Lab), B.S. in Biomedical Sciences, Spring 2024

Neha Nagarkar (Hazeltine Lab), B.S. in Neuroscience, Spring 2024

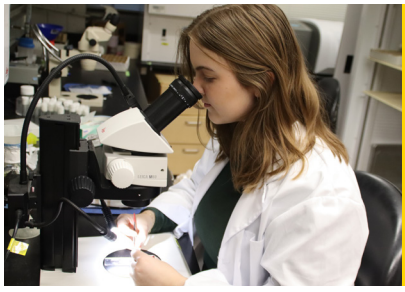
Shannon Stokes (Hazeltine Lab), B.S. in Neuroscience with Distinction, Spring 2024

Luke Zaabel (Purnell and Parker Labs), B.S. in Neuroscience with Highest Distinction, Spring 2024

**Denotes a lab in the Department of Biology*

LINDA AND RICK MAXSON UNDERGRADUATE RESEARCH AWARD

The Linda and Rick Maxson Undergraduate Research Award supports undergraduate research in individual faculty labs in the Department of Biology. Since its establishment in 2020, over 70 undergraduate students have benefited from hands-on research opportunities provided by the award.

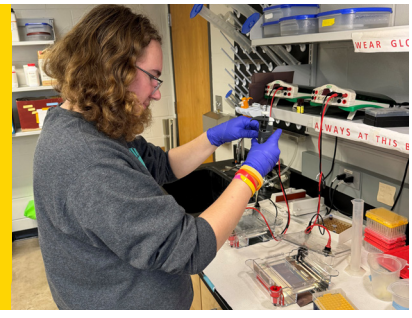


"I would like to thank the Maxsons for their support of me and the Iowa undergraduate research program. In the Manak Lab, we are evaluating the effect of oxidative stress and the immune system on the disease progression of a fly model of autism spectrum disorder. I really appreciate their generosity which allows me to learn and study in such an incredible organization."

- **Greta Schlafer** (Manak Lab), a Biology student on the Genetics and Biotechnology track and a recipient of the award

"I'd like to thank the Maxsons for their support of the Department of Biology. Their charity allowed me the opportunity to work under Dr. Llopart studying the introgression of mitochondrial DNA between two fruit fly species. I primarily focused on extracting and replicating DNA from flies to be used in future analyses. I am very interested in molecular evolution, and my time in the lab gave me invaluable hands-on experience for work in that field."

- **Owen Ashbrook**, an undergraduate student in the Llopart Lab and also a recipient of the award



Linda and Rick Maxson

The Department of Biology is most grateful for Linda and Rick Maxsons' philanthropy. Their contributions over the past four years have greatly enhanced the undergraduate research experience in Biology. Dr. Linda Maxson served as Dean of the University of Iowa College of Liberal Arts and Sciences for 15 years, stepping down from that position on June 30, 2012, when she joined the Department of Biology faculty. She officially retired on June 30, 2018.

UNDERGRADUATE SCHOLARSHIPS AND AWARDS

As a result of the generosity of our scholarship donors, the Department of Biology provided the following awards during the 2023-2024 academic year.

Arthur J. and Flora D. Levin Excellence in Undergraduate Teaching Award

- **Jenna Atkins** (nominated by Amr El Zawily and Hanxi Tang for Teaching Internship in Biology: Foundations of Biology for Spring 2024 semester)
- **Omar Montiel-Martinez** (nominated by Angie Cordle for Teaching Internship in Biology: Human Biology for Fall 2023 semester)

Arthur J. and Flora D. Levin Award for Outstanding Undergraduate Research

- **Cole Belcher**

Biology Outstanding Undergraduate Teaching Assistant Award

- **Veda Amalkar**
- **Abbie Townsend**

Clifford W. Hesseltine Award for Academic Excellence

- **Deven Strief**

Evelyn Hart Watson Undergraduate Research Fellowship

- **Lily Nelson**

Lowden Prize for Outreach and Engagement in Biology*

- **Gabriella Snyder**

**This award is funded by the College of Liberal Arts and Sciences*

Pictured above (L to R): Jenna Atkins, Omar Montiel-Martinez, Cole Belcher, Veda Amalkar, Abbie Townsend, Deven Strief, Lily Nelson, & Gabriella Snyder

Additional Undergraduate Awards

Iowa Neuroscience Institute Summer 2024 Scholar

- **Lydia Watkins** (Neuroscience major)

2023-2024 Stevens Phi Beta Kappa Scholarship

- **Luke Zaabel**, (B.S. in Neuroscience with Highest Distinction and Minor in Biology, Spring 2024)

Office of Undergraduate Research Summer 2024 Fellowships

- **Tyler Draayer** (Biology major, Logsdon Lab)
- **Mason Heidebrink** (Biology major, Eberl Lab)
- **Lily Nelson** (Neuroscience major, Dailey Lab)
- **Maggie Tinman** (Biology major, Smolikove Lab)

2024 Excellence in Undergraduate Research Award

- **Jasmyn Hoeger** (Biology major, Iowa Sciences Academy student)

Dr. Tom Rocklin Meet the Challenge Award (Excel category)

- **Nicole Boodhoo** (B.S. in Biomedical Sciences with High Distinction, Spring 2024; 2023-2024 Latham Fellow)

2024-2025 Fulbright Award

- **Jennifer Jiman** (B.A. in Biology, Spring 2023)

Fulbright English Teaching Assistantship Award

- **Laura Evans**, a Department of Biology alumna (B.S. in Neuroscience, Spring 2022), was in South Korea working as an English Teaching Assistant after receiving the prestigious Fulbright English Teaching Assistantship Award for 2023-2024. She helped elementary school students improve their English while engaging with her local community to promote cross-cultural exchange. Laura has renewed her Fulbright Award for another year and will spend 2025 in South Korea.

IOWA SCIENCES ACADEMY (ISA)

Supporting Student Success in the Sciences

The **Iowa Sciences Academy (ISA)** serves as an umbrella for a range of programs that support the success of qualified University of Iowa undergraduate students interested in scientific research and communication. ISA provides financial support for freshman and sophomore students to carryout mentored scientific research through the Science Alliance program, financial support for transfer students to participate in research through the Louis Stokes Alliance for Minority Participation (LSAMP) program, and NIH-funded fellowships for junior and senior researchers through the Maximizing Access to Research Careers (MARC) grant. Additionally, ISA offers the Latham Science Engagement Fellowship for students interested in science communication. Latham Fellows complete two courses and design and implement capstone projects that are presented at the year-end Latham Showcase. Across all programs, ISA supported 55 students during the Fall 2024 semester.

ISA also offers a range of affiliated courses, professional development activities, and responsible conduct of research training, as well as a Peer Mentoring program. Students in ISA programs have unique access to hands-on research, mentoring, professional development, and scientific outreach opportunities, recognizing that the role of one-on-one mentoring is critical. **Bin He, Ph.D.**, Assistant Professor of Biology, has mentored multiple ISA students. Dr. He says, “First-generation students make up a significant portion of our student body at the university. They often lack the experience and role models in their prior education to aspire to become a scientist. I had the privilege of working with several through the ISA (previously IBA) program, including **Jia Zhao** (2018-2021) and **Cole Belcher** (2022-2024), who, despite their lack of prior research experience, turned out to be among the most hard-working and high-achieving students I’ve mentored. Both are now enrolled in top-ranked graduate programs in the nation (MIT and UIUC).” Professor He is currently a mentor for ISA Latham student, **Kelsey Martin**.

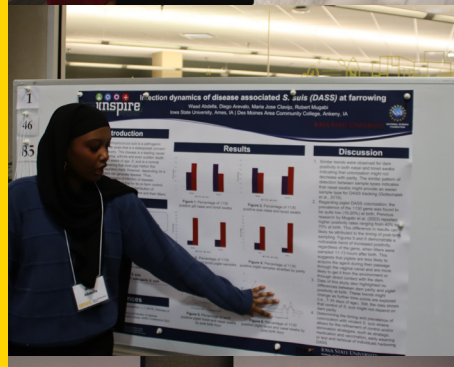
Professor **John Manak, Ph.D.**, shared this about his experience mentoring ISA students. “The students from the Iowa Sciences Academy who have worked in my laboratory have been amongst the best undergraduate researchers I’ve had the pleasure to mentor, and I’ve mentored a lot (65+ over the course of my career). They not only have excelled in terms of the quality of their work, but also regarding their long-term commitment to the lab, thus enabling the generation of a substantial body of research.” Professor Manak is currently mentoring ISA MARC Fellow, **Jessie Newbanks**.

In addition to the program benefits and services, students appreciate the ISA community for its supportive environment and connections with faculty. Current and past students often highlight the lasting friendships they create through their ISA involvement.

To support the ISA programs, the College of Liberal Arts and Sciences (CLAS) awarded two half-time Graduate Assistantships in 2024 as part of a pilot program supporting assistantships in writing, editing, and community engagement. The supported graduate students are **Clare Mulcahy**, a Ph.D. candidate in the Integrated Biology (iBio) Graduate Program, and **Joe Starr**, a Ph.D. candidate in the Department of Mathematics. A third graduate student, **Jahnavi Pandya**, a research assistant and doctoral candidate in the Psychological and Quantitative Foundations Graduate Program, is funded by MARC and is in her 2nd year as the ISA Career Counselor. Additionally, **Allison Bywater**, a research assistant and doctoral candidate in Counseling Psychology, works with Dr. Ali Saba on research related to the LSAMP program.

ISA is administratively housed in the Department of Biology and is directed by **Lori Adams**, Professor of Instruction in Biology and Director of Science Engagement with CLAS. Dr. Adams was also selected by the Office of the Provost as one of five Faculty Fellows for 2025. Additional members of the ISA leadership team include **Tori Forbes**, Professor of Chemistry and Director of the MATFab Facility, and Associate Director, **Kristina Venzke**.

For more information about ISA, visit *isa.uiowa.edu*.





ALUMNI HIGHLIGHT: *Jorge Moreno*

Written by: Richard C. Lewis, Senior Writer/Editor, UI Office of Strategic Communication
Photography: Tim Schoon, Photographer, UI Office of Strategic Communication

Forgive University of Iowa alumnus **Jorge Moreno** if his story seems straight out of a Hollywood movie script. Born in America to migrant laborers, Moreno was first a boy who balanced work in the fields with his schooling, and later a first-in-his-family college student who was hurtling toward losing a vital scholarship. But he would find a faculty mentor and ally at Iowa and would go on to earn a doctorate, be first author on a paper published in *Nature*, and become a researcher who is studying the secret of immortality from a tiny jellyfish. Sometimes, Moreno admits, he needs to remind himself that it's all true.

"My journey from being a child of migrant laborers to having a doctorate is a story of resilience, curiosity, and opportunity," Moreno says. "My life has been filled with many firsts and unexpected paths, but I've learned that success comes from the willingness to challenge ourselves."

Moreno was born in Texas when his 21-year-old mother, at nine months pregnant, journeyed by herself to the United States to give birth. For the first several years of his life, Moreno and his family would leave Mexico to pick fruit or vegetables in the state where the produce was in season, rotating among Florida, Michigan, Texas, Georgia, and Iowa. Moreno barely saw his parents; they were like fleeting silhouettes when his slumber-filled eyes would flutter open at dawn or late at night. Fleeting, too, was school: Moreno barely would be in one place long enough to get acclimated to teachers, classmates, or classes.

"It was tough. We were always moving," Moreno recalls. "But in some ways, it was good. It made me very adaptable."

That adaptability would continue to be tested as Moreno grew older. By middle school, his family had narrowed its seasonal travels to two states: Texas and Iowa. But despite the reduced wandering for labor, Moreno shuttled between schools in both states; he'd join his school in south Texas in October, after fall classes had started, and return to Williamsburg, Iowa, after the upcoming year's class schedules had been set. That meant, even unintentionally, he was regularly omitted from honors courses for which he had qualified via tests on which he scored higher than nearly all his peers.

"I remember feeling all this frustration, 'What does it matter? Just put me into the right class,'" he recalls.

Compounding the scholastic snafus, Moreno needed to help his family. His senior year, he rushed at lunchtime from campus to the farm field, another hand to pick corn, another wage earner, a vital $7.25-an-hour addition to the six-member family's bottom line.

"I knew we weren't rich," Moreno says. "I was needed as a contributor to the family because I could work."

Thanks in large part to a dedicated principal at Williamsburg High School, Moreno eventually was enrolled in advanced placement classes. He thrived, especially in math and the sciences. Yet despite flourishing academically, Moreno didn't give a moment's thought to going to college. His first inclination was to join the Marines — and not tell his parents — but a high-school teacher in Texas bargained with him that Moreno would get a ride to the recruitment office only if he applied to some colleges.

One of those colleges was Iowa; Moreno relays with some mirth that he did so only after being informed by his guidance counselor at Williamsburg High School that Iowa's early application deadline and instant acceptance decision meant Moreno would know his status before he left the Hawkeye state for Texas. Iowa did something else that no other school that had accepted Moreno would do: It invited him to visit campus and offered him full tuition, based on his test scores, grades, and being a first-generation student.

"Iowa says, 'We're paying for your school.' And, I was like, 'Wow, that settles it,'" Moreno says. "That's how I ended up going to Iowa. It was all kind of coincidental and convoluted. But it's one of the greatest decisions of my life, for sure." Moreno's decision didn't seem like it would pan out. He struggled with the transition to college, especially in grasping the study habits needed to succeed academically. He was stretched thin working jobs to support himself — at the dining hall in Burge residence hall, a restaurant, and a cellphone repair store. His first-year grade-point average had fallen under 3.0, jeopardizing his scholarship.

"I started thinking, 'I'm not cut out for this. Maybe I'm not good enough to be here,'" Moreno says. Even though doubt had crept in, Moreno steeled himself and pivoted. He made friends with a few classmates who, like he, were on a pre-medicine track. One of them told him to look into research opportunities as a way to burnish his credentials. So, he reached out — and that's how he met a biologist named **Maurine Neiman**.

When Moreno walked into Neiman's office as a sophomore in fall 2015, he had no idea what she did as a scientist. And Neiman had little idea why Moreno was interested in her

research. Yet despite the disconnect, the two sensed an almost immediate rapport. Neiman says she overlooked Moreno's typo-laden meeting request email and liked him right away. He was fun to talk to, genuinely curious, and confident in himself, she remembers.

"It was very clear he didn't know what it would mean to be in a science lab," says Neiman, a professor in the Department of Biology who studies the evolution of sexual reproduction, primarily using a New Zealand freshwater snail as a model. "But he just wanted a foot in the door, and after I met him, I wanted to give him that chance."

Moreno seized on the opportunity. He started with general tasks assigned to undergraduates, such as feeding the snails. Rather than putting in his shift and leaving, Moreno went to the lab meetings. He asked the lab's graduate students and postdoctoral researchers what they were doing, and why. He hung around the lab a lot — observing, absorbing, discovering.

"Joining Maurine's lab was one of those times when I was just able to be curious again," Moreno says. "I was taking in a lot of new information. I was learning new things."

By late spring, Moreno had ensconced himself in the lab's milieu, viewed less as a come-and-go student and more as a fixture in the group. So, one day, Neiman offered him a summer job in her lab. He would lead his own research project, she told him. And she would apply on his behalf for a U.S. National Science Foundation program that financially supports research opportunities for select undergraduates.

"Doing dedicated research in a science lab during the summer is such an important experience because it gives you a chance to really focus in a way that you can't when classes and all these other things are competing for your attention," Neiman says. "So, I thought it was a really important opportunity for him."

The opportunity dramatically changed Moreno's calculus. He could acquire more experience in research. He could take a summer class or two, advancing in his degree. He would be paid, meaning he could drop the extra jobs he had needed to pay the rent and feed himself.

"It set me on this track that I want to be a scientist," Moreno says. "I spent all summer in the lab, working on my own project. I got to hang out more with the graduate students and talk a lot more with Maurine. It was fantastic." As he entered his junior year, Moreno was confident he wanted to be a scientist and to engage full time in research.

He asked Neiman, "How do I become you?"

"You need to go to graduate school," she replied.

Problem was, Moreno hadn't entertained that notion. So, Neiman helped him to identify graduate programs and faculty advisors who worked on the type of science that Moreno was interested in. Neiman again went to bat for Moreno: She contacted the Iowa Sciences Academy and asked the principals to consider Moreno for a scholarship, even though he was not technically eligible as a junior and the application deadline had passed.

"I thought he should have a chance," Neiman says, explaining why she intervened. "It was a program perfectly suited for his academic stage in life, his goals, and his ambitions. I told them, 'Can you please give Jorge a chance? He is worth an exception.'"

Moreno won a scholarship. That meant he'd get paid to work 40 hours every week in Neiman's lab. He could leave the extra jobs behind, concentrate exclusively on his coursework, and pursue his own burgeoning research interests.

Maurine Neiman and Jorge Moreno

"Maurine and everyone in the Iowa Sciences Academy made it their mission to help me progress in my undergraduate studies and strengthen my chances to get into graduate school," Moreno says.

Moreno earned a Bachelor of Science in biology (with a subdepartment of evolutionary biology) in 2018. He attended Princeton University, earning a doctorate in molecular biology in January 2024. His research focus during that time netted him first authorship on a study examining how three distinct, closely related species of marsupials evolved the same molecular formula for flying. The paper was published in April 2024 in *Nature*, one of the premier scientific journals in the world.

At the beginning of 2024, Moreno took another big step in his research journey, when he was hired as a postdoctoral researcher at the Stowers Institute in Kansas City, Missouri. He is studying a tiny jellyfish, called *Turritopsis dohrnii*, that can reverse engineer itself from an adult to a juvenile stage when threatened, then turn itself back into an adult when the danger passes. What Moreno wants to find out is how the jellyfish's Benjamin Button–style transformation occurs on the molecular level, with the goal to reprogram fully developed human cells into anything that's needed: an eyelid, heart tissue, you name it.

"What the immortal jellyfish does is take cells that are fully differentiated, at the final stage of what they're meant to be, and somehow those cells are capable of turning into something else," Moreno says. "They give rise to a new structure entirely, and I'm interested in unlocking how they do that."

It's a moonshot-like pursuit. But those who know Moreno well are not surprised. They admire his courage, his tenacity, his will to overcome any obstacle tossed in his path.

"Jorge has chutzpah," Neiman says. "He's willing to try things that might fail, and he's willing to try again and again and again. That's who he is."

IN REMEMBRANCE

Listed below is the most recent update of the names of Department of Biology alumni and friends who have passed away. Maiden name or nickname (if applicable) and deceased date are listed in parentheses. Names are listed in alphabetical order by last name.

Source: University of Iowa Center for Advancement and UI Alumni Records

Aylward, Dennis C.
M.S. Zoology, 1958
(October 5, 2016)

Bell, William C.
M.S. Zoology, 1952
(September 15, 2019)

Belville, Donald R.
B.A. Zoology, 1949
(August 2, 2016)

Crispell (Maiden), Eleanor (Ele)
B.A. Zoology, 1949
(January 1, 2024)

Everingham (Jacobson), Ann J.
B.A. Zoology, 1955
(January 23, 2018)

Gabal (Basart), Ann M.
B.S. Biology, 1992
(2018)

Hayden (Griffin), Marilyn J.
B.A. Zoology, 1946
(June 18, 2014)

Hill, Gerald (Jerry) R.
M.S. Zoology, 1973
(June 14, 2024)

Jordan, Chris S.
M.S. Zoology, 1951;
Ph.D. Zoology, 1955
(June 14, 2016)

Keck, Robert W.
M.S. Botany, 1964
(August 16, 2024)

Martin, Edward W.
Ph.D. Zoology, 1962
(June 8, 2018)

O'Brien (Penningroth), Penny
B.A. Zoology, 1949
(January 18, 2023)

Payne, Willie F.
M.S. Zoology, 1950;
Ph.D. Zoology, 1958
(October 13, 2016)

Reichert-Broocks (Reichert), Marilyn L.
B.A. Zoology, 1950
(July 29, 2016)

Sampsell (McClelland), Bonnie M.
Ph.D. Zoology, 1977
(December 14, 2023)

Schardein, James L.
M.S. Zoology, 1958
(April 21, 2017)

Sherman, Jerome (Jerry) K.
Ph.D. Zoology, 1954
(December 1, 2023)

Shitabata, George J.
B.A. Zoology, 1955
(2015)

Steele, Arnold E.
B.A. Zoology, 1953;
M.S. Zoology, 1957
(October 14, 2014)

Wellhouse, James L.
B.A. Zoology, 1948
(May 17, 2018)

Wells, Kenneth
M.S. Botany, 1957;
Ph.D. Botany, 1957
(July 19, 2016)

Winslow, Robert B.
B.A. Zoology, 1949
(June 23, 2018)

Jeffry Schabilion

Jeffry Schabilion, Professor Emeritus, passed away at the age of 81 on June 24, 2024. Dr. Schabilion joined the Botany Department (now Biology) in 1968 and retired in 2009 after an accomplished career as a paleobotanist for over 40 years at the University of Iowa. Dr. Schabilion's contributions to the department include serving as Chairman of the Botany Department from 1980-1986 and later as Associate Chairman of the merged Biology Department.

He graduated from Iowa State University with degrees in Botany and Geology in 1965 and later earned his Master's and Ph.D. in Botany from Kansas University in 1969. His career was devoted to teaching courses on the subjects of botany, plant diversity, ecology, and evolution; and also his organization of several tons of fossil plant specimens that he collected over many years. In 1978, Dr. Schabilion discovered one of the largest Lepidodendron fossils (scale tree) in an abandoned strip mine near Pella, Iowa. Dr. Schabilion played an active role in later donating the large-scale tree specimen to the Smithsonian National Museum of Natural History in 2005.

He had a passion for the native flora of the Midwest and the local architecture and geology of Iowa City. He was a board member of the Friends of Historic Preservation and had a special interest in Iowa City's Moffitt Cottages with one becoming his own home in the 1980s. He was involved in several local projects and organizations including saving 'Old Brick' and founder for United Action for Youth. He served as an executive committee member of the UI Museum of Natural History and was the leader in acquiring a grant for modernizing the museum, especially the Iowa Hall and Bird Hall projects.

"It was with much sadness that I learned that Jeff Schabilion passed away," wrote **Jonathan Poulton**, Professor Emeritus. "When I joined the Botany Department as a rather timid Assistant Professor in 1979, I was grateful for his warm welcome and for his friendship that lasted 45 years. I felt honored and delighted to team teach Introduction to Botany with him for several years and appreciated his mentorship."

Dr. Schabilion's obituary can be found at: *https://www.iowacremation.com/obituary/2024/Jun/Dr.-Jeffry-T.-Schabilion*

Barbara Stay

Barbara Stay, Professor Emerita, passed away at the age of 97 on February 6, 2024. Dr. Stay joined the Department of Zoology (now Biology) in 1967 and retired in 2008 after a productive career in research and teaching for over 40 years. She had an indelible influence on her peers and students and collaborated with scientists around the globe. Dr. Stay was born in Cleveland, Ohio, and received her bachelor's degree at Vassar College in 1947. She went on to achieve an M.A. degree and then a Ph.D. in Biology at Radcliffe College/Harvard University in 1948 and 1953, respectively. Her career would take her to such places as Australia, Massachusetts, California, and Philadelphia before she arrived at the University of Iowa.

Her achievements have been recognized by numerous awards over the years including Fellow of the American Association for the Advancement of Science (1989), Distinguished Achievement Award from the University of Iowa (1999), Fellow of the Entomological Society of America (2001), and Achievement Award in Invertebrate Neuropeptides (2008), to name a few.

Her recognition would extend beyond the scientific community as the lay press picked up on breakthrough discoveries made by Dr. Stay and her colleagues around the globe regarding cockroach milk. Dr. Stay, dubbed by colleagues as the "Cockroach Lady," was believed to have had the world's largest collection of cockroaches while at the University of Iowa. In an interview with *USA Today* in 2018, Dr. Stay said she believed she was the first person to ever milk a cockroach. Dr. Stay replaced embryos with filter paper inside pregnant cockroaches to soak up the nutritious milk the insect provides it's developing young. According to Dr. Stay, it would take up to 48 hours to produce barely half a drop of cockroach milk, not exactly a process ready for mass consumption. "Goodness me, you wouldn't want to milk cockroaches," Stay said during the interview. While she had milked cockroaches for decades dating back to the 1950s, Dr. Stay said she never tasted cockroach milk and didn't plan to. "Cow's milk is good enough for me," she said at the time.

In addition to training graduate and undergraduate students in research, Dr. Stay taught seminar courses on Insect Reproduction and Development, Histology, Histologic Technique, and Introductory Biology to large classes of non-majors. She was known for running a hard-working and welcoming research laboratory, for giving lectures easily understood by non-native English speakers, and her ice dancing agility. In fact, she participated in ice dancing events well into her 80s!

Dr. Stay's obituary can be found at: *https://www.amigone.com/obituaries/Barbara-Ann-Stay?obid=30688096*

Barbara Stay Graduate Student Support Fund

The Barbara Stay Graduate Student Support Fund was established by a generous donation from her estate in May 2024 and will provide scholarships to graduate students in the Department of Biology.

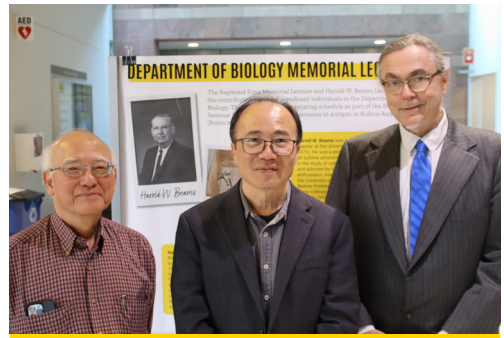
Barbara Stay Memorial Lectureship

The Department of Biology will be establishing a Barbara Stay Memorial Lectureship in honor of Dr. Stay. This annual seminar will bring world-renowned researchers to campus to interact with students and faculty and deliver a memorial lecture. Gifts for this lectureship can be made at *www.givetoiowa.org/biology* (select "Other" and specify "Barbara Stay Memorial Lectureship") or contact **Danni Zumwalt** at the UI Center for Advancement at *danni.zumwalt@foriowa.org*, 319-467-3416. We will also be raising funds for this lectureship through the University of Iowa's 24-hour online giving day — One Day for Iowa — on March 26, 2025.

THE 19TH HAROLD W. BEAMS LECTURE

The Harold W. Beams Lecture, established in honor of **Professor Beams**, was held on Friday, May 3, 2024. The featured speaker for the 19th Harold W. Beams Lecture was **Jing W. Wang**, a UI Biology alumnus who completed his Ph.D. under **Chun-Fang Wu**, Professor of Biology. Dr. Wang is currently Professor and Chair in the Department of Neurobiology at the University of California San Diego.

Professor Beams was an outstanding scientist and teacher in the Department of Zoology (now Biology) at the University of Iowa for 41 years (1930-1971). He was a pioneer in cell biology in using the air turbine ultracentrifuge and the electron microscope in the study of cell organelles. In his honor, the University of Iowa established the Carver/Harold W. Beams Distinguished Professorship in Biological Sciences in 1989. To further recognize his achievements, colleagues and friends created the Harold W. Beams Lecture in 1992.



(L to R): Chun-Fang Wu, Jing W. Wang, & David Hemingway, grandnephew of Harold W. Beams

IOWA | Department of Biology

143 Biology Building
Iowa City, IA 52242-1324

Biology is Starting an Alumni Board!

The Department of Biology has a long-standing commitment of staying connected with and engaging alumni. To further this engagement, we are starting an Alumni Board. The initial goals of the board are to 1) offer regular "Career talks with Alumni" to illustrate the breadth of careers open to Biology graduates and to connect current students with alumni; and 2) develop a plan for how to best communicate with and engage alumni in the department.

Two alumni have already agreed to participate in the Alumni Board, and we are looking for more volunteers. Please email *biology@uiowa.edu* to volunteer!

Dear Alumni and Friends of Biology,

Our future newsletters will be distributed primarily through email. Scan the QR code to provide us with your email address so we can stay in touch!

https://biology.uiowa.edu/news/department-biology-newsletter

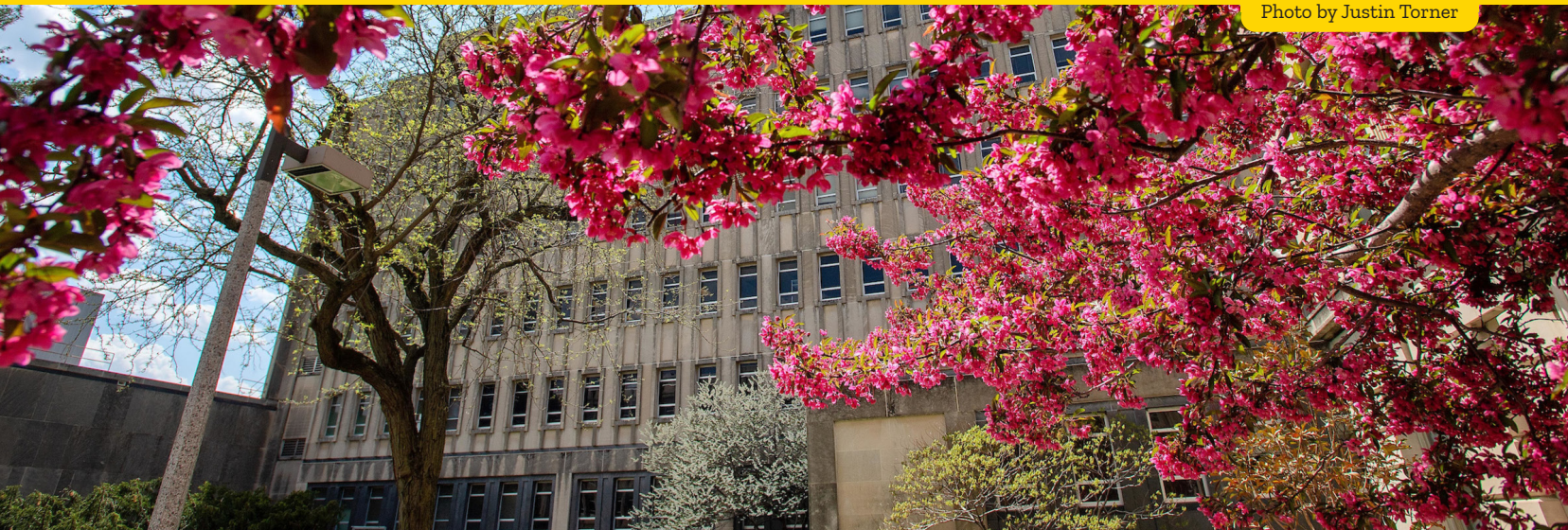


Photo by Justin Torner