

**IOWA**

Department of Biology

Winter 2020

# Biology at Iowa



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Dear Alumni and Friends,

Greetings from the Department of Biology. The landscape of science is constantly evolving and now society is also adjusting to new ways of living. Our department has a unique and rich combination of basic and applied research, investigating all levels of life science (from the tiniest molecules to genes to cells to organisms to ecosystems) and faculty continue to secure external funding in a highly competitive environment. This research enhances our instruction, making us a model for experiential learning on campus.

Our hands-on teaching has posed a challenge in the COVID era. We adapted our research labs to meet safety standards while keeping our programs moving forward. I also applaud the hard work and resourcefulness shown by our faculty and staff in converting courses to a hybrid model. We doubled our efforts to provide safe environments while ensuring students gain critical experience in life science methods and learn to think about science in rigorous and creative ways.

Science is driven by technology and by our capacity as researchers to address the most pressing biological questions. We greatly appreciate the support of our alumni and friends. Your generosity helps the department remain competitive and provides our faculty and students with the greatest opportunities to push boundaries and make impactful discoveries. I have been humbled by the dedication and innovation of our faculty and staff. I am also impressed with the flexibility and resilience of our students. Our world has been upended but the lessons learned will serve us well in all aspects of our lives and careers. In these transformative times, I wish you all a healthy and happy 2021.



## The DSHB and Therapeutics for COVID-19 Infections

The Developmental Studies Hybridoma Bank (DSHB), a National Resource created by the National Institutes of Health and housed in the Department of Biology, has been actively distributing hybridomas and monoclonal antibodies (mAbs) to companies and research institutions worldwide for 34 years. Many of the mAbs are primary reagents directly related to research and the development of therapeutics for COVID-19, targeting the cytokine storm, the immune response and viral entry.

“We started to find out that we had a large number of monoclonal antibodies that are important for all kinds of stuff related to research on the coronavirus, for treatment of the coronavirus, and identification of symptoms which have to be repressed,” says **David Soll**, Director of the DSHB since 1996.



Human cells expressing coronavirus spike protein (Soll Lab).

Dr. Soll and his team identified over 130 mAbs relevant to COVID-19 research. “We have monoclonal antibodies that even the biggest companies don’t have,” Dr. Soll says. To date, the DSHB handled over 450 requests worldwide from scientists and distributed more than 625 units of reagents related to COVID-19 research.

Coronavirus research in the Soll Lab targets specific regions of the spike protein that the virus uses to enter respiratory tract cells. Methods developed in the DSHB use DNA plasmids containing sequences of critical domains of the coronavirus spike protein to create antibodies. The DSHB developed the plasmids, demonstrated they express the spike proteins in human cells, and are now creating mAbs. Researchers in the DSHB will select hybridomas that produce anti-spike mAbs that block viral infection, and in collaboration, test their therapeutic efficacy. For more information about the DSHB, visit [dshb.biology.uiowa.edu](http://dshb.biology.uiowa.edu).



## The Department of Biology Adapts to COVID-19

Our dedicated faculty and staff were quick to respond to the COVID-19 pandemic. We provided supplies for health care needs, modified research labs for proper safety and health protocols, and altered the curriculum to deliver courses in a hybrid format. In spring 2020, instructional staff in the department provided 1500 swabs to the State Hygienic Lab for their test kits. In addition, Biology faculty and staff donated critical supplies such as N90/ N95 masks and face shields to the University of Iowa Hospitals and Clinics and other organizations.

In addition to responding to the call for critical supplies, faculty and instructors quickly adjusted in mid-March to deliver courses online immediately following Spring Break. For courses with labs, this meant an increased reliance on virtual simulations and students observing experiments conducted and filmed by course instructors. This was a monumental accomplishment in such a short time, and we recognize the effort invested by all.

Faculty and staff worked diligently over the summer and into the fall semester to implement safety and health protocols in our buildings and to create a hybrid model of course delivery, with a combination of online and in-person formats. This was especially challenging for our lab classes as hands-on experiential learning is a critical component of Biology's curriculum. "Our instructors and lab coordinators worked tirelessly over the summer to adapt our labs to meet safety recommendations while maintaining learning outcomes," said Diane Slusarski, Departmental Executive Officer.

Great measures were taken to ensure the safety of students and instructors. We reduced lab capacity to allow for social distancing and when in the labs, students wore a face mask, shield, and lab coat. Additional safety measures included the use of plexiglass barriers and/or dividing classes into separate sections that alternated between performing exercises in the lab and observing these experiments over Zoom in a nearby room. Faculty also created plans for students to participate fully online if needed.

In addition to our teaching mission, faculty also run independently-funded research programs. Individual research labs implemented several safety measures including staggered work schedules to maintain social distancing, requiring face coverings, and regular deep cleaning of research areas. Beginning in mid-March, undergraduate researchers were not allowed on campus. While it impacted student opportunities to gain valuable experience, we were glad to welcome them back into the labs later in the summer as part of the university's phased return to campus.

During these challenging and exceptional times, the faculty and staff in the Department of Biology remain committed to delivering excellent coursework and research experiences with health and safety in mind.

# New Faculty & Staff

## New Faculty

**Amr El Zawily** joined the Department of Biology in January 2020 as a Lecturer/Course Coordinator for the introductory biology course, Foundations of Biology. Dr. El Zawily is also the instructor for the Teaching Internship in Biology course.



Originally from Hosh Essa, Egypt, Dr. El Zawily completed his bachelor's degree in Plant and Animal Biology at Alexandria University in Egypt, and his master's degree in Microbiology and Environmental Studies at Ohio University. He earned his Ph.D. in Molecular Cell Biology at the University of Saskatchewan, Canada. Dr. El Zawily was a researcher at VIDO-InterVac, a world leader in developing vaccines and technologies against infectious diseases, including COVID-19. He then held Postdoctoral and Research Associate positions at the University of Saskatchewan College of Medicine. Dr. El Zawily found his passion and purpose was in academia and became the lecturer and lab coordinator for the largest course at the university — an introductory course in biology with approximately 1200 students in the fall semester and 900 students in the winter semester.

Coming from the University of Saskatchewan, Dr. El Zawily noted a few differences between Iowa and Canada. The semesters at Iowa are longer — 17 weeks versus 12 weeks — and the Iowa curriculum is much more rigorous, “making the students very busy but also more knowledgeable.” He also enjoys the diversity of students that he's teaching at the University of Iowa. “Students that go to the University of Saskatchewan are mostly from Saskatchewan but here at Iowa, students are from everywhere.” Dr. El Zawily was attracted to the University of Iowa due to its reputation in research and teaching. “It is a very well-recognized university internationally. It has a rich history and is very beautiful,” says Dr. El Zawily. He also said the people in Iowa City are very kind, and it's easy to meet new people. Dr. El Zawily's experience and enthusiasm will be a great benefit to the students.

## Research/Teaching Staff Transitions

**Gery Hehman**, the manager of the Roy J. Carver Center for Genomics (CCG), a research and service center located in the Department of Biology, retired in Fall 2019 after working over 20 years in the CCG. Anyone that has worked with Gery greatly appreciated his skill and expertise, and we wish him well as he enjoys retirement in Florida. We are happy to welcome the new manager of the CCG, **Cindy Toll**. Cindy has an M.A. in Teaching (Science Education) and an M.A. in Anthropology from the University of Iowa and is a familiar face in the department. She has served as a Teaching Assistant, a Research Assistant (Logsdon Lab), and as the Instructional Services Specialist for the introductory lab courses. Cindy brings with her a depth of knowledge of the department's teaching and research to the CCG. We also welcomed two new Instructional Services Specialists to fill the position that Cindy vacated and to accommodate increased enrollment in the introductory lab courses. **Erin Edgar** joined the Department of Biology in fall 2019 and **Stephanie Haase** in fall 2020. With all the adaptations needed to deliver lab content in a safe environment, we are ever grateful for their work in Foundations of Biology, Diversity of Form and Function, and Introductory Animal Biology.



Cindy Toll, Erin Edgar, & Stephanie Haase

## New Administrative Staff



**Marlys Boote** joined the Department of Biology in November 2019 as the Academic Services Coordinator. Marlys brings vast experience and knowledge to the position, previously serving as the Director of Enrollment Management in the College of Liberal Arts and Sciences and holding positions in Continuing Education as Director of Evening Classes and Director of Summer Session in her 25+ years at the University of Iowa (UI). She received her Master of Fine Arts and Doctor of Musical Arts at the UI and is enjoying learning about biology.

**Rebecca (Becky) Kick** became Departmental Administrator for the Department of Biology in August 2020. She has over 21 years of experience at the University of Iowa (UI) including the past 10 years as Administrator for the School of Journalism and Mass Communication. Becky received her bachelor's degree from the UI and welcomes the challenge of working in a large and active research department.



# Retirements



**Bernd Fritzsich**, Departmental Executive Officer (2008-2016), retired on January 1, 2020. As DEO, he spearheaded successful growth, which included a multidisciplinary P30 grant and making substantial changes to our graduate program. Dr. Fritzsich also served as Director for the Aging Mind and Brain Initiative and the Center on Aging. He received his Ph.D. in Biology/Zoology in 1978 from the Technical University of Darmstadt in Germany. Dr. Fritzsich held faculty positions at the Technical University of Darmstadt and University of Bielefeld and was a Research Fellow at the Scripps Institute for Oceanography. In 1991, he moved to Creighton University Medical School where he eventually became Assistant Dean for Research before coming to Iowa in 2008.

Dr. Fritzsich is considered one of the world's foremost comparative molecular neuroembryologists and has a strong track record of national/international funding. He has published nearly 300 peer-reviewed papers which have been cited over 21,000 times and served as Editor-in-Chief for a comprehensive reference series covering the senses (see page 11). He plans to continue his research in age-related hearing loss.

Dr. Fritzsich has a strong devotion to education in the classroom and in the lab. He mentored three Postdoctoral fellows, four Ph.D., one master's, and twelve undergraduate students at Iowa. Without exception, each trainee remembers their time with him as a period of intellectual curiosity and both personal and professional growth. One of his favorite quotes is, "Absence of evidence is not evidence of absence." However, while he may now spend more time at home, many will consider it difficult to find evidence that he is truly absent from the department. To read more about the accomplishments of Dr. Fritzsich, visit [bitly.com/berndfritzsich](http://bitly.com/berndfritzsich).

After 27 years as the Department of Biology's Graduate Program Coordinator, **Phil Ecklund** retired on September 30, 2020.

Phil's connection to the university and the Department of Biology runs deep. He received his B.S. from the University of Iowa in 1980, in what was then known as the Department of Zoology. It was in Dr. Joe Frankel's Principles of Biology class that he met his wife, Dixie. They've been married for 39 years and have two children, Rachel and Jake, and soon-to-be three grandchildren.

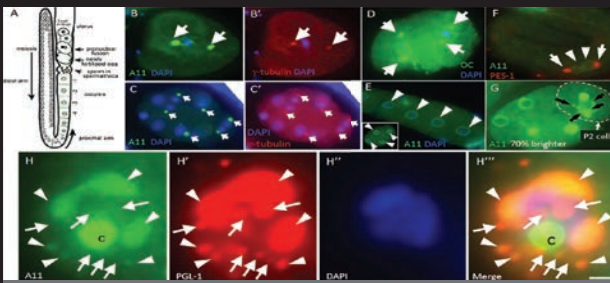


After completing his degree, Phil worked at the Carver College of Medicine as a research assistant in the areas of psychiatry and pulmonary. This experience instilled in him a belief in the power of the investigative sciences, and he sees the mission of the Department of Biology as moving science forward and improving lives.

Phil has witnessed many changes during his decades on campus. He was one of the first university employees to receive an IBM hard drive computer, and he created the first graduate student databases in Biology. His favorite memories include his many colleagues over the years, including multitudes of graduate students, staff, and faculty and the Emeritus faculty. He is particularly grateful to Professors Gene Spaziani, George Cain, and Bob Malone for hiring him to help grow the graduate program. Phil has been instrumental for the smooth operation of our graduate program and a key resource for our graduate students. He has had a huge impact on our graduate program! Phil's plans for retirement include fishing, reading, travel, and spending time with his grandkids.



**Jean Fitzgerald** retired in 2020 after 35 years of teaching service to the Department of Biology in Vertebrate Zoology, Human Biology, and other courses. Dr. Fitzgerald grew up in South Carolina, where a childhood interest in insects taught her "to see the details." She earned her Ph.D. in 1980 at the University of Chicago with a dissertation on foraging strategies in cotton rats. In 1984, she joined the UI Department of Biology as a postdoc and soon thereafter became Lecturer. She communicated a real passion for the natural world and an understanding of how it operates. Her lectures were noteworthy for their organization and breadth of coverage. The labs were oriented toward individual projects, for which students often collected their own study material, and in all cases learned to "see the details." Dr. Fitzgerald was also the go-to person for the public's questions on wildlife biology and served as a consultant in the design of several exhibits in the UI Museum of Natural History. She has also worked in wildlife rehabilitation. In retirement, Dr. Fitzgerald will return to her native South Carolina and intends to carry on her wildlife rehabilitation work there. We wish her the best of luck and enjoyment in her new endeavors!



Endogenous *C. elegans* amyloids marked by A11 antibody (green). Photo provided by the Phillips Lab.

## Funding Highlights\*

**Chun-Fang Wu**, Professor of Biology, with fellow Principal Investigator Xiaoxi Zhuang (The University of Chicago): \$2,136,650 for 5 years from the National Institutes of Health for “*Drosophila* and mouse models of PNPO deficiency.” This grant will study how vitamin B6 deficiency, especially during development, leads to seizures and epilepsy.

**Bryan Phillips**, Associate Professor of Biology, and **Jan Fassler**, Professor of Biology: \$700,000 for 3 years from the National Science Foundation for “Animal Disaggregases and Amyloid Contributions to Early Animal Development.” The goal of this grant is to characterize the role of amyloid aggregates during early animal development and to identify the activities that may contribute to their developmentally regulated formation and disaggregation. To accomplish these objectives, the Phillips and Fassler labs will capitalize on the complementary and synergistic experimental advantages of *C. elegans* and *S. cerevisiae*.

**Diane Slusarski**, Professor of Biology and Departmental Executive Officer: \$275,177 equipment grant from the Roy J. Carver Charitable Trust for “High Throughput Quantitative Analysis of Gene Expression and Cellular Behavior” (see article to the right).

**Maurine Neiman**, Associate Professor of Biology: \$2,800 conference grant from The Company of Biologists for her symposium “Genomic Perspectives in Comparative Physiology of Mollusks: Integration across Disciplines.”

\*Covers external sources of funds from outside the University of Iowa during fiscal year 2020 (July 1, 2019 – June 30, 2020) with a Department of Biology faculty or staff member as the Principal Investigator or Co-Investigator.

# Carver Grant Adds New, Cutting-Edge Equipment in Genomics Research Center

The Department of Biology was awarded a grant from the Roy J. Carver Charitable Trust to acquire equipment for the Roy J. Carver Center for Genomics (CCG), a research and service center located in the Biology Building.

The grant, for a total of \$275,177, has provided the purchase of two new instruments, the Droplet Digital PCR (ddPCR) and the Cytation 5 plate reader system, and will facilitate a major leap forward for researchers. Both systems enable high throughput, quantitative analysis of biological pathways to advance current research projects and accelerate new scientific discoveries.

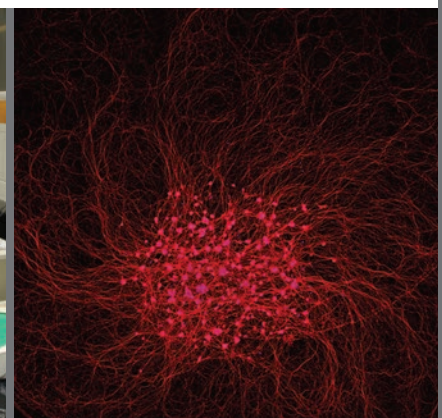
For example, the Malkova Lab has advanced our understanding of an important DNA repair pathway that is activated in cancer cells using the ddPCR machine integrated with traditional biological analyses. This has led to high-profile publications and successful grant applications.

The impact of the Cytation 5 combination microscope and plate reader was also immediate. The Summers Lab uses the Cytation 5 to visualize how neurons and their axons degenerate in neurological disorders and what treatments can be used to protect the nervous system. Neurons can be cultured in 96-well plates so experiments that once required months can now be completed in just a few days.

This powerful equipment will enhance the role of the CCG as a resource for researchers to track genomic content, gene expression, and cellular changes in real time with more precision and will inspire collaborations among faculty, staff, and students in the department as well as the greater UI community. For additional information about the CCG, please visit [biology.uiowa.edu/ccg](http://biology.uiowa.edu/ccg).



The ddPCR machine has been used by the Malkova Lab to better understand a DNA repair pathway that is activated in cancer cells (shown in green in upper-left corner).



Sensory neurons and their axons. Images collected from one well of sensory neurons in a 96-well plate.

# Faculty & Staff Awards



**Joshua Weiner**, Professor of Biology, was appointed to the position of Associate Dean for Research in the College of Liberal Arts and Sciences (CLAS) on July 1, 2020. Dr. Weiner is interested in the interactions between science and the arts and humanities and will bring valuable expertise to the college's faculty leadership. His research, which focuses on molecular mechanisms of neuronal differentiation and neural circuit formation, has been continuously funded through multiple National Institutes of Health grants and foundation awards since he joined the Department of Biology in 2004. He has authored more than 60 publications, generating over 7,000 citations. In addition to his successful research program, Dr. Weiner is an innovative teacher and mentor. The former Associate Chair for Graduate Education in Biology, he has mentored 11 Ph.D. students and 25 undergraduate researchers, and received the Graduate College's Outstanding Graduate Mentor Award in 2018. He developed a popular general education course called "How the Brain Works (And Why it Doesn't)" and received the Collegiate Teaching Award from CLAS in 2017. He co-founded the interdisciplinary undergraduate neuroscience major administered by the Department of Biology, which has seen rapid growth in enrollment. Dr. Weiner also serves as the Associate Director for Education and Outreach with the Iowa Neuroscience Institute. Featured on: [clas.uiowa.edu/news](http://clas.uiowa.edu/news) (May 1, 2020)



**Andrew Forbes**, Associate Professor of Biology, received the James Van Allen Natural Sciences Fellowship for the 2020-2021 academic year. This competitive award is designed to support scholarly work in the physical, natural, and mathematical sciences. With the \$15,000 stipend that this fellowship provides, Dr. Forbes and his team will be testing a new method for studying historical plant domestication events using genomic data from specialist insects that attack plants. The researchers will address questions related to timing and location of plant domestication. The award is offered by the UI Office of the Executive Vice President & Provost.

**Maurine Neiman**, Associate Professor of Biology, was named Handling Editor of *Proceedings of the Royal Society B, Biological Sciences*, which is one of the prestigious Royal Society family of scientific journals, effective January 1, 2020. She will continue in her role as the publication's first-ever Preprint Editor, a position she has held since 2017.



## Biology Faculty & Staff Years of Service at the University of Iowa

5 Years



**Emily Koury**  
Research Assistant  
(Smolikove Lab)

10 Years



**Andrew Forbes**  
Associate Professor

15 Years



**Chris Lake**  
Administrative Services  
Coordinator

15 Years



**Daniel Lusche**  
Associate Research  
Scientist (Soll Lab)

25 Years



**Rebecca Glover**  
Research Associate  
(DSHB)

30 Years



**Chi-Lien Cheng**  
Professor

30 Years



**Erin Irish**  
Associate Professor

30 Years



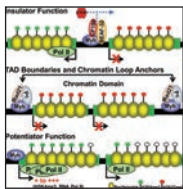
**Alan Kay**  
Professor

# Featured Publications

UI Professor of Biology **Steven Green** with collaborators at Washington University in St. Louis, published a study with insights to prevent hearing loss. Their work on the communication between auditory sensory cells and nerve cells in the ear found that selectively blocking a particular class of nerve cell receptors prevented hearing impairment caused by noise damage to the nerve cells without affecting normal hearing. The “chemical earmuffs” discovered by Dr. Green and his colleagues could protect hearing in noisy environments while allowing workers or military personnel to hear instructions or orders. In the original study the compound was introduced directly into the inner ear but the team is now investigating compounds that can be administered orally or by injection and that are safer and more effective than the original compound. “We want to make sure not only that the drug is effective but also that it is safe and easy to take,” Dr. Green said. The team’s research, funded by NIH and the Department of Defense and published in the journal *Proceedings of the National Academy of Sciences* (February 18, 2020), received international media recognition including nearly 180,000 views on the popular YouTube *SciShow News*.



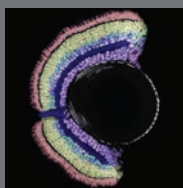
In a study published in *Cell Reports* (March 10, 2020), the **Manak Lab** identified a critical new function for a chromatin protein (Myb). Myb previously was thought to only regulate gene transcription but this study demonstrated a function as an insulator protein to maintain separation of chromatin neighborhoods (e.g., active versus repressive domains). Loss of Myb results in the reduction or loss of an important histone modification across the entire genome, leading to inappropriate gene derepression.



Associate Professor of Biology, **Veena Prahlad**, and her team of researchers, published a study (*eLife* April 23, 2020) that shows that neurons of a mother roundworm release a chemical called serotonin when she senses danger, such as a change in ambient temperature. Serotonin activates a defense mechanism by altering chromatin in future offspring, allowing them to tolerate these dangers were they to encounter them when born. Embryos from mothers who could not pass along the serotonin danger signal were less resistant to stress than those from mothers who had the serotonin signaling intact. In collaboration with **Joshua Weiner**, Professor of Biology and a co-author on the study, the team then found that serotonin signaling elicited a similar defense mechanism against stress in mammalian neurons. Pending more research, serotonin may become a treatment option for activating cellular defenses against neurodegenerative diseases associated with aging, including dementia, Alzheimer’s disease, and Parkinson’s disease. Featured on: *Iowa Now* (May 5, 2020)



Researchers in the Slusarski Lab at the University of Iowa Department of Biology led by Ph.D. student, **Melinda (Lindy) Brastrom**, and Professor **Diane Slusarski**, in collaboration with a team from the University of Delaware, discovered that the RNA binding protein, RBM24, binds to and regulates the master transcription factor, SOX2, during vertebrate eye development. The mutation of SOX2 in humans accounts for roughly 20% of anophthalmia (no eye) and microphthalmia (small eye) cases making understanding its regulation important to understanding human ocular defects. Their findings were published in the journal *Human Molecular Genetics* (February 15, 2020). Dr. Salil Lachke, corresponding author on the paper, earned his Ph.D. in Biology at the UI Department of Biology (2003) under his mentor, Professor David Soll.

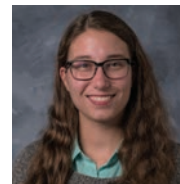


A study led by Ph.D. student, **Anna Ward**, undergraduate student Omar Khodor, and Associate Professor **Andrew Forbes**, in collaboration with researchers from Rice University, made a new discovery about behavior-manipulating parasites. The “Crypt Keeper Wasp,” *Euderus set*, changes the behavior of its gall wasp host such that the host chews a smaller-than-normal exit hole in the side of its plant gall and then “plugs” that hole with its head rather than leaving the gall (allowing the crypt keeper wasp to eat its host and leave the gall by chewing through the host’s head). The research revealed that the crypt keeper can use its highly specialized behavioral manipulation on many different host species, a finding not consistent with predictions. Their results were highlighted in several media outlets including *Science*, *The New York Times*, and the *Smithsonian* magazine.

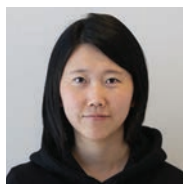


# iBio Graduate Program Student Awards

The **Michael J. Dykstra Graduate Scholarship Fund** provides scholarship support for a graduate student in the Integrated Biology (iBio) Graduate Program. **Melinda (Lindy) Brastrom** was selected by the department executive committee to receive the inaugural award. Lindy is a Ph.D. student with an outstanding record of publication and conference presentation awards. She is an effective teacher and mentor. The scholarship allowed Lindy (Slusarski Lab) to focus on her thesis work studying eye development, and she anticipates submitting her research results for publication in the near future. Dykstra, who earned both his B.A. (1969) and M.S. (1971) in Botany at the University of Iowa, believes strongly in higher education and hopes that his gift will provide educational support for future leaders in scientific research and teaching.




The **Carol B. and Robert G. Lynch Department of Biology Graduate Fund** is intended to support graduate students as they receive a combination of didactic training, research exposure, and tailored mentoring. The inaugural recipients for Summer 2020 were **Liping Liu** (Malkova Lab) and **Christopher Youngstrom** (Cheng Lab). The fund will also support career development in the form of graduate student travel to scientific meetings as well as publication costs. The Lynchs received their Ph.D. degrees 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.




The **Department of Biology Summer 2020 Graduate Fellowships**, which are supported by donations to the department for graduate students, allowed these Integrated Biology (iBio) Ph.D. students listed below to perform their thesis research during the summer. The department is very appreciative of the generosity of our scholarship donors for these awards.

**Sydney Arlis** (Manak Lab)    **Richard Bowman** (Smolikove Lab)    **Jinye Liang** (He Lab)

**Liping Liu** (Malkova Lab)    **Sehee Min** (Prahlad Lab)    **Josh Thompson** (Phillips Lab)    **Chris Youngstrom** (Cheng Lab)

 **Alaine Hippee**, an iBio Ph.D. student in the Forbes Lab, received an **Outstanding Teaching Assistant Award** for 2019-20 from the Council on Teaching at the University of Iowa. This award recognizes graduate teaching assistants who have effectively promoted learning and creativity both inside and outside the classroom while demonstrating enthusiasm and dedication to student success. Each awardee receives a \$1,000 check and a certificate.

 **Briante Najev**, an iBio Ph.D. student in the Neiman Lab, was awarded a **British Ecological Society (BES) Outreach Fund** grant. The BES funds outreach initiatives worldwide that promote equitable access to science education. Briante will use this award to share the National Center for Science Education activity, EcoStax, with populations across rural Eastern Iowa, particularly Muscatine and Davenport. In this activity, people of all science backgrounds build an ecosystem, then try to keep it stable under the duress of climate change, helping to make climate issues local and personal. Source: Kate Carter, National Center for Science Education

## Graduate College Summer Fellowships for Summer 2020

**Ben Gansemer** (Green Lab)  
**Kailey Harrell** (Smolikove Lab)  
**Krishna Madhav Nukala** (Manak Lab)  
**Krista Osadchuk** (Irish Lab)  
**David Steffen** (Weiner Lab)

## Graduate College Ballard and Seashore Dissertation Fellowship

**Melinda (Lindy) Brastrom** (Slusarski Lab) – Fall 2020  
**Liping Liu** (Malkova Lab) – Fall 2020  
**Beth Osia** (Malkova Lab) – Spring 2020

## CLAS Dissertation Writing Fellowship

**David Cooper** (Fassler Lab) – Summer 2020 & Fall 2020

## Graduate College Diversity Fellowship

**Alaine Hippee** (Forbes Lab) – Fall 2020  
**Anna Ward** (Forbes Lab) – Spring 2020

## Graduate College Iowa Recruitment Fellowship

**Briante Najev** (Neiman Lab) – Fall 2019, Spring 2020, & Summer 2020

## Graduate College Post-Comprehensive Fellowship

**Krishna Madhav Nukala** (Manak Lab) – Spring 2020



# Undergraduate Scholarships & Awards



## Linda & Rick Maxson Undergraduate Research Award (up to \$500 per student)

The Linda and Rick Maxson Undergraduate Research Award provides funds to faculty members in the Department of Biology to help defray the costs of supplies, equipment, and other expenses for undergraduates to learn in the lab. A total of 15 undergraduate students (10 for Spring 2020 and 5 for Fall 2020) received the award. 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.

### Spring 2020

**Caitlin O'Callaghan** (Fassler Lab)

**Anne Cerveny** (Summers Lab)

**Brianna Iverson** (Weiner Lab)

**Bailey Knopf** (Slusarski Lab)

**Abinaya Paravasthuresh** (Stipp Lab)

**Wren Renquist** (Irish Lab)

**Marissa Roseman** (Neiman Lab)

**Sydney Stork** (Neiman Lab)

**Jia Zhao** (He Lab)

**Jennavieve (Jenna) Zimmerman** (Dailey Lab)

### Fall 2020

**Amanda Caraballo** (He Lab)

**Ian Fefchak-Robinson** (Forbes Lab)

**Javier Guerra** (Forbes Lab)

**Chelsea Higgins** (Neiman Lab)

**Isabella Holland** (Eberl Lab)

As a result of the generosity of our scholarship donors, the Department of Biology provided the following awards during the 2019 – 2020 academic year.

### Arthur J. and Flora D. Levin Excellence in Undergraduate Teaching Award (\$500)

Molly Droeszler

### Arthur J. and Flora D. Levin Award for Outstanding Undergraduate Research (\$500)

Caitlin O'Callaghan (Fassler Lab)

### Avis Cone Undergraduate Research Fellowship (\$1,000 each)

Tommy Nguyen (Cheng Lab) & Rachel Orpano (Cheng Lab)

### Clifford W. Hesseltine Award in Biology (\$1,000)

Jia Zhao (He Lab)

### Evelyn Hart Watson Undergraduate Research Fellowship (\$1,000)

Hunter Brown (Eberl Lab)

### \*Lowden Prize for Outreach and Engagement (\$100 each)

Elizabeth (Lizzy) Kruse (Dailey Lab) & Rikki Laser

\*This scholarship is awarded through the College of Liberal Arts and Sciences.

## Fulbright Awards

A record 23 University of Iowa students and alumni were chosen from among more than 10,000 students nationally to receive a prestigious Fulbright award to conduct research, teach English, or undertake creative projects abroad in 2020 – 2021. Two students affiliated with the Department of Biology were among the recipients: **Margaret Mungai**, of Des Moines, Iowa; and **Cameron Keomanivong**, of Mt. Pleasant, Iowa.

## Gilman International Scholarship

Chosen from thousands of applicants across the U.S., eight University of Iowa undergraduate students were awarded the competitive Benjamin A. Gilman International Scholarship. Recipients receive up to \$5,000 to apply toward their study abroad or internship program costs. Two undergraduate B.S. majors in the Department of Biology were among the recipients: **Anissa Forero**, of Cedar Falls, Iowa; and **Julie Weng**, of West Des Moines.

## Additional Awards Received by Students Affiliated with the Department of Biology

**Iowa Neuroscience Institute Summer 2020 Scholars**  
Dustin Fykstra, Spenser Pfannenstiel, and Hanxi Tang

### ICRU Summer 2020 Fellowship

Brianna Iverson (Weiner Lab), Erin Smith (He Lab), and Jia Zhao (He Lab)

**Excellence in Undergraduate Research Award**  
Benjamin Kirk and Jade Miller

### ICRU 3-Minute Research Story 2020 E-Competition

Abinaya Paravasthuresh – 1st Place (Neiman and Stipp Labs)  
and Rikki Laser – 3rd Place

**Kenneth J. and Sharon L. (Reisch) Erickson Scholarship**  
Jia Zhao (He Lab)

### Student-athletes named to the 2019-20 Big Ten Winter Academic All-Conference Team

Connor Corbin (Wrestling), Monika Czinano (Women's Basketball), Paula Valiño Ramos (Women's Basketball, Weiner Lab), Noah Scigliano (Men's Gymnastics), and Tomi Taiwo (Women's Basketball)

### Student-athletes named as 2019-20 Big Ten Conference Distinguished Scholars

Jenny Cape (Women's Soccer), Ashleigh Jacobs (Women's Tennis, Eberl Lab), Wren Renquist (Women's Cross Country, Irish Lab), Noah Scigliano (Men's Gymnastics), and Leslie Speight (Field Hockey, Neiman Lab)

# Congratulations 2019-20 Graduates!

The following undergraduate students graduated with honors in the major. Students who graduate with honors must fulfill the regular requirements for a Bachelor of Arts (B.A.) or Bachelor of Science (B.S.) 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.

## Spring 2020 Undergraduate Honors Students

**Owen Alford** (Green Lab), B.S. in Biology

**Tyler Atagozli** (Fassler Lab), B.S. in Biomedical Sciences

**Megan Crotts** (Richerson Lab), B.S. in Neuroscience

**Madison Day** (Smolikove Lab), B.S. in Biology

**Yue Dong** (Neiman Lab), B.S. in Biology

**Alexia Herber** (Weiner Lab), B.A. in Biology

**Angie Kalwies** (Logsdon Lab), B.S. in Biology

**Cameron Keomanivong** (Narayanan Lab), B.S. in Neuroscience

**Travis Larson** (Narayanan Lab), B.S. in Biomedical Sciences

**Margaret Mungai** (Abel and Slusarski Labs), B.S. in Biology

**Marissa Roseman** (Neiman Lab), B.A. in Biology

**Leslie Speight** (Neiman Lab), B.S. in Biology

## Integrated Biology (iBio) Graduate Program

### Doctor of Philosophy (Ph.D.)

**Sepand Bafti** (Green Lab), Spring 2020  
Thesis: "Regeneration of Synapses After Noise-Induced Cochlear Synaptopathy"

**Thomas Conway** (Soll Lab), Summer 2020  
Thesis: "Promoter Regulation of *WOR1* and Commitment to the Opaque Phase in *Candida albicans*"

**Sriram Hemachandran** (Green Lab), Fall 2019  
Thesis: "Ambivalent Action of Cyclic AMP on Degeneration and Regeneration of Cochlear Afferent Synapses During and After Trauma"

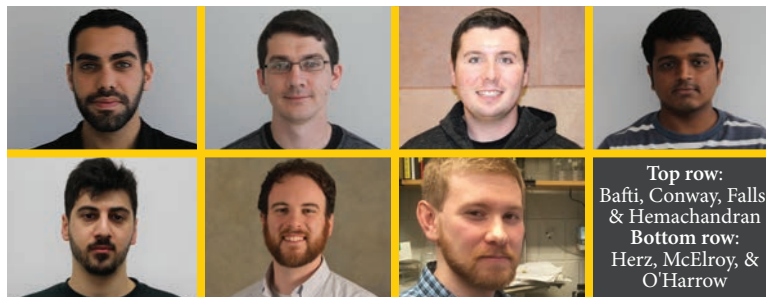
**Kyle McElroy** (Neiman Lab), Fall 2019  
Thesis: "Genomic Consequences of Transitions to Asexuality in the Freshwater Snail, *Potamopyrgus antipodarum*"

### Master of Science (M.S.)

**Kevin Falls** (Cheng Lab), Summer 2020  
Thesis: "Roles of EMS1 and TPD1 in gametogenesis and sporogenesis in the fern *Ceratopteris richardii*"

**Hussein Herz** (Dailey Lab), Fall 2019

**Tristan O'Harrow** (Wu Lab), Spring 2020  
Thesis: "Influences of *Cu/Zn Superoxide Dismutase* Mutations on *Drosophila* Motor Neuron Morphology and Mitochondria"



## In Remembrance

Listed below are the names of alumni and friends of the Department of Biology who have passed away since 2018. Birth name or nickname (if applicable) and deceased date are listed in parentheses.

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

Beckel, William E. – M.S. 1953 (October 15, 2018)

Boatman, Paul A. – M.S. 1949 (February 25, 2019)

Brotzman, Harold G. – Ph.D. 1972 (July 9, 2020)

Cooperrider (Kunimura), Miwako – M.S. 1954 (January 6, 2018)

Crang, Richard F. E. – Ph.D. 1965 (April 13, 2018)

Davis, Larry D. – B.A. 1962 (March 14, 2018)

Dugan, Michael (Dugie) P. – B.A. 1995 (February 3, 2018)

Fritze, Darryl D. – M.S. 1968 (April 27, 2020)

Harrison, Robert (Bob) W. – B.A. 1949 (September 15, 2019)

Just, John J. – Ph.D. 1968 (June 18, 2019)

Kaplan, Lawrence – B.A. 1949, M.S. 1951 (March 6, 2018)

Kurtzack, Irwin J. – M.S. 1951 (December 29, 2019)

Lynch (Becker), Carol – Ph.D. 1971 (June 22, 2019)

Moore, Kenneth C. – M.S. 1971 (April 29, 2018)

Pederson, Arnold M. – B.A. 1947 (February 14, 2018)

Peterson, Evan A. – B.A. 1950 (December 1, 2019)

Postlethwait, Samuel N. – Ph.D. 1949 (January 15, 2019)

Williams, D. Adolph – B.A. 1944 (April 16, 2020)

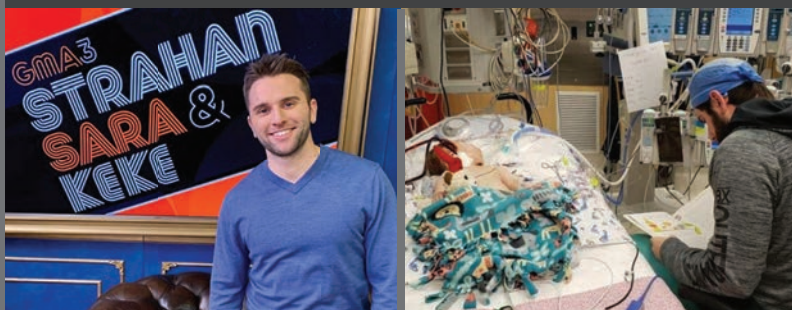
Wood, Molly E. – B.A. 2005 (January 26, 2018)

Yager, Robert (Bob) E. – M.S. 1953, Ph.D. 1957 (August 6, 2019)

## UI Biology Alum Appears on “Good Morning America”

Dane Pratt’s simple act of reading books to pediatric patients at MercyOne Des Moines Medical Center went viral — all the way to an appearance on “Good Morning America” in January 2020. Pratt, who then worked at the medical center as a Cardiovascular Perfusionist, would read books to his young patients to let them know that someone is there for them. This simple act of reading can make a difference for a child and their families by helping them feel calm and remind them that they are not alone in their battle. Pratt’s gesture went public with a challenge to anyone who wanted to donate children’s books to their local pediatric hospitals. The “Good Morning America” crew and many viewers jumped into action. Pratt estimates that over 10,000 children’s books alone were donated to the MercyOne Des Moines Medical Center and certainly thousands more were donated throughout the nation with his appearance on GMA and his message going viral on social media.

Pratt, who currently works as a Perfusionist at Unity Point Health in Des Moines, received his Bachelor of Science in Biology degree (Neurobiology track) from the University of Iowa in Spring 2013. Pratt says his degree from the UI laid the foundation for his future. “That degree took discipline and dedication to obtain. I use that degree everyday as I set new goals and encounter new obstacles.” He learned about perfusion as a career near the end of his undergraduate studies through a letter he received from the perfusion program director at the UI. “For me, perfusion was the perfect amalgam of fluid mechanics and Biology. It didn’t take long to understand that this was my calling in life.”



Diversity  
Equity  
Inclusion

## Department of Biology Forms DEI Committee

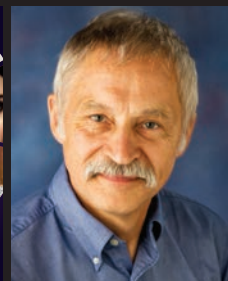
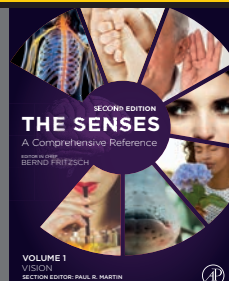
In the summer of 2020, the Department of Biology created an ad hoc Diversity, Equity, and Inclusion (DEI) Committee. The committee, organized from the department’s strategic planning process, began discussing DEI-related needs and issues in the department. The charge of the DEI Committee includes assessment of areas of strengths and weaknesses, proposing strategies to address weaknesses, and working with other standing and ad hoc department committees to provide recommendations and resources related to DEI. Two subcommittees were also formed — the DEI Resources and Education Subcommittee to continue to collect resources and training opportunities, and the Department Climate Subcommittee to assess the strengths and weaknesses of the Department of Biology with respect to DEI.

The committee’s immediate and critical tasks were to create a department-specific statement on DEI and develop an ongoing list of DEI-related resources for students, faculty, and staff — both of which can be found on the Department of Biology’s website at [biology.uiowa.edu/about/diversity-equity-and-inclusion](http://biology.uiowa.edu/about/diversity-equity-and-inclusion).

Membership on the DEI Committee is open to undergraduate and graduate students, faculty, staff, alumni and friends of the department. Alumni and friends interested in joining the committee should email [biology@uiowa.edu](mailto:biology@uiowa.edu). Meetings are currently being held monthly through Zoom.

## Professor Emeritus Publishes Book

Bernd Fritsch, Professor Emeritus, is Editor in Chief of *The Senses: A Comprehensive Reference, Second Edition*, a comprehensive overview of the knowledge accumulated on the function of sense organs, sensory systems, and how the brain processes sensory input. The book was published in September 2020.



# IOWA

Department of Biology

143 Biology Building  
Iowa City, IA 52242-1324

## Celebrating 165 Years!



The history of the Department of Biology traces all the way back to 1855 when we were known then as the Natural History Department. Since then, there have been many name changes and mergers from Botany and Zoology to Biological Sciences and now Biology. Through it all, one thing has always remained the same — our commitment to excellence in research and education. We are proud of our history and excited for our future!

Private funds are critical for our 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 gifts can make a difference, please visit [www.givetoiowa.org/biology](http://www.givetoiowa.org/biology) or contact Jessica Mattes at the UI Center for Advancement ([Jessica.Mattes@foriowa.org](mailto:Jessica.Mattes@foriowa.org), 319-467-3533). We appreciate your support!