THE NEWS

BIOLOGY

Fall 2017
Winter 2018

NEW BUILDING

Professor Mike Antolin, Chair, Department of Biology

It's done! It's been a long path, one that started in 2003 when previous Chair Dan Bush put together a project plan for a "Genomic Biology" building that would propel us into the future. In 2012, we got the green light to seek funding from the University Facilities Fee Advisory Board, the student government's project-funding arm, and succeeded in spring of 2014 with $57M of the $70M budget covered by student fees. The vision was a state-of-the-art research and instructional facility, designed for efficiency, functionality, and flexibility to meet our current needs while remaining nimble and anticipating the future.

We broke ground in October 2015, with many milestones along the way: topping-off and setting of the final steel beam in May 2016, drying in (completion of the exterior skin) in December 2016, partial completion on June 20, 2017, and substantial completion on July 20. Our first classes in the new building were held August 21, 2017, with the Grand Opening celebrated during Homecoming week on October 12. For more, see the biology web page (New Biology Building).

The project stayed on budget, and for the most part, on time. We thank our partners, Hord Coplan Macht Architects, Haselden Construction, StudioTectonic Exhibit Designers, and Colorado State University's Facilities Management for this 155,000 sq ft beauty, the largest academic building on campus, and LEED-Gold certified for its sustainable design and function.

Our move-in started in July, and by mid-September we picked up the last salvageable pieces from our 30-year stay in the east side of the Anatomy-Zoology. This meant moving about 200 faculty, instructors, staff, post-docs, graduate students, and the research equipment - a gargantuan task that strained but did not break us.

Undergraduates immediately started using the spaces we built for them – teaching laboratories and classrooms, conference rooms and study rooms, open idea spaces, research labs, offices, and…the exhibits on the first floor. The building's main level, with its 2,000-gallon fish tanks and a green living wall framed in beetle-killed pine, is reminiscent of the beauty and inspiration of a natural history museum. One cannot mistake the Biology Building as anything but a destination for experiencing the wonders of life!

We've garnered a bit of attention, here's some of it:

VIDEO: Biology Building tour with Mike Antolin
SOURCE: New Biology Building Opens its Doors
SOURCE: Grand Opening

But, we're not quite finished. While the building is done, the college and department bonded $5M of the cost, and we have yearly payments. Can we depend on donors to offset some of that debt? Your generosity may include naming opportunities. Please give to ensure the future of biology at Colorado State University.

Please support our College
Make a Gift

COLLEGE OF NATURAL SCIENCES
COLORADO STATE UNIVERSITY

DISCOVERY BEGINS HERE

MESSAGE FROM THE CHAIR: Michael F. Antolin

It was a busy year, one that's slipped by, with our attention focused on completing and moving into the Biology Building.

But that's not all that's been happening — we've kept going on the other parts of being a comprehensive research and teaching department. We continue to take in record numbers of undergraduate students (about 450 first-years in fall 2017). We serve as a gateway for launching careers in the life sciences at Colorado State. After four to five years, we graduate about 300 students as biological science or zoology majors; the other 150 students transfer to other programs in the life sciences. Altogether, we have 1,550 students, the most in any single program at Colorado State. We're not only numerous, but our students are also accomplished: 125 of our biological sciences majors and 55 zoology majors are in the University Honors Program. Biology installed a Tri-Beta Honors Society this fall with 109 inaugural members. We feature the great accomplishments of a few of our students in this newsletter.

We also continue strong research programs in biology, focusing in the areas of plant molecular biology, ecology and evolution, and animal physiology and development. Our research funding is among the highest for a department at Colorado State, with about $6M in annual expenditures from externally funded research grants. Notable successes this year are for Associate Professor Graham Peers in photosynthesis by single-celled algae as a means of improving biofuels, Associate Professor Shane Kanatous to study physiology and ecology of extreme diving by leopard seals in Antarctica, Assistant Professor Dan Sloan (grants from National Science Foundation and National Institutes of Health) to study evolution of plant genomes, and Assistant Professor Tai Montgomery to study cellular regulation via small RNA molecules.

Our faculty also gain recognition locally, nationally, and internationally. Two faculty received the highest honors bestowed on faculty at Colorado State, Professor Alan Knapp as a University Distinguished Professor, and Associate Professor Kim Hoke as a Monfort Professor. In national awards, Professor Greg Florant was recognized by the National Institutes of Health for his great contributions toward promoting students who are underrepresented in STEM disciplines. Professor Diana Wall continues to be recognized for her pioneering work on ecosystems in extreme environments in her studies of nematode worms in the McMurdo Dry Valleys of Antarctica (see below).

But given our preoccupation with new Biology Building, I want to speak more directly about why we built it. In the end, this place is about the people who work here and the students whose training and development as scientists depends on having state-of-the art facilities in which to work and study. We were purposeful in building a campus destination for all who wish to be moved by the grandeur of this view of life. Four themes emerge:

- **Community and belonging:** How we identify with each other and with the natural world gives us the focus to inspire and be inspired.
- **Advising and mentoring:** Our building is designed to be a beacon, helping our students to discover pathways to success.
- **Instruction:** Science is an apprenticeship business; students learn to be scientists only by working with scientists.
- **Research:** We are privileged by the opportunity to follow the evidence where it leads, to new knowledge and insight, and to share it. Discovery begins here.

Mike Antolin, Ph.D.
Professor and Chair

DEPARTMENT HIGHLIGHTS

BIOLOGY'S DIANA WALL NAMED TO BRITISH ECOLOGICAL SOCIETY

This year, Colorado State University Distinguished Professor Diana Wall joins the likes of Sir David Attenborough, Edward O. Wilson, and other scientific luminaries as an Honorary Member of the British Ecological Society. Wall is a College of Natural Sciences biology faculty member and director of CSU's School of Global Environmental Sustainability. "The British Ecological Society is an esteemed society that has, for more than a century, provided evidence about how the world works," Wall said. Receiving the honor, which goes to fewer than 1 percent of the group's members, "was an incredible surprise," she continued. "It is a tribute to all those who contribute - especially my great lab teams and collaborators, past and present." Wall will be traveling to the UK this winter to accept her honor.

18TH ANNUAL THORNTON-MASSA LECTURE SERIES

The College of Natural Sciences and the College of Agricultural Sciences hosted the 18th Annual Thornton-Massa Lecture on November 12, 2017. Professor of Horticultural Sciences Harry J. Klee at the University of Florida, was this year's featured speaker. Upon moving to the University of Florida in 1995, Klee created a program that uses biochemistry and genetics to better understand the flavor of fruit crops. His work has uncovered the plant-created compounds that produce truly tasty tomatoes. Klee's lecture, "Why Don't My Tomatoes Have Any Flavor? A Case Study in Industrial Agriculture," explored his specific discoveries about how flavor ties to healthy nutrition, as well as how science can impact the general public to everyone's benefit. You can view the lecture and stay up to date on future lectures by visiting: thorntonmassa.colostate.edu

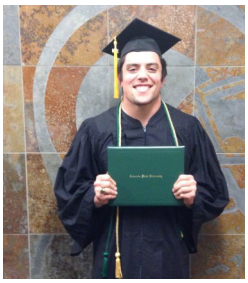
CONGRATS TO OUR GRADUATES!

AMANDA LARK, B.S. Biological Science

Recent biology department graduate Amanda Lark worked with Associate Professor Dhruba Naug. She investigated the correlations between different modalities of learning in honeybees. In her research, Lark put the bees through navigational and olfactory learning tests. She and her co-author then measured the level of wing damage the bees acquired, which is correlated to longevity in natural populations.

When describing the impact that her time in the Naug lab provided to her education, she said "I've learned the fundamentals when it comes to research - how to conduct quality research, what constitutes a research article, how to gather and analyze data, etc. I've more importantly learned how to collaborate with team members, how to 'talk science,' and I've gained insight on the regimen of a graduate student. I've come to realize that science is actually fun and trumps the general misconception that scientists are boring, monotonous people. I feel as though Dr. Naug has built me up to be a tough, confident, intelligent, and competitive candidate for medical school."

NOLAN PERALTA, B.S. Biological Science



Student, athlete, fisherman, and proud CSU Ram, Nolan Peralta finished up his bachelor's degree in December 2016. During his time as an undergrad, he played all four seasons on the football team, earning varsity letters on four teams with winning seasons and four straight bowl games, served as team captain his senior year, and was named to the Mountain West All-Academic Team four years in a row because of his high grade-point average. He took great pride as a student-athlete in challenging himself in the field of competition as well as in the classroom.

The confidence Peralta gained in himself as a person at CSU has taught him that he can do anything. "I was able to balance being a Division 1 athlete while also succeeding in the classroom, graduating with a degree in biological science." Peralta is currently a graduate assistant on the Rams football coaching staff, with a goal of eventually becoming a physicians assistant.

MIRANDA THERIOT, B.S. Zoology

Small-town Colorado native and recent graduate Miranda Theriot made full use of her time as she finished up her degree. She was in the University Honors Program and was a TA-squared for biology's mammology class. Prior to her senior year, she participated in the National Science Foundation's Research Experiences for Undergraduates (REU) program. In the REU program, Theriot worked in Lance Kriegsfeld's lab at the University of California, Berkeley for 10 weeks where she assisted on a project studying the control of differential reproductive behaviors across seasons in the Syrian hamster, a seasonally breeding species.

Theriot was awarded the Liz and Jack McGrew Scholarship in 2016, which provides scholarships to benefit students enrolled in the College of Natural Sciences majoring in zoology. She graduated in spring 2017 with hopes to intern at the Denver Museum of Nature and Science and eventually attend graduate school.

RYAN LYNCH, B.S. Biological Science in Botany

Botany graduate Ryan Lynch still keeps busy working with the USDA National Laboratory for Genetic Resource Preservation (NLGRP) on campus, specifically on Project Baseline for seeds and plant evolution. Lynch, who graduated in December 2016, worked on establishing a collection of native seeds from across the country and placing them in cold storage. These will be compared to future collections to evaluate the effects of climate change.

For Lynch, the most beneficial experience while working on his degree was "real-world laboratory and research experience under an amazing group of scientists at the USDA. Being able to take part in different aspects of research processes while gaining technical laboratory skills in my discipline was an excellent complement to my education and instilled a much greater sense of confidence." Lynch continues to work for the USDA NLGRP with the goal of returning to school in the near future to pursue a graduate degree in plant molecular biology and genetics.

DR. SAM DUNN, Ph.D. Ecology

Congratulations to Sam Dunn for completing his Ph.D. Dunn was a graduate student in Associate Professor Joe von Fischer's lab and completed studies through the Graduate Degree Program in Ecology. Dunn's research focused on stream ecology and methane emissions in the Arctic and the alpine areas of the Rocky Mountains. He traveled to Siberia in 2014 to study the emission of methane for streams, a previously under-studied source of this greenhouse gas to the atmosphere. In 2016, he won the College of Natural Sciences Graduate Student Excellence in Teaching and Mentoring Award and the Oral Presentation by a Graduate Student Award at the Front Range Student Ecology Symposium.

Dunn is now a postdoctoral fellow at Loyola University in Chicago, where he studies the ecology of the microbes that live on trash in the Chicago River and how the surrounding landscape influences the ecology. Although it may not sound glamorous to some, studying the extreme end of the pollution spectrum can help us understand the trajectory of change in less polluted systems, he said. He will also be teaching ecology courses at the university.

Read more about our graduates here

BIOLOGY DUO WORKS ON RESEARCH, TRAVEL, AND LEARNING LONGBOW

Marinus and Elizabeth at Bear Lake

Biology department duo Professor Marinus Pilon and Professor Elizabeth Pilon-Smits share their complementary skills, lab space, and coffee breaks as they work together as co-professors, researchers, and mentors. As professors, each has their own area of research and each teaches different classes. Pilon teaches Cell Biology and Plant Metabolism, while Pilon-Smits teaches Phytoremediation and Plant Physiology.

Originally from the Netherlands, the pair met as freshman at Utrecht University where they graduated together before becoming postdoctoral fellows at the University of California Berkley. In 1998, they came to Colorado State University to teach and conduct research and have been with the Department of Biology ever since.

Pilon and Pilon-Smits' labs work together in many ways. They share lab space, chemicals, and equipment, and they also use similar methods in many of their projects. Additionally, they co-advise both graduate and undergraduate students in their groups. In their research, they have a joint interest in sulfur metabolism, as well as an interest in transporters.

When they aren't in the lab or traveling around the world, they enjoy hiking, biking, cross-country skiing, working around their mountain home, watching wildlife, reading, and watching *Downton Abbey* re-runs. They also brew their own beer and cider, love to spend time cooking, and they recently picked up longbow. They love life in Colorado!

To read the full story, click here

FACULTY NEWS

PROFESSOR AND CHAIR MIKE ANTOLIN ELECTED FELLOW OF AAAS

Biology Professor and Chair Mike Antolin was elected Fellow of American Association for the Advancement of Science in November 2016. Election as an AAAS fellow is bestowed on association members by their peers. Antolin was cited for his "pioneering contributions to our understanding of zoonotic disease transmission and promotion of evolutionary concepts to broader scientific and public audiences." The AAAS is the world's largest general scientific society and publisher of the journal *Science* as well as many other publications.

PROFESSOR GREG FLORANT NAMED DIRECTOR OF GCDA

The Graduate School at Colorado State University has appointed Biology Professor Greg Florant as the director of the Graduate Center for Diversity and Access. As director, he will lead the Louis Stokes Alliance for Minority Participation Bridge to the Doctorate Fellowship Program as well as the Professional Development Program for Graduate Students of Color. The program is funded by the National Science Foundation and is designed to broaden the participation of underrepresented graduate students in the STEM fields.

SUPPORT THE DEPARTMENT

Your support of the department is incredibly valuable. Please consider making a difference to today's students, faculty, facilities, and programs—at whatever level is right for you. Thank you!

For more information on giving, contact Simone Clasen, Executive Director of Development and Operations

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