ORDINARY LIFE, EXTRAORDINARY IMPACT
Chemistry alumna Brittny Nation chose to go where the need was highest

ALSO INSIDE:
MEET THE NEW DEAN
FROM THE DEAN

As many of you may know, I re-joined the College of Science and Mathematics as dean last July. I have a long and deep connection to the college, beginning when I arrived as a transfer student in the Biological Sciences Department in 1989. I returned to San Luis Obispo in 2002 as a professor and then served as associate dean of the college, director of the Center for Coastal Marine Sciences, and dean of research for the university.

It’s an honor to have been selected as the next dean, and I’m grateful for the opportunity to give back to the institution that has given me so much.

The college will continue to focus on our core value of student success by offering exceptional Learn by Doing experiences both inside and outside the classroom. Thanks to the historic gift from Bill and Linda Frost (see the story on the next page) and the generosity of many of you, we will increase our offerings of real-world student-faculty research. Providing faculty and staff with the resources they need is a crucial aspect of this equation.

We will also continue to turn our expertise outward to engage the community, industry and government. I believe that when we use science to benefit society, we realize the full potential of the university and of our students. College of Science and Mathematics students will apply what they’ve learned through study abroad programs, industry internships and research projects that answer vitally important questions for our local, state and national communities.

I greatly appreciate the impact that alumni and donor support makes on the college and look forward to getting to know you and working with you to make the academic and research programs in the College of Science and Mathematics among the best in the country.

DEAN WENDT, DEAN
College of Science and Mathematics
Demonstrating unprecedented support for the nation’s largest public university system, Cal Poly alumnus William Frost (Chemistry, ’72) and his wife, Linda, gave a CSU-record $110 million to the College of Science and Mathematics in May. The gift is among the largest ever given to public higher education in California.

The Frosts’ gift is aimed at transforming science and mathematics education at Cal Poly by greatly enhancing the resources for undergraduate research. That includes funding for a new interdisciplinary research center that will contain almost 18,000 square feet of science and mathematics facilities; $3.6 million annually to support student scholarships and research stipends; cutting edge equipment and instrumentation; and expanded hiring of instructors, giving faculty members more time to mentor undergraduate students in research.

“Bill and Linda’s gift will impact the lives of countless Cal Poly students, right now and far into the future,” said Cal Poly President Jeffrey D. Armstrong. “The Frosts envision Cal Poly’s College of Science and Mathematics housing one of the top undergraduate academic and research programs in the country. Their willingness to think big is an inspiration to all of us and a model for how Cal Poly will continue to provide the creative thinkers and problem-solvers for today’s complex global workforce.”

By enhancing undergraduate research experiences, the program will not only enrich students’ Cal Poly experience but also make them top prospects for graduate schools and professional careers.

“I see this as an investment in the education and future successes of our science and mathematics students,” said Bill Frost. “I want this funding to be used to further enhance the Learn by Doing experiences that define Cal Poly and to provide students with research opportunities that will result in their presenting at regional, national and even international professional conferences and co-authoring publications with their faculty mentors in peer-reviewed journals.”

The impact of the Frosts’ gift will reach beyond Cal Poly’s campus, said CSU Chancellor Timothy P. White.

“Bill and Linda’s inspirational gift sets an example for other current and potential donors,” White said. “It highlights the crucial role private support plays in helping to maintain and enhance California’s public higher education system.”

“This gift represents a genuine desire by the Frosts to provide Cal Poly students with research experiences that promote intellectual growth fueled by curiosity, critical and creative thinking and personal initiative,” said Dean Emeritus Phil Bailey, who worked with the Frosts on the gift.
MARINE ENTREPRENEUR NAMED HONORED ALUMNUS

John Waggoner (B.S., Biological Sciences, ‘79; MBA, ‘89) is living his childhood dream of “being able to play with boats the rest of my life so I will never have to grow up and get a real job.” Waggoner, the president and CEO of HMS Global Maritime, was named the 2017 College of Science and Mathematics Honored Alumnus for his accomplishments in the passenger vessel industry over the last 30 years. His career began in the sport fishing industry and has included commercial fishing, offshore oil support vessels, dinner cruise and excursion vessels, casino boats, car and passenger ferry operations, and overnight cruise vessels.

JOHN WAGGONER IS LIVING HIS CHILDHOOD DREAM OF 'BEING ABLE TO PLAY WITH BOATS THE REST OF MY LIFE.'

After serving as director of marine operations for Hornblower Dining Yacht’s fleet of 29 dinner cruise vessels, Waggoner and his partner founded Hornblower Marine Services in 1994 and later renamed the company HMS Global Maritime. The successful full-service marine management business grew from one employee to a staff of more than 800 and now exceeds $150 million in gross annual revenue.

HMS Global Maritime has received numerous awards and recognitions. For five of the past six years, the company has been listed on Louisville Business First’s Fast 50 — the 50 fastest-growing companies in Louisville, Ky. — and on Inc. 5000 — a list of top entrepreneurs. Louisville Business First selected HMS Global Maritime as a finalist for the Business of the Year Awards every year from 2012-16. In addition, Waggoner was named a finalist in the prestigious Entrepreneur of the Year Awards for the Ohio Valley region in 2016.

While at Cal Poly, Waggoner was an Outstanding MBA of the Year nominee and was selected by his peers as the MBA with the highest stress tolerance, a talent well-suited to a career in the marine industry.

BAKER CENTER WINS LIVABLE BUILDINGS AWARD

The Warren J. Baker Center for Science and Mathematics received the 2017 Livable Buildings Award from UC Berkeley’s Center for the Built Environment (CBE). The award recognizes buildings that demonstrate exceptional performance in occupant satisfaction, resource efficiency and overall design.

The 192,000 square-foot facility, named after former university President Warren J. Baker, provides innovative instructional spaces, leading-edge research facilities and a social hub for students across the university, as envisioned by Dean Emeritus Phil Bailey, who led the project.

“So many faculty, staff, students and administrators contributed to making the Baker Center a welcoming space for the entire university community,” said Dean Wendt, dean of the College of Science and Mathematics. “This award is a wonderful testament to their hard work and dedication.”

Cal Poly alumnus Ted Hyman (Architecture, ’79) was principal architect on the project for the team from ZGF Architects LLP. “As an architect, there is nothing more rewarding than to learn that those that ultimately inhabit a space after it is built continue to experience it in as supportive and comfortable an environment as it had been envisioned,” he said.

“It’s a beautiful building, and people really like being in this space,” one member of the award jury said.

Pictured: The Baker Center’s ample study space is one of many features that helped it win the 2017 Livable Buildings Award. Photo credit: Brittany App (top), Tenney Rizzo (bottom)
LIBERAL STUDIES GRAD BEATS CANCER TWICE

Two weeks before her sophomore year began, liberal studies student Camille Chabot ('17) was diagnosed with Stage IV Hodgkin’s lymphoma. She was 19.

Surgery, a dozen chemotherapy sessions, a relapse and a bone marrow transplant followed. Through it all, she remained determined to graduate on time in June 2017.

“It was always my goal to finish with the people that I started with,” Chabot said.

Family, friends, neighbors and a growing group of supporters created T-shirts that evolved into #CamilleStrong, a viral crusade to share Chabot’s story, advocate for those with childhood cancer and raise money to help female teens facing infertility due to cancer to harvest their eggs.

“President Obama wore my shirt,” she said. “We just had this cool, awesome support group all over Facebook. It was a great community, and they were my motivators.”

Chabot continued with online classes — even working on a laptop during chemo sessions. She missed three quarters in the classroom but remained on track academically with the help of professors and advisors.

“My advisor, Dr. Lola Berber-Jiménez, and professors were very helpful and communicative. I would not have graduated on time if it were not for them,” she said.

Chabot completed her French minor in Paris over the summer and is pursuing her multiple-subject credential at Cal Poly. //

STUDENTS PLACE FIRST AND SECOND AT CSU STUDENT RESEARCH COMPETITION

Biology senior John Stepanek took home first place in the undergraduate Biological and Agricultural Sciences category at the 31st annual California State University Student Research Competition. David Bilger, a chemistry student, and Laura Fleischman, a physics student, placed second in their categories.

Stepanek worked with faculty advisor Emily Taylor on a first-of-its-kind study of the effects of elevated corticosterone, a stress hormone, on color in Southern Pacific Rattlesnakes, which are common on the Central Coast.

“Our results indicated that natural environmental stressors such as drought, climate change or predation might trigger increased contrast to help rattlesnakes camouflage and avoid detection,” Stepanek said.

Bilger worked with Professor Shanju Zhang and focused on printable solar cells, and Fleischman investigated black holes with Professor Scott Fraser. //

BIO MAJOR EARN TWO ALL-AMERICA HONORS

Biological Sciences major Peyton Bilo was one of only 21 women across Division I to be an All-American in both cross country and track for 2016-17.

Her cross country season included the Big West title and a 23rd place finish at the NCAA Cross Country Championships. In the spring, Bilo took 10th place in the 5,000 meters at the NCAA Track Championships to earn her second All-America honor. Memorably, she qualified for the national track finals by running a dozen laps with only one shoe after being de-heeled along her right foot early in the semifinals race.

Bilo earned All-Academic honors from the Big West and is a four-time Scholar-Athlete honoree from the U.S. Track & Field and Cross Country Coaches Association. //
Brittny Nation (Biochemistry, ’11; Single Subject Teaching Credential, ’12) didn’t set out to change lives or help solve the STEM education crisis. She wasn’t even interested in becoming a teacher — until chemistry Professor Seth Bush talked her into taking a class called Learn by Doing Lab. After teaching hands-on science to local elementary school students, Nation was hooked.

“I was not trying to be a teacher,” Nation said. “I thought, I need to make some money out here, but Seth saw it in me. I did Learn by Doing Lab, and I was like dang it, I actually love this.”

The Oakland native spent four years teaching chemistry at Paso Robles High School before taking her current position at San Lorenzo High School, just south of her hometown. She chose San Lorenzo because she knew the students needed someone with her scientific background and experience in the classroom.

“Our kids come from an unreasonable amount of trauma,” Nation said. “I would classify a lot of my kids as homeless, maybe not literally on the street but bouncing from family member to family member because their parents are being evicted or are alcoholic or in jail.”

With students who are working night jobs or worrying about family members being deported, Nation sees school as more than an educational undertaking. She wants San Lorenzo High to be a place where students feel welcome and safe.

“They have a lot of things stacked against them. If I can provide moments for them when they can just be a kid, I’m all about that,” Nation said.

That focus, according to Bush, is one of the qualities that makes Nation exceptional. “One thing I’ve seen Brittny do time and time again is connect to kids who are struggling. She’s so proud of them that she shows them how to be proud of themselves,” he said.

To create these moments, Nation spends a lot of time outside of the classroom working to improve the culture at
San Lorenzo High. She runs the Associated Student Body Leadership Council and is the school’s activities director, which means she’s involved in everything from advising the dance club to spearheading an initiative to get students off their phones.

Working with a private company, Nation led the effort to implement an electronic system that prevents students from using their phones while at school. The results have been dramatic. The program has cut down the number of fights and put a stop to cyber bullying during the day.

“I see kids playing at lunch now,” Nation said.

She’s also working to change the power dynamic on campus and increase respect between teachers and students. To show their appreciation, students choose and deliver a gift to all faculty and staff each month. This practice helps school employees relate to the students and approach them as people first.

“A system of ‘you better respect me’ just doesn’t work here. Teachers have to make kids feel comfortable being around them,” Nation said.
Inside the classroom, she sees chemistry as a path to teaching students to think and troubleshoot, a goal for which she finds Learn by Doing the perfect approach. Instead of lecturing about the concept of density, for example, Nation puts a penny in sodium hydroxide, which makes it turn silver, and then heats it, turning it gold. She tells her students that if they don’t believe the penny has really turned gold, they need to prove her wrong.

“Learn by Doing triggers the students’ innate curiosity,” Nation said. “I give them the opportunity to design an experiment to answer the questions they came up with themselves. It’s fun.”

Though this approach takes longer, Nation knows the importance of challenging and caring for her students at the same time.

“Brittny can hold her students accountable when they’re off track and at the same time completely support them,” Bush said. “She sees their potential, and she’s not going to settle for anything less. And they know it.”

Nation doesn’t mind the long days because, in the end, she teaches high school chemistry to inspire her students to imagine a future that’s very different from their present lives.

“Seeing them recognize their dreams and acknowledge that it’s possible to attain them makes all the time and energy and emotion completely worth it,” Nation said. //
Behind every great teacher is another great teacher — or two. High school chemistry teacher Brittny Nation (see previous story) credits chemistry Professor Seth Bush and education Professor Nancy Stauch as her most influential mentors.

“Nancy and Seth shaped how I view education and educating,” Nation said.

With the country in greater need of science, technology, engineering and math (STEM) teachers than ever, Stauch and Bush act as talent scouts and advisors. They help Cal Poly students discover their innate strengths and instill in these future teachers a student-centered, Learn by Doing approach in the classroom.

As was true for Nation, science majors often don’t enter college considering a teaching career. When Bush sees a promising student in general chemistry, he takes an indirect approach to help them see new possibilities.

“It's Learn by Doing, right? I want to hook them by giving them those teaching experiences at science nights or in Learn by Doing Lab. Then they start to see that they have talent,” Bush said.

Bush and Stauch look for students who naturally create connections with others.

“Teaching is all about making relationships,” said Stauch, who coordinates the Single Subject Credential Program. “When I first ask candidates what they teach, they say chemistry or biology or math. By the time they finish the program, I want them to say, 'I'm teaching children.'”

Judging by her protégé Nation’s advice to future teachers, Stauch’s message stuck. “Make a relationship with every kid,” Nation said. “Make them feel smart, but make them feel like you care about them even if they fail.”

By fostering these relationships, teachers can motivate students to learn what science is really about: critical thinking, problem solving and making informed decisions.

“Kids are natural scientists,” Stauch said. “We need science teachers who foster that curiosity. We have to inspire our kids and give them the confidence to take on challenges.”

The Learn by Doing approach, which Nation learned from Professors Stauch and Bush and now uses in her classroom, gives students opportunities to build these skills. It also puts her at the forefront of the country’s new approach to science education, which focuses on developing critical thinking skills.

“Teachers like Brittny are the pioneers for the Next Generation Science Standards,” Bush said. “They’ve been on the avant garde of this movement, and that will translate to deeper learning for their students. They’ll also be leaders in their local communities of teachers.”

The future of STEM education is looking brighter thanks to Cal Poly faculty members like Stauch and Bush who find and foster that leadership potential.
The California native experienced the impact of a Learn by Doing education firsthand, and knows it’s the key to helping students reach their full potential. In some ways, he’s been preparing for this role his whole life.

**THE BEGINNING**

Born in the L.A. area, Wendt spent his formative years in a tightly knit central European immigrant family in Sacramento. As a boy, he didn’t know that his fascination with the natural world meant he was a biologist, but he did learn that success required grit, determination and a caring community.

“My family arrived with almost nothing and built it all. That helped me recognize the value of hard work,” Wendt said. “At the same time, we all relied on the people around us to succeed.”

**BECOMING A SCIENTIST**

In 1989, Wendt arrived at Cal Poly as a first-generation transfer student, wanting to change the world but unsure how to channel his energy. With the help of faculty and staff who both challenged and supported him, he found his way to contribute to society: science.

“Cal Poly gave me a pathway to make a difference in the world. My education here made me a scientist,” Wendt said.

As Wendt began to consider graduate school, his advisor, Tom Richards, encouraged him to seek out an undergraduate research experience. Through a connection at the Diablo Canyon nuclear power plant, Wendt designed an experiment that allowed him to pursue his interest in the larval stages of marine invertebrates.

“We’re in the business of enriching lives through learning, discovery and innovation,” says Dean Wendt, Cal Poly alumnus (Biological Sciences, ’93) and new dean of the College of Science and Mathematics.
“It was a great experience. I was using physics and biology, doing field work and building things in the lab — really learning what it means to be a scientist,” Wendt said.

This experience helped him land a spot in a doctoral program at Harvard University. After a postdoc in Hawaii and a stint at the University of North Carolina at Greensboro, Wendt jumped at the opportunity to return to Cal Poly as a professor in 2002.

“I lost touch with Dean, but when he applied for my position in the Biological Sciences Department, I was thrilled,” Richards said.

TURNING SCIENTIFIC EXPERTISE OUTWARD

After returning to Cal Poly, Wendt soon became involved with a local committee studying the expansion of the Monterey National Marine Sanctuary, which starts in Monterey County and extends south to San Luis Obispo County.

“I saw that Cal Poly had an opportunity to help answer some interesting questions. It helped me understand how we can use our scientific expertise to improve our communities and our lives,” Wendt said.

That insight shaped his career. A small project grew into an ongoing, decade-long research program and collaboration with the local fishing community that now serves as a

Pictured: Dean Wendt talks with physics Professor Colleen Marlow and her research students at a team meeting.
model for the rest of the state. Over the years, the project has educated countless students, brought in millions of dollars of grant funding and built the West Coast’s largest data set on marine protected areas.

**A NEW WAY TO GIVE BACK**

In his new role, Wendt will continue fostering partnerships that allow students to engage with the community and industry through research projects, internships and study abroad experiences. He also plans to continue the college’s trajectory of providing more undergraduate research opportunities on campus.

“I connect to what was important to me as a student, and I want to keep that in focus as we make decisions,” Wendt said. “We have to help students develop the tools they need to give their passion and energy a direction in the world. I can’t imagine a more challenging and rewarding job, and I’m deeply grateful to give back to this university that gave me so much.”

Provost Kathleen Enz Finken thinks Wendt will more than meet this challenge. “Dean brings outstanding leadership skills and campus knowledge as well as a genuine love of Cal Poly and the College of Science and Mathematics,” Enz Finken said. “His energy and excitement will help move the college to the next level.”

And the man who knew him way back when, Tom Richards, his undergraduate advisor, agrees: “The College of Science and Mathematics could not have selected a better dean.”

**WE HAVE TO HELP STUDENTS DEVELOP THE TOOLS THEY NEED TO GIVE THEIR PASSION AND ENERGY A DIRECTION IN THE WORLD.**

— DEAN WENDT

_Pictured: (top) Wendt checks in with students doing homework in the Baker Center. Photo credit: Tony Turretto. Pictured: (bottom right) Wendt, then a biology professor, explains algal photosynthesis to a class at the Cal Poly Pier in 2003._
FIRST CAREER ASPIRATION: Work at a pet store. I would call it an innate passion. I love animals. And I was a kid who needed money.

TOP THREE CAL POLY STUDENT MEMORIES:
1. Leading a WOW group: Collaborating with my co-counselor to plan that experience for the new students and then having all that preparation turn into a rewarding week for them gave me a real feeling of accomplishment.
2. Winning the intramural soccer competition.
3. Being selected Outstanding Graduating Biological Sciences Student.

HOMETOWN: Sacramento

SUPERPOWER: The scientific method. There is tremendous power in the way that humans have been able to accumulate knowledge over time, and I think that methodology has given us an incredible capacity to change and improve our lives, and to understand the way that nature works and our place in the natural world. My cape would be a lab coat, of course.

FAVORITE RESEARCH MOMENT: My favorite moments are when students with an unknown in front of them design an experiment. My message is you have to trust the process. If there's something real, it will reveal itself. It’s so rewarding to see them go through a long, complex process and know at the end that they created that knowledge. It’s their expertise.

BEST THING ABOUT BEING DEAN SO FAR: I’ve always been Dean. I’m in a role in which I can do good things for a place that I love, and I get a lot of joy from that.

WHAT’S UP WITH THE PAPERCLIP? One time I put it on my jacket pocket, and I got comments about it. I don’t know what to tell you. It was not an intentional thing. It’s a fashion statement — men have limited options for flair. It’s a great conversation piece as well.

OFF THE RECORD
AN INFORMAL CHAT WITH DEAN DEAN

HOMETOWN:
Sacramento

SUPERPOWER:
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The heat tolerance of the humble California mussel was the subject of a highly complex biological experiment, one of the first of its kind. A team of 10 undergraduates worked around the clock for a week at the Cal Poly Pier to collect thousands of data points on intertidal mussels at the cellular, tissue and organismal levels. This experiment is one of the first to explore what’s happening at multiple levels within an organism at the same time.

With oceans warming due to climate change, mussels’ reaction to heat stress could be a key factor in the resiliency of California intertidal ecosystems. These bivalves increase diversity in the intertidal zone and are an important food source for marine mammals, lobsters, crabs and humans.

Below, three members of the research team describe their role in the experiment and how it helped them discover what it means to be a scientist. The illustration on the facing page explains the experiment in more detail.

SAWYER RANDES, BIOLOGY SENIOR

I worked on the ciliary activity portion of the experiment (see facing page). At each time point, we cracked open the mussel, dissected the gill and recorded video of cilia beating at different segments of the gill. The footage will be used to calculate ciliary beat frequency in response to food level, temperature and sirtuin inhibition.

Being involved with such a grand experiment and seeing different teams of scientists come together really showed me the exciting potential of integrating multiple fields of biology.

MAYA FEEZELL, MARINE SCIENCES JUNIOR

I gave the mussels two different concentrations of food, which is essentially algae and phytoplankton, depending on whether they were supposed to receive a low-food or high-food diet. I then recorded the mussels for 30 minutes and analyzed the videos to see how long their shells were open during that 30 minutes. This tells us whether there was a difference in feeding depending on the temperature and food concentrations.

The most exciting part of this experiment for me was being able to apply the skills I had learned in class to real-life research and seeing the results of that hard work.

JAMES OWENS, BIOLOGY SENIOR

I placed the gill tissue on a slide and then introduced green fluorescent beads along with some filtered seawater to help control for the environment of the gill tissue, and took 30 second recordings at 100X magnification. I will be using computer software to study particle transport by measuring the velocity of the fluorescent beads as they move across the surface of the gill.

The most exciting part of this experiment was being around people who are interested in science and curious about the world at the same level as I am. It’s invigorating. Working with Dr. Tomanek, Dr. May and Dr. Vasquez was probably the best part because they are so knowledgeable about physiology.
To investigate what happens at a cellular level, the research team is studying how genes, proteins and metabolites — small particles that are a byproduct of metabolism — change during stress and how all three are affected by sirtuins, a type of protein that regulates other proteins. Tissue samples collected at the same time as the other measurements were taken will be analyzed to determine the number and kind of proteins present in the cell when the mussels are exposed to stress.

During the three weeks of raising the mussels and five days of the experiment, the researchers tracked how many mussels in each group survived and measured how much they grew. During the experiment, the students also measured the percentage of time the mussels’ shells were open — which allows them to draw in water to eat and breathe — and how much food they ate. From this data, the team will learn about the overall health and therefore the resiliency of the mussels.

A mussel’s cilia move water across its gills so it can feed. In this portion of the experiment, which was designed by the undergraduate team, the student researchers recorded video that they will use to measure the cilia’s rate of activity and the speed at which food particles moved through the cilia. These measurements will help researchers understand how efficiently mussels eat under different conditions.

Led by biological sciences Professor Lars Tomanek, the student research team raised groups of mussels under distinct food and temperature conditions, such as a little food in warm water or a lot of food in cold water. Then they exposed all the groups to the same extremely high temperature. The results may help scientists understand how the processes in an organism’s cells and tissues relate to each other and to the health of the whole organism when it experiences heat stress.

The illustrations below describe how the student-faculty research team investigated each level of the organism.
California has a state amphibian, a state freshwater fish and a state dinosaur, but one important animal is missing from the lineup — a bat. Thanks to biologist and bat enthusiast Dave Johnston (Biological Sciences, ’74), the pallid bat may soon join the Augustynolophus as an official representative of the Golden State.

“Bats are amazingly beneficial to humans. They provide about $3.7 billion worth of pest control management for U.S. agriculture every year.” — Dave Johnston

Bats — which account for more than a quarter of the world’s mammals — don’t get a lot of recognition for their contributions to humanity. Without these nocturnal insectivores, pests such as flies, wasps and mosquitoes that contribute to health risks would be far more numerous. Bats that are nursing their young eat between two thirds and all of their weight in insects and arthropods every night.

“Bats are amazingly beneficial to humans,” Johnston said. “They provide about $3.7 billion worth of pest control management for U.S. agriculture every year.”

Johnston first met the pallid bat in the late 1980s while working as the executive director for the Youth Science Institute, a non-profit organization that connects young people in San Jose to science and natural history. A bat was chewing up slugs and dropping the remains on an unhappy San Jose resident’s dinner guests as they left the house, and she called Johnston for information.

Intrigued, he checked the literature and found no references to a slug-eating bat. He then wrote an email that would change his life. He asked Brock Fenton, one of the world’s top authorities on bats, whether he’d encountered this behavior. Fenton helped Johnston identify the pallid bat, and Johnston ended up earning a doctoral degree in biology with Fenton as his advisor.

“I fell in love with bats,” Johnston said. He has been studying them ever since and has become one of the world’s leading experts on certain species.

As with so many alumni, the road to Johnston’s future career began with one passionate Cal Poly professor. Johnston’s inspiration was mammology professor
Aaron Roost, who helped the future bat expert develop and give direction to an already active love of nature.

“He opened up a whole new world to me,” Johnston said of Roost. “He provided the structure and discipline that turned natural history into scientific inquiry. He also showed his enthusiasm for the topic even when it was a common observation he’d seen hundreds of times.”

Roost’s enthusiasm rubbed off on Johnston, who decided to pursue mammology, a decision that has served him well. “I learned I had fun doing this. I’ve always enjoyed my work,” he said.

Johnston’s other home on campus — or, more often, off campus — was the Outings Committee, now Poly Escapes, which offers students outdoor adventures such as backpacking, camping and rock climbing.

That’s where Johnston comes in. By determining the bats’ home range, movements, habitat utilization and diet, he hopes to better understand their ecology so that the local environment can be restored in a way that supports this endangered species.

The pallid bat will have something in common with its tropical cousin if Johnston’s attempt at official recognition is successful — they will both be state representatives, though the Hawaiian species is a state land animal, not a state bat. Johnston chose the pallid bat, whose Pacific population is found almost exclusively in California, because it’s unique in many ways. With its incredibly sensitive hearing, it can detect and capture insects crawling on the ground. It can also glean prey directly off foliage or capture insects while flying, and can eat scorpions and other poisonous arthropods such as centipedes.

Also, according to this bat lover, “It’s attractive and has a golden coat — perfect for the Golden State.”

Johnston has gathered more than 500 signatures in support of a resolution that will be appended to legislation in the California State Senate and, if successful, will make the pallid bat official. The more signatures, the more support the resolution — and the pallid bat — is likely to receive in the Legislature. Anyone interested in learning more about the legislation and the bat can visit:

ipetitions.com/petition/pallid-bat-as-the-california-state-bat
In Their Own Words

STATISTICS IN THE STACKS: AN INTERNSHIP AT THE LIBRARY OF CONGRESS

BY STEPHANIE MENDOZA, SENIOR STATISTICS MAJOR

People often ask me, “What do you plan to do with your statistics major once you graduate?” I spent the summer as a data analyst intern at the Library of Congress in Washington, D.C., where I learned that government agencies need statisticians, and that I have the knowledge and skills to pursue a career in that sector.

My knowledge of statistical software programs and data analytics deeply impressed my future supervisors during the interview process. In my statistical software courses, I earned my advanced certification in a program called SAS and also learned a language called SQL. My supervisors appreciated my background in such up and coming programs and assigned me to many different projects because of this experience.

Statistical consulting was one of the most important skills that I learned at Cal Poly and applied at my internship. The statistics capstone course is a rigorous consulting course, and we do statistical analysis for several real clients. In this class, I communicated complicated statistical concepts to non-statisticians. The department I interned in, Congressional Research Services, was not statistics-based, so these communications skills were important.

My colleagues in the department had years of experience, but I realized early on that they hired me to bring new perspectives and education into the workplace. I learned that I contributed more when I challenged traditions and suggested new methods.

One area of improvement I focused on was career networking. I was hired through an internship program called Hispanic Association of Colleges and Universities. Before my first day of work, HACU hosted several workshops to give interns an idea of what to expect in the workplace, along with professional development tips.

These workshops provided critical preparation, and I utilized many of the tips to encourage myself to network within different government agencies. I attended lunches and meetings with people throughout the Library of Congress to learn more about their departments and their work. I also attended networking events at other agencies like the FBI and the USDA and got advice from HACU alumni who had turned their internships into full-time careers. I am grateful for the support system that HACU provided and the friendships and career connections that I made.

Most importantly, I gained a sense of confidence in my own education and capabilities. I now know that I bring a unique perspective to the workplace and have skills and intelligence that employers are looking for. This internship inspired me to apply to graduate school and eventually pursue a career in a government agency.

MOST IMPORTANTLY, I GAINED A SENSE OF CONFIDENCE IN MY OWN EDUCATION AND CAPABILITIES. – STEPHANIE MENDOZA

Pictured: (left) Stephanie Mendoza (center) and her fellow interns celebrate the end of a successful summer at the Library of Congress. The Hispanic Association of Colleges and Universities sponsors the internship program. (right) Mendoza sits in front of the Library of Congress’ James Madison Memorial Building, which houses the Congressional Research Services division.
Almost 400 science and math students engaged in Learn by Doing through student-faculty research last summer, but more space is needed to provide these opportunities during the academic year. Science and math facilities in the new Science and Agriculture Teaching and Research Complex will provide dedicated research space for undergraduate students like Allison Hacker. You can be part of the transformative experiences this new building will make possible.

"Undergraduate research has changed my life personally and academically. I don’t think I would be at Cal Poly now if it weren’t for the research opportunities I’ve had."

— Allison Hacker, Chemistry Major

Gifts of all sizes will engage generations of students in discovery and innovation. Please consider making a gift or pledge today.

TO MAKE A GIFT OR LEARN MORE, CONTACT:

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