

BioConnect



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SF STATE BIOLOGY'S
PEOPLE & PROGRAMS

SPRING/SUMMER 2023

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SEA ANEMONE IN THE WILD

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letter from the outgoing & in-coming chairs



SEA STAR IN THE WILD

LAURA (KAI) BURRUS CHAIR, 2017 to 2023



Greetings Friends,

We hope this issue of BioCONNECT finds you in good spirits! It has been another big semester for the Department and we are excited to share some of the highlights with you. When I (Kai) say “we”, I do mean “we” as I will soon hand off

the Chair baton to Dr. Vance Vredenburg, Associate Chair and Chair-Elect of the Department of Biology.

In addition to celebrating the accomplishments of our students, alumni, staff, and faculty, this issue is loosely focused on our Marine Biology programs. Specifically, we are super excited to welcome John Liu, our new seawater technician, into the fold. John has been busy conditioning the tanks in our newly remodeled

seawater room. Any of you who were familiar with our old seawater room (inaccessible, rusty, and leaky) will understand what a hugely positive change this is. We will also celebrate our Diving into Ecology and Evolution (DEEP) and Research Experiences for Undergraduates - Biological Research in Ecological Evolutionary Developmental Biology (REU - BREED) programs, which are centered on Coastal and Marine Biology.

Before I pass the baton to Vance, I would like to say what a privilege it has been to serve as the first woman and first openly gay Chair of the Department of Biology. In addition to shepherding students through our many programs (from behind the scenes) and supporting faculty and staff in their instructional and scholarly efforts, an unexpected pleasure of this role has been meeting alumni and donors, many of whom date back to the days of Jack Hensill. From the stories I have been told, Jack was a highly charismatic man who cared deeply about the students. Although I surely lack his magnetism, I would like to think that his care for students is something that is handed down from Chair to Chair. With that, it is with tremendous pleasure that I extend my congratulations and pass the baton to Dr. Vance Vredenburg, who will be the first LatinX Chair of the Department of Biology!

VANCE VRENDENBURG
CHAIR, 2023-PRESENT



My name is Vance Vredenburg, and I am incredibly honored to take this opportunity to introduce myself as the newly elected Chair of the Department of Biology. I am proud to be the first Latino to hold this position in the department, representing the rich diversity that is inherent to our academic community. Having a multinational family and growing up in both Mexico and the United States, I bring a unique perspective shaped by my multicultural experiences.

Like our entire department, I am committed to creating a safe, supportive, and anti-racist, anti-sexist environment in which students from diverse racial, ethnic, gender, sexuality, socio-economic, and other backgrounds are equally and inclusively supported in their education and training. I believe it is our shared responsibility to ensure that the Department of Biology is a safe and supportive environment for students from all walks of life. By embracing the diverse perspectives and backgrounds of our students, faculty, and staff, we can create an inclusive atmosphere where everyone can thrive.

I want to express my gratitude for giving me the opportunity to serve all of you as Chair, and I am eager to meet each of you, learn from your expertise, and collaborate on exciting new ventures. Together, we will



SEA ANEMONE PHOTOGRAPHED IN THE WILD

continue to elevate the reputation of our department and make significant contributions to the field of biology and to our society.

I am thrilled to be part of this extraordinary community and look forward to a fruitful and rewarding journey together.



SEA STAR LIFTING ONE OF ITS TENTACLES, AS IF TO SAY HELLO

welcome to our new seawater room

PROTECTING SEA ANIMALS IN THE WILD STARTS AT SF STATE BIOLOGY

Imagine a space the size of a living room. Instead of furniture, though, it's filled with sea animals: sea stars, crabs, mussels, sand fleas, octopuses. This is Biology's newly renovated seawater room. It is home to 1400 gallons of seawater, hundreds of sea animals, wet tables for student learning, and a new, custom eight-rack system for holding our sea animals, designed for us by AquaLogic, a precision aquatic design company in San Diego.

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At first glance, the animals themselves might seem like the stars, but it's actually our new rack system that is one of the most interesting parts of the room.

Octopuses are creative, intelligent, and adaptable and require optimal housing conditions to maintain good health and welfare. Because we want our octopuses to stay safely in our care, ready to take part in education and research happening in the department, AquaLogic devised an escape-proof rack system to keep them

safely contained in their tanks.

"I learned what research meant, what it meant to manage a facility at that scale, and how to work with people from all different backgrounds, from students to policymakers who are impacting sea animals on a large scale" explains John Liu, our Sea Room Manager.

Our new Seawater Room Manager, John Liu, has been spending the past few months getting the renovated seawater room operational. Its first wet test was held in April to make sure the plumbing was functional and secure. In late June/early July, he'll begin introducing sea animals to the renovated system. This includes virtually all types of sea animals in our care from tiny sand fleas all the way to larger cephalopods (octopus, squid, and cuttlefish), sea stars, crabs, and mussels.

John comes to us from the Bodega Marine Lab and has experience caring for sea animals at the National Aquarium in Baltimore where he did an internship, the San Francisco-based Aquarium of the Bay, and during his undergraduate and graduate training at the University of California at Davis.

The UC Davis Center for Aquatic Biology and Aquaculture was where Liu was first introduced to large-scale systems like our seawater room.

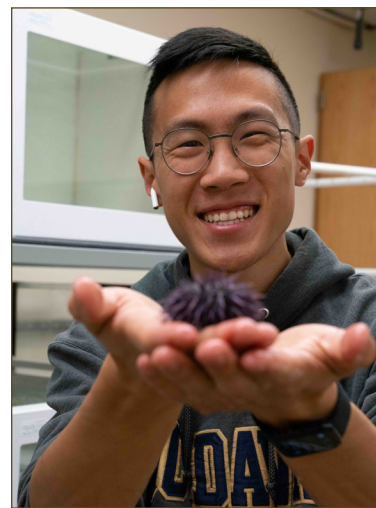
John's love of sea animals, however, started early. "As a kid, I always had a bunch of aquariums. I started off

with one, and as things got more serious, I was able to convince my parents to let me move into the garage with all of my tanks. I ended up with dozens and dozens of tanks, including giant 300-gallon stock tanks with fish. From there, I was figuring out how to keep the animals alive, how to get them to lay eggs, how to make sure the eggs hatched—and also how to do related things like plumbing and electrical. I remember thinking: 'I want to do this for the rest of my life.'"

ENDLESS OPPORTUNITIES FOR LEARNING

The seawater room is attached to a classroom where both undergraduate and graduate students will learn how to design and conduct experiments. Our goal is to not only convey knowledge and scientific training but to help students fall in love with sea animals so they will be motivated and equipped to develop better policies and practices to protect sea animals in the wild.

Some courses will run over a full semester, with students designing months-long experiments using the sea animals that live in our room. Graduate projects will also be based out of the room as well as faculty research. Anything that requires a tank to hold some type of marine animal of a reasonable size (think octopus or sea star, not whale) is going to happen in our seawater room.



JOHN LIU, SEAWATER ROOM MANAGER,
HOLDING AN ANEMONE
john@sfsu.edu

A FULLY RENOVATED FACILITY

While the Biology department has had a seawater room for many years, its infrastructure and accessibility gradually degraded while available technology advanced. As such, we dedicated time and energy to raise funds for and allocate budget to a state-of-the-art renovation, even during these challenging economic times.

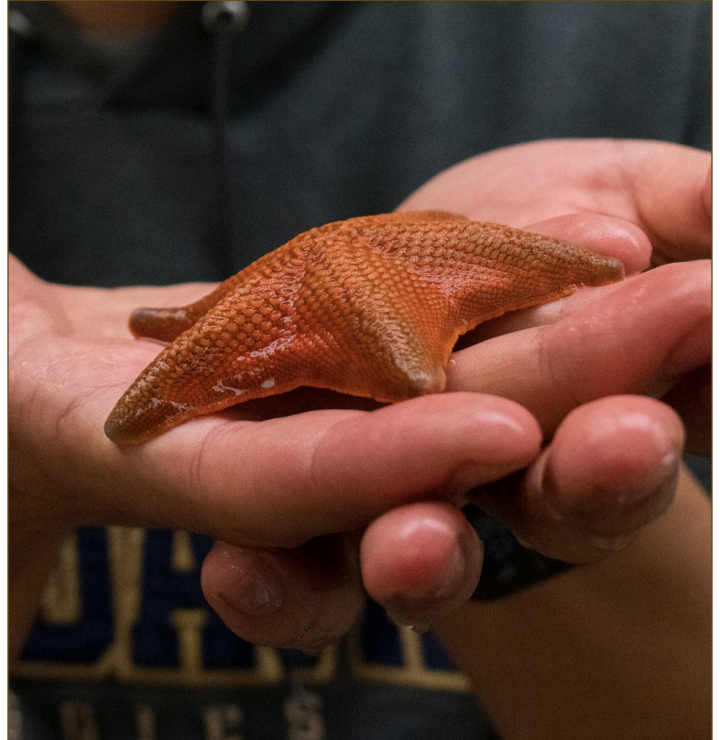
In addition to the innovative rack system designed that holds the octopus, the room includes multiple wet tables for learning, which are large, shallow tanks that we can put more aquariums into and have those smaller aquariums be a part of a single, interconnected system. Rather than actively monitoring the water quality of a dozen tanks, everything is centralized and also modular, so parts of the system can come out for closer learning and observation.

John is currently leading the setup of the seawater room, testing the rack systems, introducing beneficial bacteria to the water, and making sure everything is fully operational and safe for our sea animals to be introduced to their new home later this summer. Once the room is up and running, he'll maintain the room and facilitate student learning. We'll have people working in the sea room that range from experts in the field of marine biology and who know a great deal about sea animals, to students for whom it's their first time lugging a bucket of water. A key part of John's role is to assess: What does this person need? How can we help them be successful?

WHY MARINE BIOLOGY MATTERS

Every problem related to climate change has a potential solution. For our oceans, the problems are many: ocean waters are becoming acidified, there are increasing levels of microplastics, and there are many baffling diseases—like sea star wasting disease. Our work in the seawater room will prepare our diverse students to be climate change leaders and advocates for our marine and coastal ecosystems.

In our seawater room, we help young people fall in love with sea animals and inspire them to enter the field of marine biology. We equip scientists who are testing new ideas, and we support diverse future scientists whose creativity and talent is needed to help solve the problems impacting our oceans.



ONE OF THE SEA STARS THAT LIVE IN OUR NEWLY RENOVATED SEAWATER ROOM

a semester in the galápagos



2023 DEEP PROGRAM PARTICIPANTS IN THE ICONIC GALAPAGOS LAND AND SEASCAPE

Have you ever wanted to get involved in research as an undergraduate student?

Did you know the Department of Biology offers an intensive, research-based, field semester called DEEP, or Diving into Ecology and Evolution Program that is designed to give students real hands-on experience with original research projects?

Students take 15 upper division units that count towards graduation requirements in their Biology majors in a single semester. During the semester, students receive advanced training in field work, molecular techniques, ecological and evolutionary theory for eight to ten weeks on main campus—

and then spend three to five weeks at a field station conducting original research projects.

This semester, DEEP-2023 students spent four weeks in the Galápagos Islands, studying topics that included:

- Anthropogenic effects of urbanization on beak morphology of Darwin's ground finches
- Mangroves as nursery grounds for endangered scalloped hammerhead sharks, blacktip sharks, whitetip sharks, Galapagos sharks, and silky sharks
- Effects of body size on basking time in marine iguanas of the Galápagos Islands



GALÁPAGOS LAND AND SEASCAPE

- Is habitat complexity associated with variation in marine bird assemblages?
- Are there differences in plankton assemblages at multiple sites around San Cristobal Island that are associated with distribution of manta rays?
- Effects of microplastics on microbiome assemblages at multiple sites around San Cristobal Island
- Are there differences in microbiome assemblages at multiple mangrove sites around San Cristobal Island?
- Effects of elevation on plant assemblages in Galapagos Highlands
- Anthropogenic effects of urbanization on Pox Prevalence in Darwin's ground finches in the Galapagos
- Is eDNA a good model for characterizing fish assemblages in the Galapagos?

DEEP participants also gained scientific writing and presentation skills, and wrote up their findings in the format of a peer-reviewed publication. The program culminated with students presenting their findings in front of their professors and peers.

Student Grace Ann Tuthill Christensen shared her perspective on this unique, hands-on program, “(The) DEEP course at San Francisco State was nothing short of extraordinary. Through DEEP, I had the privilege of collaborating with scientists from diverse backgrounds in a real-world setting. I had the opportunity to engage in hands-on activities like capturing eagle rays, collecting water samples, leading plankton tows, and adapting when faced with unexpected boat malfunctions (just part of being a marine biologist).

“The list of new core memories and experiences from this field expedition is endless; I was able to swim with and study hammer head sharks through environmental DNA (eDNA), I witnessed first-hand how fish use their 6th sense to avoid bumping into each other and avoid



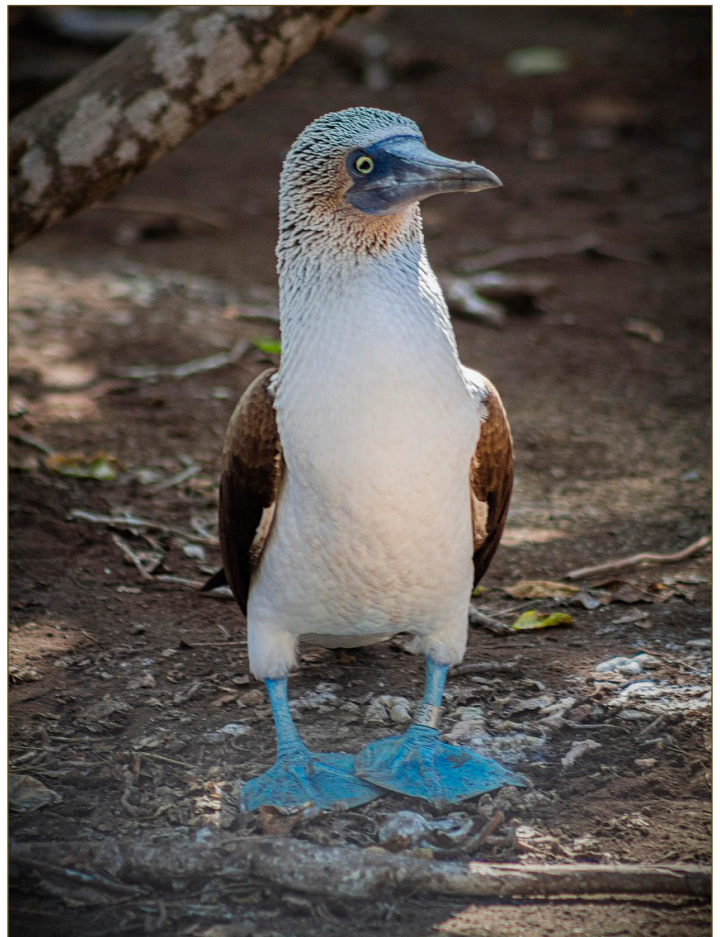
STUDENTS BREANA GOLDMAN AND NATALY CANUT
ALONG WITH DR. KAREN CROW

predators as I was completely enveloped by a school fish, and I was able to take beak measurements for an ongoing study of Darwin's Finches.

“This program enabled me to grow as a field scientist by leaps and bounds. I also grew in the lab, was able to follow through in a laboratory setting, and process my samples and see the data through start to finish. Above all, this transformative experience showed me the extent of my capabilities as a scientist and instilled in me a newfound confidence in my abilities.”



IGUANA



BLUE-FOOTED BOOBY



BLACKIE'S PASTURE, TIBURON, CA

a summer of hands-on research for undergrads

ALL ABOUT OUR REU PROGRAM AT THE ESTUARY & OCEAN SCIENCE CENTER, ROMBERG TIBURON CAMPUS

For over 15 years, the National Science Foundation (NSF) has funded a summer undergraduate internship program at SFSU that provides funded intensive research experiences for early career scientists to gain experience in the intersecting fields of Ecology, Evolution, and Developmental Biology. Originally conceived of by Dean Carmen Domingo, the program has run every year except 2021 as a cross campus experiential learning opportunity for undergraduates from anywhere in the United States. Students come from near (our own campus and local community colleges) and far (including Puerto Rico, Texas, Atlanta, Tennessee, Montana, and much more). The NSF is proud to offer this program and similar Research Experiences for Undergraduates (REU) programs around the country as one of the best means to bring diverse early career scientists into STEM research with the goal that the best science comes from a diverse community of scientists.

In the program, students are paired with a research mentor, chosen from among faculty and staff at the Biology Department on main campus and the Estuary & Ocean Science Center (EOS) at SFSU's Romberg Tiburon Campus in Marin County. We currently have over 120 alumni from our program and, now, some are entering the ranks of academia. Dr Richard Coleman, an early REU participant at the EOS center working in Dr. Sarah Cohen's lab, returned this April to give a guest seminar in his field of expertise, tropical fish population biology, and Richard was also noted by the Schmidt Ocean Institute in an appreciation of Black marine scientists.

Other alumni of the program presented their research at the International Conference on Marine Bioinvasions meeting in Baltimore, Maryland in mid-May. Graduate student Meredyth Duncan, a TA for the REU program and a former undergraduate REU

participant from 2011 presented her Interdisciplinary Marine and Estuarine Science Master's research in a talk that is coauthored with her REU intern from a few years ago, Jaden Stone, among others. Duncan wrote, "I won a second-place student presentation award for my talk, 'Characterizing invasive *Watersipora* (bryozoa) populations in the central California rocky intertidal.' *Watersipora* is genus of colonial marine invertebrates, and several species in this genus are common all over the world as marine invaders. These invasive species are usually transported by growing on ship hulls, and they thrive on hard surfaces like rocks or dock pilings in marine habitats that experience a lot of ship traffic and human impact (such as ports, marinas, harbors, and sheltered bays). Concerningly, field surveys in the past decade have also found *Watersipora* at several isolated rocky beaches on the outer coastline near San Francisco, where human impact is much lower and invasive species are typically much more rare. I presented my research on the population genetics of this 'coastal escape', where I used DNA sequencing to identify which *Watersipora* species are present on the outer coast, and showed that the outer coast populations appear to be genetically distinct from *Watersipora* inside the San Francisco Bay". Duncan explained that her REU experience influenced her interest in marine invertebrates and marine invasions.

With the assistance of Dr. Colin Leasure, a genetics instructor, students participated in a course module that included field work with the National Park Service, wet lab work with the new seawater system, and genetic analysis of specimens to identify invasive species and populations in the Golden Gate National Recreation Area. This work has greatly informed our understanding of the novel environmental conditions that marine species are experiencing due to climate change. In particular, we focused on the highly dynamic environment around the outflow of San Francisco Bay to our outer coast, and how invasive species are spreading in this area of high disturbance, while some native species are experiencing local population extinctions. Students are learning to gather original data, design and carry out experiments, and relate their work to existing scientific literature.

An important component of understanding environmental variation is using the increasingly large



GRADUATE STUDENT MEREDYTH DUNCAN, WITH HER CONFERENCE AWARD



PROGRAM PARTICIPANTS IN 2022, HIKING IN THE SIERRA NEVADA

public databases on variables such as temperature, salinity, rainfall, and streamflow. Students in the REU, in the marine ecology projects course, and in other programs at SFSU learn to manipulate large datasets using software coding programs, thanks to some innovative teaching programs including the Science Coding Immersion Program (SCIP) created and run by Dr. Pleuni Pennings in the Biology Department. This experience led one graduate student in Biology, Jesse Espinoza, to an internship with the National Oceanic and Atmospheric Administration (NOAA) where he learned to analyze remote sensing satellite data to look at global trends in shifting ocean chlorophyll concentrations.

alumni spotlights

CELEBRATING OUR ALUMNI & THE IMPACT THEY'RE HAVING IN THE FIELD OF BIOLOGY



DR. JAMIE CHAN

I am a fourth generation Chinese American and San Franciscan. I am also first in my family to get a doctoral degree. San Francisco State University has been home to both my academic growth and my professional development for almost 24 years.

I had started my academic studies thinking I would be a documentary film maker and attended a private arts school for a year. I changed my mind and my journey at SFSU started by completing a B.S. in Marine Invertebrate Zoology. My advisor and life mentor, Dr. Thomas Niesen was one of the few faculty who saw my potential and encouraged me to apply for a Summer Systematics Institute internship at the California Academy of Sciences.

I focused on taxonomic research on nudibranch mollusks at the California Academy of Sciences (CAS) as a master's candidate under Dr. Terrance Gosliner. During that time, I also worked as a curatorial assistant in the department of Invertebrate Zoology and Geology. I enjoyed my work at CAS, met amazing curators and fellow graduate students from around the globe. During that time, I was selected to receive a National Science Foundation GK-12 Teaching Fellowship with the SEPAL Lab and Dr. Kimberly

Tanner. There I worked with science teachers in the San Francisco public schools to deliver inquiry rich science to K-12 students. I became very interested in educational research, specifically how BIPOC middle school students related to science and how it affected their future careers decisions.

I received my Masters in Science in 2006 under the mentorship of Dr. Gosliner and Dr. Tanner. What was produced were two bodies of research, one scientific and the other in education research. After graduating and working briefly with SEPAL Lab, Dr. Kimberly Tanner encouraged me to apply to a position that would change my academic trajectory yet still allow me to serve COSE and the community from which I came.

My interest in educational pathways for STEM students like myself led to a 14-year career at San Francisco State University, where I became director of operations at the Center for Science and Math Education (CSME). My primary work was to support future STEM educators at SFSU through their undergraduate and credential years. Working primarily under Dr. Eric Hsu (Math) and Dr. Lawrence Horvath (SED) I created systems of support and professional learning communities for largely first generation BIPOC students who had a passion for K-12 teaching.

While at CSME my interest in STEM teacher recruitment and training began to grow. I began to teach in the Graduate College of Education, working with both undergraduates and credential students. What became clear, was there were systems of inequity that played significant barriers for BIPOC students to succeed in STEM teaching pathways. I had applied to PhD programs and was accepted to a well-known STEM Education doctoral program, but made the decision to work for the next 11 years at CSME.

It felt incredibly rewarding to help students navigate our university systems to achieve their dreams of becoming educators. I was able to contribute to grants development, science education research and cultivated a comprehensive network of educational colleagues in STEM teacher education.

In Fall of 2019, I decided that in order to better understand the challenges my students faced in this pathway from CoSE to K-12 teaching, I decided I would need to invest in my own learning and leadership development. I also felt it I should model to my own daughters (6 and 8 at the time) that it was never too late to go back to school and pursue a career which could help reduce barriers for other BIPOC students in our educational system.

In Spring 2022 I received my Doctorate in Educational Leadership at San Francisco State University under the mentorship of Dr. Stephanie Sisk-Hilton (EED). My research is focused on integrating anti-racist pedagogical practices and climate/food justice in STEM teaching.

I had become a doctoral student at the start of the pandemic. As we moved to online learning, I saw my partner (also an SFSU alum) and my own two children suffer the deficits for a life physically separated from their community. The need for outdoor space to learn, socialize and maintain wellness become a priority for my family and fellow San Franciscans. It became clear there were many issues left to tackle with science and climate literacy and I felt part of this solution could be found in gardens and parks which had become a source of great solace in the times when life was most challenging.

I devoted my free time supporting food security, green spaces and garden education. It led to becoming a UCANR Master Gardener and co-founding a local food security site called Sisterhood Gardens in San Francisco. I am now a current board member of Foodwise, a sustainable agriculture market and educational organization in the historic SF Ferry Building. Then my life's work began to truly synthesize when I became the director of programs and partnerships at The Gardens of Golden Gate Park.



MOON VIEWING GARDEN AT SAN FRANCISCO BOTANICAL GARDENS

I supervise education, public programs and volunteer development for the SF Botanical Garden, The Japanese Tea Garden and the Conservatory of Flowers. I get up every day knowing that I can continue to combine my knowledge of the biological sciences, conservation, science education and leadership into my daily work.

The mission of The Gardens of Golden Gate Park is to connect people to plants, the planet and each other. Our commitment to inclusion and antiracism mirrors much of the spirit of SFSU and the biology department.

Since I am also an adjunct professor in teacher education at GCoE, I continue to bridge these two communities I love so much, bringing both future educators and undergraduate interns to gardens to learn about the important role that plants play in conservation, biodiversity and wellness.

My career may not be very conventional but I see how my work has become as diverse as the Gardens of Golden Gate Park, celebrating diversity, stories of resilience, and hope. All of this started with caring humanizing faculty in the Biology department at San Francisco State University, without them I would never have found my way to the gardens and a career deeply rooted in community.



DR. CARTER CLINTON

Profile by Nina Strohlic, originally published in National Geographic magazine.

Photograph of Dr. Clinton by Mark Thiessen

Not long ago, a line uttered on a reality TV show caught Carter Clinton's attention: "Life should be lived forward but understood backward."

Clinton, a postdoctoral geneticist at Pennsylvania State University, knew the concept from a very different setting: Manhattan's African Burial Ground National Monument. There, a granite memorial is etched with a heart-shaped symbol thought to carry that same meaning. Beneath it lie the remains of over 15,000 free and enslaved Africans from the 17th and 18th centuries. For nearly a decade the National Geographic Explorer has studied grave sites to learn why African Americans disproportionately suffer from ailments such as cardiac disease and asthma. And the soil of this New York cemetery—the oldest and largest excavated site of its kind in the country—may still contain extractable DNA. Clinton hopes it will provide clues about the lives and deaths of these individuals, and by extension the ancestral roots of millions of African Americans alive today.

In the era of commercial DNA kits, people want not only to learn where their forebears are from but also to clarify their perceived identities, Clinton says. "We're ultimately putting the puzzles of ourselves back together. And African Americans are the community with the most missing pieces."



DR. RICHARD COLEMAN

Despite always having a fascination with the natural world, my progression into becoming a marine biologist was not typical. After graduating high school, I entered the finance industry working as a loan officer for seven years. Although I enjoyed my job and made decent money the field did not fulfill me. While working full-time I began taking courses at my local community college, Sacramento City College, and eventually obtained enough credits to transfer to SFSU

It was at SFSU where I had my first exposure to scientific research. Under the guidance of Dr. Sarah Cohen at the Romberg Tiburon Center for Environmental Studies, (now called the Estuary & Ocean Science Center) what began as a summer REU projected blossomed into an NSF funded undergraduate fellowship.

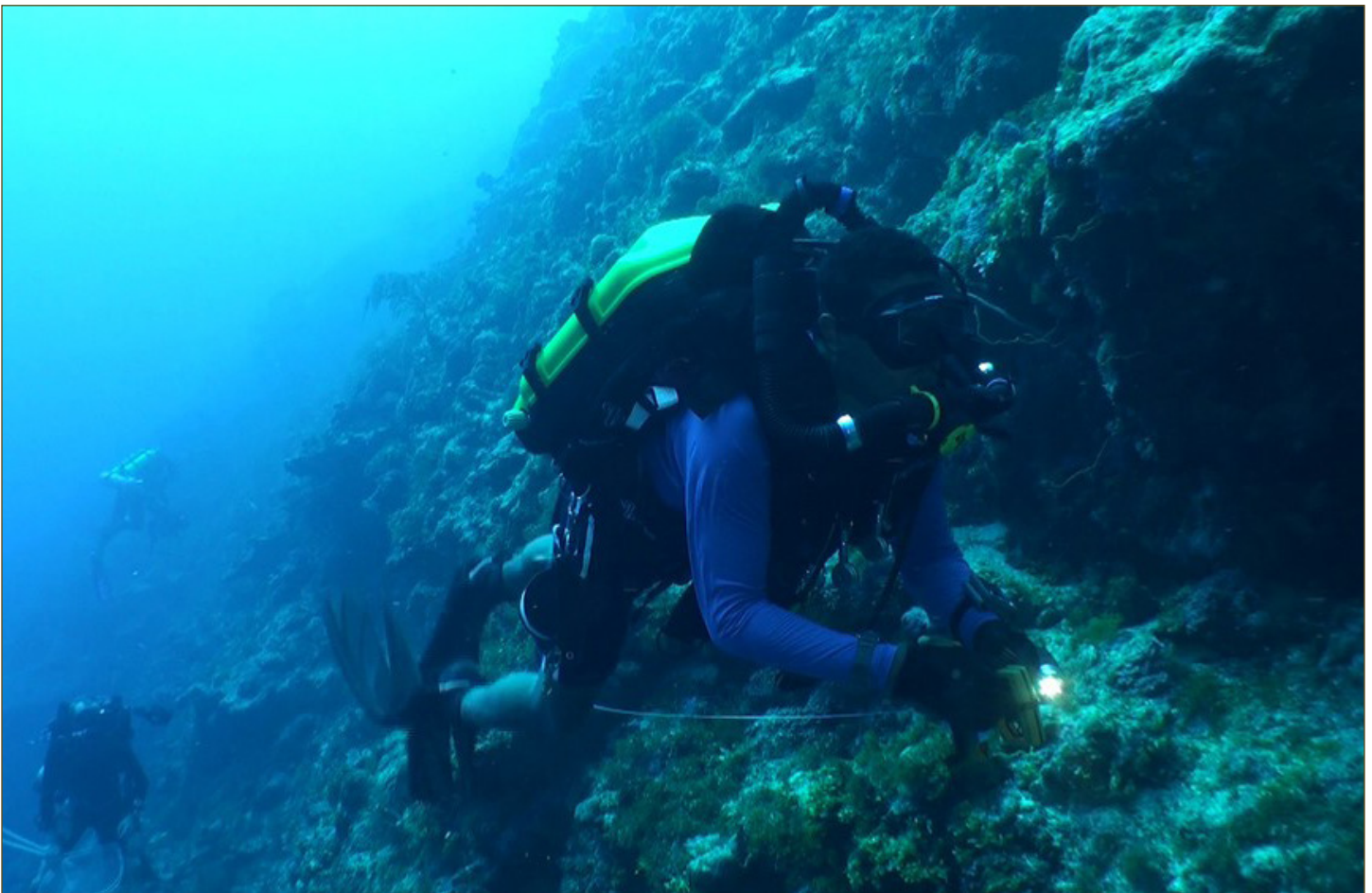
My research investigated phytogeographic patterns of an intertidal brooding seastar, *Leptasterias* spp., which is found from central California all the way to the Aleutian Islands. Dr. Cohen was essential in fostering my research interests integrating genetic techniques to address questions relating to understanding mechanism influencing evolution and its application towards conservation.

During my coursework at SFSU, I took an Ichthyology course under Dr. Karen Crow which showcased the diversity that existed within fishes. I subsequently used the skills and knowledge that I developed at SFSU to pursue a PhD at the University of Hawaii at Manoa.

My research interests ultimately evolved to understand the mechanisms determining the spatial scale of fish populations and understanding how fish biodiversity is generated and maintained in the sea.

The goals of my research have afforded many opportunities to conduct research in many areas of the world such as the Philippines, Papua New Guinea, Saudi Arabia, Micronesia, Kiritibati, Howland and Baker Islands, and Johnston Atoll, just to name a few. I also became trained as a close-circuit rebreather diver which has allowed me to conduct research in low light environments at depths as deep as 450 feet.

Throughout my academic journey I have had the fortunate ability to maintain professional relationships with Drs. Cohen and Crow and have valued their continued mentorship. I am now an Assistant Professor of Marine Biology and Ecology at the University of Miami, where I am mentoring and guiding my own students, and I attribute my experiences at SFSU to my success as a marine scientist.



bright futures

CELEBRATING THE SUCCESS OF OUR STUDENTS AND ALUMNI



GERSON ASCENCIO

My mom and I immigrated from the smallest country in the Americas, El Salvador. As a kid, I always dreamt about being a scientist, but the research opportunities in my home country were very limited. However, my

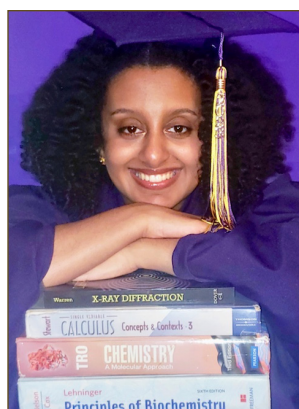
life changed when I moved to the USA and was given the opportunity to pursue graduate-level education. I am the first in my family to obtain a bachelor's degree, and soon I will be the first to obtain a master's degree. My journey at San Francisco State University (SFSU)

began in the fall of 2016. In my first semester, I enrolled in my first introductory biology course where I discovered my passion for cell & molecular biology. While learning about the molecular aspect of stem cells and the possibility of doing research as a future career in science, I knew I found my passion. Although, at the time I thought I could not be a scientist because "people that looked like me, did not belong in the science field". Being at SFSU helped me realize that I could become a scientist, break down barriers in science, and begin my career.

In my third year as an undergrad, I was presented with the opportunity to join Dr. Blake Riggs' research lab. As an undergraduate student, I led a research project with the support of an NIH RISE and MARC fellowship from the Student Enrichment Office (SEO); and participated in the Annual Biomedical Research Conference for Minority Students where I presented my research and met other scientists from similar backgrounds. I graduated with a B.S. in Cell & Molecular Biology in the Spring of 2021, and after doing research for almost three years, I wanted to

pursue graduate education. So, I pursued a master's degree in science at SFSU to obtain more lab training and education to prepare to pursue a Ph.D.

As a master's student, I was supported by an NIH Bridge fellowship from SEO, participated in mentorship programs, was a graduate teaching assistant for the introductory biology lab course, and obtained the NSF Graduate Research Fellowship Program (GRFP). I am graduating in the Spring of 2023 and am continuing my training at Stanford University, pursuing a Ph.D. in Stem Cell Biology & Regenerative Medicine. The training, education, and mentoring I have received at SFSU for the past eight years has shaped me to be a resilient student. My time at SFSU has helped me to find the true student, person, and scientist I am, and has taught me that every dream can be achieved with hard work and the right mentorship.



FAVEN BERHANE

I'm a second-year master's student graduating this summer with my MSc. in biochemistry. The Biochemistry & Biology departments at SFSU were wonderful and helped develop my personal and

professional growth. Coming out of the master's program, I feel much more established and secure in my scientific abilities and critical thinking skills. I was fortunate enough to be a Genentech scholar throughout my degree which really helped me plan my future career and expand my networking abilities.

The community in the SEO program was also incredibly kind and important in making me feel

welcome. In the fall I will be heading to UCLA for my Ph.D. in biochemistry. My current post-Ph.D. plan is to work in R&D for a biotech or biomedical company. The chemistry and biology involved in drug development are endlessly fascinating to me and I look forward to pursuing it further in both my degree and as a potential career!

my power to study and investigate their life-altering diseases. This, of course, would not have been possible without the high-quality training I have received at SF State, and for that I am eternally grateful



SEBASTIAN GOMEZ

I could not have asked for a better experience at SF State. The culture, the people, the mentorship, and the resources have all been tremendously helpful. Amazing individuals like Dr. Diana Chu, Dr. Linda Chen, and Dr. Frank Bayliss

have been my #1 cheerleaders, and it really makes a difference to have both faculty and peers cheering me on in my research and personal endeavors.

Coming from UCLA, where I completed my undergrad, I was blown away by how personal and genuine everyone is here at SF State. Being funded by the Genentech Foundation Fellowship under the Student Enrichment Opportunities (SEO) Office for the entirety of my Master's degree was hands-down the cherry on top.

As I completed my undergraduate degree and now my Master's degree, my career aspirations were closing in on the possibility of becoming a Physician Scientist, an individual who practices medicine and also pursues research. Well, I am happy to announce that I was accepted to multiple MD/PhD-granting institutions and I have recently committed to the University of Iowa Medical Scientist Training Program (MSTP) where I will obtain my MD/PhD. My research interests include Alzheimer's Disease research and Cardiovascular Disease research, because both of these diseases have heavily impacted my family members.

Never in a million years would I have imagined myself in the position that I am in now; a position where I will soon be able to care for patients in their time of need and reassure them that I am doing everything in





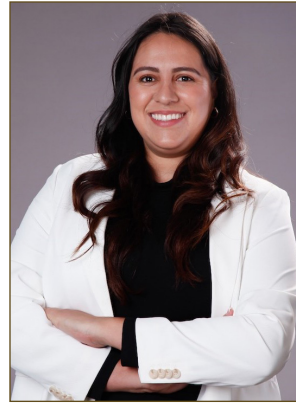
ALEX ORELLANA

My passion for cancer research is ignited by a collection of experiences in my life. In fact, it has been shaped by early exposure to science and further solidified by minority role models in my scientific community who have paved the way for minorities like me to succeed in science. Si se puede or Yes, we can is a phrase I keep dear to me as I am the living embodiment of my family's dreams and aspirations that led them to immigrate to the United States.

In the Fall of 2019, I began my journey to earn a degree in Biology with a concentration in Physiology. My first research experience was as a Genentech Foundation Freshman Scholar where I joined the Health and Equity Research (HER) Lab in the Department of Biology. Under the amazing mentorship of Dr. Cathy Samayoa, I investigate the impact of a culturally-relevant, stress management intervention on telomere length, a biomarker of premature aging. We hypothesize that the culturally-relevant stress management intervention can mitigate telomere attrition caused by the chronic stress experienced by Latina breast cancer survivors.

I was selected to present my research at numerous national conferences and won best poster presentation for this research. SF State Biology has played such an essential role in my journey as a scientist. The funding opportunities in the Student Enrichment Office (SEO) along with all the mentors I met here at SFSU helped me see myself as a scientist. Through all the continued support and mentorship from SF State Biology, I am really excited to graduate this May.

I will be continuing my academic journey in the Molecular and Cellular Biology Ph.D. Program at the University of Washington in partnership with the Fred Hutch Cancer Center. I would like to thank Dr. Cathy Samayoa, Dr. Leticia Marquez - Magana, Rebecca Mendez, Dr. Frank Bayliss, and everyone in SEO for the amazing support they have given me during my time at SF State. Go Gators!



AMAYRANI MARYLEEN VILLEGAS- PARRA

As a first-generation, low-income Latina in cell biology, it's been difficult to navigate the scientific research field, but I have benefitted from the academic advisors, IRA grants, and the research opportunities for underrepresented minorities offered with SF State Biology. Although I had a rocky start in community college, when I transferred to SFSU the Biology department supported my efforts in excelling as a minority in this field. Lisa Galli and my PI Dr. Burrus have served as my mentors and advisors, and I will take all their guidance into my PhD and into my career and personal life. I am forever grateful for the support I have received at SFSU from the SF State Biology Department and the SEO office team!



PLEASE MEET OUR NEWEST STAFF MEMBER: EMILY STENSON

We have a new staff member! Emily Stenson is now our Undergraduate Coordinator for the Biology department! Emily grew up in Pacifica, CA and now lives in the Inner Richmond district of San Francisco. She enjoys karaoke, reality TV, swimming, and all types of food. She is thrilled to be working with all of

you and is working towards her Certificate in College Admissions and Career Planning with Berkeley Extension, to progress into an Academic Advising role in the future. “I’m here to be a resource for all of you in the biology department. Don’t hesitate to ask for help with anything, that’s what I’m here for!”

PINC and gSTAR graduates

CONGRATULATIONS TO STUDENTS GRADUATING WITH THE
COMPUTING APPLICATIONS MINOR
(AKA PINK MINOR) AND/OR
DATA SCIENCE AND MACHINE LEARNING FOR
BIOTECHNOLOGY CERTIFICATE
(AKA GSTAR PROGRAM)

Abdoulfatah Abdillahi
Brandon Bahr-Maravilla
Henry Brown
Eleazar Dealmeida
Kamillah Felix
Dikshita Germilla
Catie Giske
Phelan Glenn
Aleyna Isik
Meris Johnson-Hagler

Estefanos Kebebew
Hannah Lee
Juan David Liang Liao
Justin Luong
Harprince Pooni
Ivan Ramos
Alex Sanchez
Jacqueline Ashley Valentino

congratulations to the class of 2023

CELEBRATING OUR NEWEST GRADUATES



TYRINE BAILEY
MOLECULAR BIOLOGY



MARJORIE HERNANDEZ
BIOLOGY & PHYSIOLOGY



JASON HO MAN TAO
BIOLOGY & PHYSIOLOGY



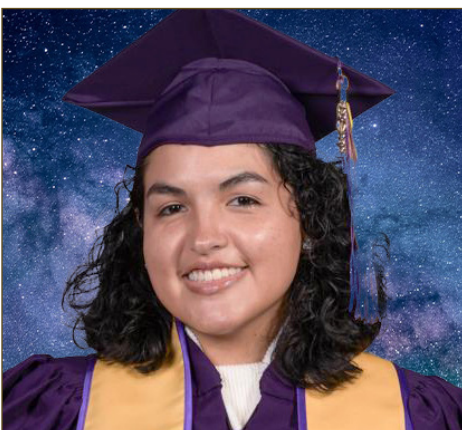
HIND LAHLOU
MICROBIOLOGY



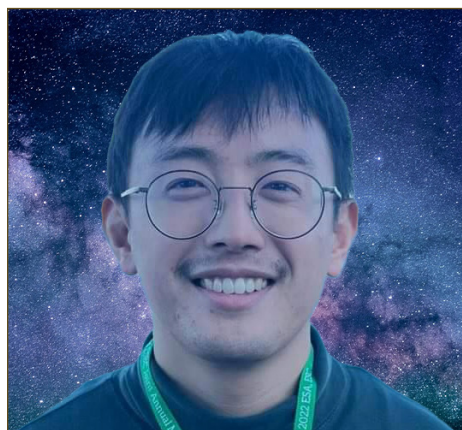
MEAGAN PRASAD
PHYSIOLOGY



JOSUE RODRIGUEZ
MICROBIOLOGY



IRENE ARIAS MARTINEZ
PHYSIOLOGY



VINCENT MAI
INTEGRATIVE BIOLOGY



MERIM TOJAGA
MICROBIOLOGY

thank you for shaping the next generation of biologists

DONOR APPRECIATION

A heartfelt thank you to all the alumni, friends, philanthropists and foundations who made financial gifts to the department over the past six months. Your support is helping shape the next generation of Biology leaders.

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Bruce and Carolyn Altrock
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and 5 donors who wish to remain anonymous

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Association of Biology Students at San Francisco State
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Howard Hughes Medical Institute
San Francisco Rotary Foundation
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donate to biology & join us in creating a more diverse field

Here in the ecologically complex Bay Area, we are preparing the next generation of Biology leaders. Our students and alumni are becoming the life scientists, conservationists, biotechnology and health specialists that we need to close the gap in health disparities, find new solutions to climate change, and make our world more habitable and equitable for all.

A large majority of our department's funding comes from the Cal State system, and we raise the rest of our budget through a combination of alumni appeals and grants.

Every donation, large and small, helps us meet this mission.

GIVE WHERE THE NEED IS GREATEST

- 1 UNRESTRICTED GIFT OF ANY AMOUNT**
An unrestricted gift gives us the flexibility to deploy your funds to the greatest immediate need, which might be a student scholarship or an emerging research need.

HELP STUDENTS SUCCEED

- 2 ENDOW A BIOLUMINARY AWARD UP TO \$25,000**
BioLuminary awards provide paid research internships to students. Research shows that this type of paid, hands-on learning has an enormous positive impact in helping students graduate on time, preparing them for scientific careers, and closing equity gaps. Contribute any amount to an existing BioLuminary Award, or create your own named award (available at the \$25,000 gift level).
- 3 SUPPORT STUDENT SCHOLARSHIPS FOR THE DEEP PROGRAM IN THE GALAPAGOS UP TO \$10,000**
Our DEEP program fund helps off-set travel and participation costs for students who qualify for the semester-long DEEP research program in the Galapagos Islands.

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Office of University Development
San Francisco State University
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Please indicate your funding priority on the check! (Biology Unrestricted Gift, ABS BioLuminary Award, DEEP)

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If you have any questions or need help, please call 415-338-1042 or email develop@sfsu.edu.