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exploring vertebrates, IB 104



photo: Jackie Childers

learning by doing

by Gregory Arena
Graduate Student

Field classes are a hallmark of the natural sciences, and at UC Berkeley, field classes count among some of our longest running and most lauded courses offered. Classes like IB 104—Natural History of Vertebrates and ESPM’s Forestry Camp have enriched generations of students for over 100 years. Not only do these classes offer students real-world experience, but with the rising inequities of unpaid internships and career recruitment, these classes are also important for building more equal footing for students looking to pursue a career in biological science and applied biology. But amidst budget constraints in the wake of the pandemic, coupled with declining state and federal funding, the continued operation of field classes has required increasingly creative and thrifty solutions by staff and educators.

stepping outside the classroom

Classes offered through departments such as Integrative Biology have long placed a focus on cultivating technical skills, getting students out from behind their textbook and even out of the classroom. For Tamara Mau, supervising manager for IB instruction, field and lab classes are essential for students’ growth and exposure to opportunities in biology. With UC Berkeley’s high student to faculty ratio, its not realistic that every undergraduate interested in working in a lab will have access to this type of hands-on learning. So, one key value of these classes is that they can offer more direct engagement. Early exposure to lab and field work through classes, says Mau, provides “a level of access that’s somewhat unprecedented than could otherwise be experienced by an

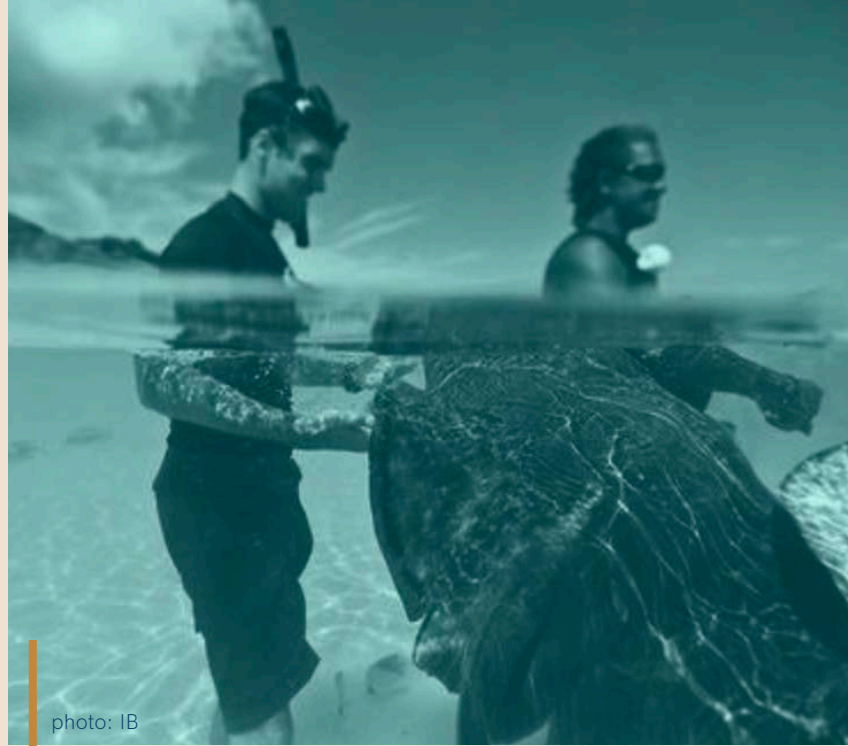


photo: IB

left: view from vlsb greenhouse
above: every fall students spend two months in French Polynesia for IB C166, Island Biogeography.

individual student confronted by a big university setting." The **Biology 1B Field Section**, which Mau has long coordinated, exemplifies one way to bridge this divide between students and their education. Each semester, within the 600 student introductory biology course—Biology 1B—the Field Section mentors between 20 and 30 students as they develop original field-based research projects. Says Mau, "while still only reaching 50 students a year, that's 50 students who get an early onramp to the scientific process."

In the Field Section, students are encouraged to grow both academically and into the broader intellectual community here at UC Berkeley. The course allows students to experience every stage of the research process. All the while, they find support in their learning through direct collaboration "with experts in whatever field interests them, from interactions with technicians, grad students and professors." According to Dr. Paul

Fine, an IB professor, small, personal classes in the field invite students to "feel they are part of a community, connected to the natural world, giving them a vocabulary to communicate, interact and share with others."

Every Fall, Dr. Fine offers a 24 student course called IB157LF, Ecosystems of California, which takes wide-eyed undergraduates on field trips to all corners of the state. For Dr. Fine, a major motivation for offering IB 157LF is "to give those students who didn't go to a wealthy highschool or have these opportunities growing up, these types of experiences." Through classes like IB 157LF or the Field Section, students learn important skills in field biology such as navigating in the outdoors, experimental design and methodological approaches, data management, curation, analysis and visualization, scientific writing, the interpretation of scientific literature and critical thinking.

Whether working on research projects with their peers in Field Section, camping for the first time on an overnight trip in IB 157LF, or finding community through interactions with their peers and

professors, students build confidence as well as develop leadership skills and a sense of professionalism. Many undergraduate students may not have yet found the self esteem or knowledge-set for how to communicate or reach out to experts in their field or a prospective employer. Therefore, lab and field classes in particular are a proving ground for developing these soft skills. Research experience can be an extremely difficult and competitive entry-point for undergrads, admits Mau. Historically, this has created disparities in who will access a research position as an undergraduate and who will ultimately find jobs in these fields. "It can take a certain type of person to

put yourself out there and make that connection," says Mau. "In a classroom, we remove some of the barriers to research, allowing students access, with no or little prior experience needed. And, there is the dedicated time to lead them through the process."

As Dr. Fine sees it, these types of classes can also afford faculty and instructors "more time to get to know [students] at a personal level, and have conversation about their lives and experiences, the course material and create a space of acceptance and comfort." These experiences also expose students to new ways of thinking, help students identify their interests, and provide a foundation for further growth through a network of fellow students and department participants. This can translate to connecting more students with specific opportunities or jobs. "Especially for students who are economically disadvantaged, first generation or from marginalized groups," says Dr. Fine, "field classes have been shown to give students a feeling of support, higher retention in their major, STEM, and graduated rates."

Mau is acutely aware of the pressures students face when it comes to managing time, finances

"In a classroom, we remove some of the barriers to research, allowing students access, with no or little prior experience needed. And, there is the dedicated time to lead them through the process."

*—Tamara Mau
Supervising Manager Instruction, IB*



Students present their findings as part of an end of semester symposium for Bio 1B Field Section in the UC Botanical Gardens.

students learn museum curation through Essig Museum of entomology.



or other personal matters to fit in these types of learning opportunities. Mau notices that “students might be left out of opportunities for field classes because they work all weekend long.” In scheduling weekend field trips she’s seen students who have backed out of a field trip or class because of a schedule conflict centering around work or taking care of a family member. In some cases, “the students have to opt out of the whole research process,” adds Mau. “I really wanted to see if we could have an innovative research experience where [students] could have research experience in a timeline that would make sense for them.” So having these opportunities built into a structured class period has been pivotal to the success of the Field Section. Another solution to this challenge has been found in recently awarded funding to expand these types of opportunities. Next fall promises a new breadth class, IB 82, funded by the Executive Dean of Letter and Science. Dr. Fine is pleased to participate as an instructor for the course, which is an offshoot of UC Berkeley’s Theme Program developed to build cohorts around student’s intersecting interests. IB 82 aims to target first generation students curious about what a future in Biology has to offer while further breaking down historic barriers to entry. Says Dr Fine, “there is no course materials fee, if we need camping equipment it will be provided.”

education and the labor market

Through field, technical or lab-based opportunities students are able to grow their resume with the types of experiences and skills that will be so important for future employment. In many disciplines, these types of resume building opportunities provide by field classes can almost exclusively be found in summer internships. According to the National Association of Colleges and Employers, a majority of employers look for job candidates with prior work or other relevant experiences.¹ For recent college graduates in a competitive application pool looking to fill entry level positions, college internships have long been seen as one way to stand out.

But many internships have become increasingly competitive and exclusive. A recent report from the University of Wisconsin, Madison, found that 64% of students who desired, but never completed, an internship during their college tenure, cited reasons of insufficient compensation, low overlap with their study field, and scheduling issues. The report posits the prevalence of unpaid internships in all sectors not simply as a hurdle to employment but as a leading perpetrator of class division among graduates.² Students who are already struggling to pay tuition and cost of living expenses, or who require steady employment to support family members and dependents are disadvantaged when it comes to accessing

internships. In recent years there has been growing national awareness of the inequity of unpaid internships with even economically centrist and conservative publications like **Forbes** and **the Economist** arguing for the abolishment or reevaluation of these questionable practices.

Even still, over the past 10 years an entire industry has grown-up around connecting students with summer internships. This has only widened the gap to access, as the emerging internship placement economy favors those with resources who can afford these types of services. One Los Angeles-based start-up, **City Internships**, CI, promises to mainline students into Tech, banking, pharmaceutical and media internships for the placement fee of \$5,950 or \$2,688 with financial aid. While these placement agencies are not the only route to accessing an internship, paid or unpaid, they do offer an advantage to those who can afford their services, by providing more direct access to employers. According to the New America Foundation, students and recent graduates are increasingly taking out student and private loans or entering into installment plans and income share agreements.³ All this, just to access the leverage found in placement agencies, in order to take on unpaid and low-wage internships that are so often required to land an entry-level position. That is why technical and practical experiences, when built into the

college learning environment can be such a potent counter-weight to the imbalances we now see in the job market and are more important than ever in creating equal opportunity for students.

resiliency for a legacy of learning and discovery

Since the Pandemic, and with increased budget constraints from inflation and declining state and federal funding, maintaining field classes has been an ongoing struggle for departments like Integrative Biology. Historically, university funding for classes have been based on two factors: student credit hours and enrollment numbers which combine to form a utilization index. In a meeting with IB Faculty in February of 2020, Director of Administration and Operations, Dr. Mark Jenkinson, outlined ongoing campus financial reform. Dr. Jenkinson's remarks in those meeting minutes illuminated an evolving campus policy that admits that "field and lab courses are extremely valuable but also high cost financially." While vital to the undergraduate experience in the Biological Sciences, lab and field courses, particularly those in highly specialized fields, are not incentivized in proposed funding models that prioritizes student time and student volume as less resource intensive options. According to Dr. Fine, this index does not always easily apply to classes in the humanities or sciences. "Lab classes have to be small, you can't always scale to a 200



left: senior hall

below: forestry class backpacking trip, 1970



photo: Bob Coats

non-traditional classrooms like the vlsb greenhouse, Oxford tract and museums offer important learning opportunities for students.



person class. IB and Chemistry, and language and seminar classes—key in the humanities—are going to suffer if you treat all classes the same.”

While University funds may also be allocated to cover the cost of a lecturer or GSI, the cost of faculty instruction is buried as a part of the professor’s salary. Dr. Fine does not believe this fairly accounts for the true cost of a course when considering differences in faculty pay between departments. These types of discrepancies in how to determine the overall cost of a course calls attention to the challenges of creating a common framework for funding across the University’s many departments and colleges. Refining the policies for class funding has been an ongoing campus-wide discussion. Dr. Fine acknowledges that elsewhere on campus, departments offering less resource intensive courses have sometimes felt they are “carrying all the load and getting paid less per student in their classes, and that they need the support too.” Dr. Fine looks toward a solution to this funding disparity not in blaming or diverting money from lab and field classes but in finding more ways to increase funding for those other departments

“ Especially for students who are economically disadvantaged, first generation or from marginalized groups, field classes have been shown to give students a feeling of support, higher retention in their major, STEM, and graduated rates.”

*—Dr. Paul Fine
Professor, IB*

that offer less resource intensive courses. According to Dr. Fine, before 2020, “IB was around average in terms of number of students in classes versus spending.” Yet coinciding start-up costs associated with multiple faculty hires over the last five years, coupled with ongoing global turbulence have sharply undercut IB’s financial cushioning. However, while budgets have been tighter and class expenses more closely scrutinized, Dr. Fine doesn’t believe that any classes have been directly sacrificed because of the current austerity.

To preserve field and lab courses the Department has sought to offer a complement of larger, cost efficient courses to balance costs associated with smaller niche offerings. In theory these larger classes shoulder costs that could then be reallocated to smaller niche classes. "Student credit hours determine flow of money into the department" says Mau. But even larger classes like Bio 1B's 600 student lectures and labs have felt a financial crunch as of recent. Describing Bio 1B, Mau notes that, "the cost per student has gotten to a point where a week of class costs \$10,000." Delivering the same quality of education amidst inflation has been an ongoing struggle. Each semester, Bio 1B student's take a half-day trip to the UC Botanical Gardens. While it used to cost "\$5 to get folks up to the garden, now with pandemics and inflation it's as much as \$17 per student." Funds from the University have not kept pace amidst these rising costs, or matched the demands of updated UC insurance and employment policies. Resolving these shortfalls has been a responsibility that has fallen on departments. Seeking grants and novel alternatives has therefore centered much of the efforts to maintain field and lab classes.

There is no shortage of creative solutions in the department. Dr. Alan Shable is a longtime educator in IB with a passion for natural history and outdoor education. Just as the pandemic began Dr. Shable was in the process of developing a breadth course to connect students with the incredible natural splendor of California. Out of necessity of the pandemic he found himself driven to using online platforms that could allow him to bring his students, many of whom were not in Berkeley or even in the United States, on virtual tours. Two years later, and back in person, he's still working to see how he can best leverage emerging tech to bridge his ever digital-savvy students with the outdoors. "While we work with students in the field to sharpen their physical senses and to get properly wet and messy in their explorations, we also feel that their learning can be facilitated by judicious use of smartphones and apps," notes Dr. Shable. "In massive classes that include a field component, there are not

Julia Morgan Hall,
UC Botanical Garden



photo: Tamara Mau

enough instructors to guide each trip." He jokes at the irony that in a few years he may move entirely to augmented reality headsets. At face value, more technology may feel like a perversion of getting students out from behind their screen and into an active learning space. But the apps and programs Dr. Shable is using are solving important equity issues he has had to confront in the past. In other semesters, when he's offered optional field trips, an overwhelming number of the students who have attended are white, upper middle class and typically already equipped with outdoor and camping experience. On top of this, field experiences have long been limited to able bodied persons or forced instructors to make procrustean compromises along budgetary lines. Now, with the ability to make high quality recordings and virtual tours with programs like **PocketSights**, some of these challenges can be circumvented. Says Dr. Shable: "For students who are unable to attend a field trip, or who are taking the course remotely, they are still able to participate online."

In recent years, staff and faculty have also been exploring different funding avenues to continue to engage with students and work within the current financial paradigms. Mau was awarded a \$26,000 Change Maker Grant during the pandemic to further support field and lab courses. These and other funds she's invested in purchasing field gear and camping equipment which students without these supplies can borrow for overnight field trips. She's also invested in paying staff and graduate students for course development and to improve access. But classes that are lab or field intensive require a lot of maintenance. "This takes people", says Mau "and those people need to be paid." Mau also sees better outreach through videos and testimonials as one way to improve learning and kindle student and donor interest in IB courses. Even without the staffing and time to make all the improvements she would like to see, she still finds reward in what can be done. "You take the time to do something small and that is the seed to get something bigger to happen. In this tight budget, to take baby steps, to try to increase opportunities and awareness, it may not be showy, but it still makes a difference."

reflection questions:

1. What have field and lab classes meant to your education, teaching or work experience?
2. How does your salary, or financial impediments to reëmbursement for classroom or workplace costs impact how much time and energy you dedicate to your work?
3. What are some way you can connect undergraduates with hands-on learning?

further readings links

1. National Association of Colleges and Employers.
2. Wisconsin Center for Education Research, UW, Madison.
3. How the Internship Industry Perpetuates Inequity, New America

Student's on camping trips to the Klamath Mountains (below) and the Channel Islands (right) as part of IB 157.

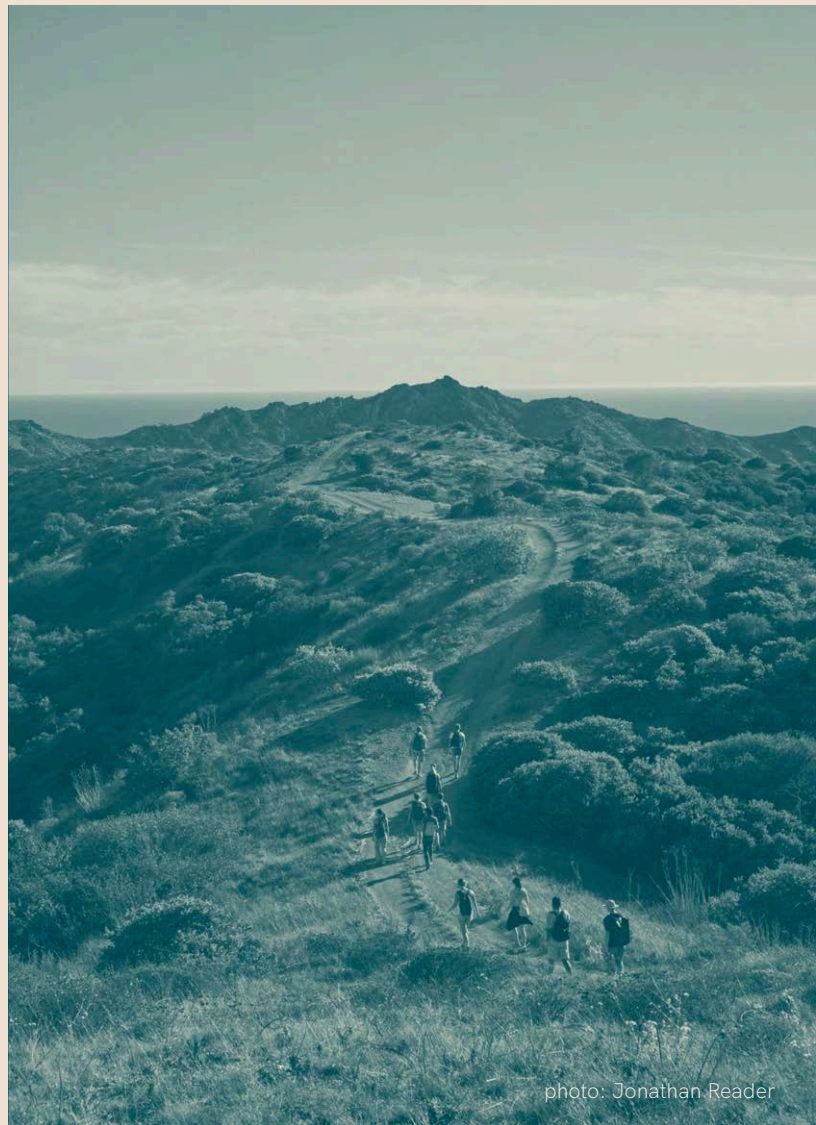


photo: Jonathan Reader

in their own words

Students and recent UC Berkeley graduates offer their perspectives on the values of field, lab, and research opportunities in shaping their college path and career aspirations.

Field classes are crucial for students in biological and environmental science fields because it is one of the first experiences students have with field work, research, and learning. While learning concepts and theories through lectures and textbooks are valuable, in practice, results and data can be very different. This reality of biological and environmental systems can only be thoroughly understood by experiencing the subject in the field first hand. It is the most direct way to learn while also being the most engaging.

The field section in Bio1B was my first time taking a field class and conducting research that required me to work and collect data in the natural environment. The practical and methodological knowledge I learned about field studies and scientific research could have never been properly replicated in a lecture or lab class, so I'm thankful that I had the opportunity to participate in the class. Every aspiring scientist needs these classes to experiment and explore with the field to see where their interests and aspirations are.

—Roshni Sahu
Environmental Science &
Molecular Environmental Biology

[IB 157] was a pretty diverse group with various ages, various identities, various backgrounds, and various goals. We could have any conversation we wanted with almost anyone in the group at any time, and I felt very seen and understood there and I could express my true self. And even if people didn't necessarily agree, they would accept me fully and I felt loved there. And I think that's where I felt the most belonging on campus.

—anonymous student



photo: Becky Matsubara


The field section was more than just a biology lab. It was an exploration into the beauty of California and the nuances of scientific research. Over the semester, we were given the remarkable opportunity to combine these realms into our own, novel experiments. It was an unforgettable, and necessary, experience.

—Ethan Liesel
Molecular Cellular Biology
(intended major)



campus offers a veritable laboratory. Anna's hummingbirds (above) and Crawdads (left) are common sites along Strawberry Creek.

photo: David Perez



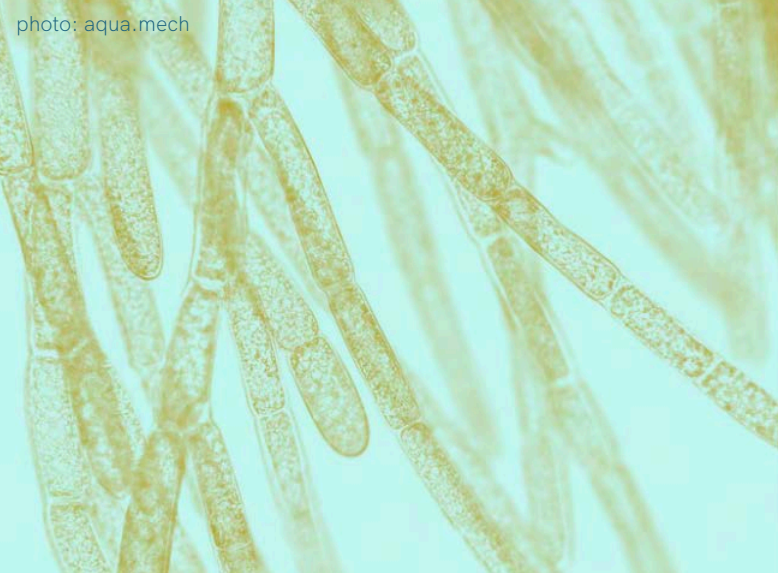
The Bio 1B Field Section was such an integral part of my introduction to field research and the ecological field as a whole. Signing up for the section and conducting student-led research in a team with my classmates was the best introduction to UC Berkeley I could have asked for, as Fall 2021 was our first semester back to in-person instruction. I learned how to access and cite peer-reviewed literature and also use research to ask and develop my own research questions about the most pressing problems facing the environment today. There are simply no other resources on campus like the field section- ones that allow students regardless of background and exposure to the discipline to become real researchers. Because of my time with the field section, I no longer feel nervous or hesitant about my own capacity and affinity for scientific research. The student-guided nature of the section taught me invaluable skills that I am certain will allow me to not only participate, but also help lead future research spaces. As a member of an underrepresented community on campus and in the scientific world, the Bio 1B Field Section really helped me grasp the fact that I belong in science, and my experience creating, shaping, and presenting the research we created is probably the most important component of my CV, and has (and continues to) open the doors for countless more experiences on and off campus for me. I cannot think of a resource more important for ecologically-inclined students to have access to at Cal.

—Jumana Abdelgadir
Environmental Earth Science double-minor in
Anthropology & Global Poverty and Practice.

The UC Natural Reserve system, such as the Point Reyes Field Station, seen here, are gateways to exploring California's ecology.

As a second-year Environmental Science student who had spent my first year of college online due to covid, I was unsure of how to get involved in research and I hadn't met other people who shared my interests. During the Bio1b field section trip to Point Reyes when we took macro-invertebrate samples in a creek, I realized I had found my community at Cal., I conducted a research project on crayfish in Strawberry Creek and presented my findings in a paper and symposium. Because of the opportunities I received in the field section, I feel confident in my research skills and am now part of a freshwater ecology lab at UC Berkeley, and my closest friends are some of the fellow ecology nerds I met through Bio1b. Despite the budget cuts, I hope Berkeley will run the field section in the future so more students can have those opportunities.

—Alex Fister
Environmental Science



IB 175LF—Herpetology—was the most impactful class of my undergraduate education at Cal. I took it in the Spring of 2020 with Professor Jim McGuire, and we managed to squeeze in just one field trip before COVID-19 forced everything online. Over the course of two days we went “herping” (the colloquial term for finding amphibians and reptiles) in Pescadero State Marsh, the Santa Cruz Mountains, and UCSC. At each spot we found a different assortment of salamanders, frogs, lizards, and snakes, and each capture was met with jubilation amongst the undergrads and course instructors. IB175LF taught me the joy of biological fieldwork, of meeting animals in their natural habitat and appreciating their beauty and wildness, and that single field trip convinced me to pursue a career in field-based herpetology. As a PhD student at Berkeley today, I’m looking forward to my chance to be a GSI for IB 175LF and introduce the next cohort of undergraduates to the community, camaraderie, grit, and thrill of doing fieldwork.

—Kannon Pearson
BA Integrative Biology, 2021

I have recommended Field Section to everyone who I know who has told me they’d be taking Bio 1B, raving about what an amazing experience it was for me. Not only did I have the opportunity to expand my reach and understanding in the field and in scientific research as a whole, I also met some of my best friends and made amazing memories sleeping under the stars, getting my hands dirty, and observing killer nature in a really hands-on and welcoming environment.

The course definitely challenged me, but it also allowed me to learn so much more about data collection, observational skills, statistical analysis, teamwork, field skills, and professional development than I would have ever done if not for the course. I appreciated the individuality of the course, which allowed me to dig deeper into topics I was curious and passionate about. I’m studying Environmental Science with a concentration in Social Sciences, and in such an interdisciplinary area of study it was so important to be allowed to explore the different ways in which my degree can be utilized and valued.

The course was absolutely without a doubt paramount to my growth and evolution into the person and scientist I am today. I would not feel as comfortable with my position at UC Berkeley or in my own personal timeline without my experience in the Bio 1B Field Section.

—Grace Boyd
Environmental Science





Growing up in Southeast Los Angeles, my closest exposure to open greenspace was my local public park in the middle of the city. The park provided outdoor space for my family and community to gather for recreation, special occasions, and everything in between. While at UC Berkeley, I had the opportunity to go beyond an urban park and camp for the first time during a club retreat. Though I only owned a sleeping bag, I sought out more outdoor experiences through the Geography and Environmental Science, Policy, and Management Departments field surveying classes and later through Forestry Camp. Within these spaces, I was one of the few students new to camping but their intimate setting allowed for a community of support between my classmates and professors that rarely occurred in my typical classes. These experiences shifted my academic and professional trajectory toward the intersection of equity and natural resources.

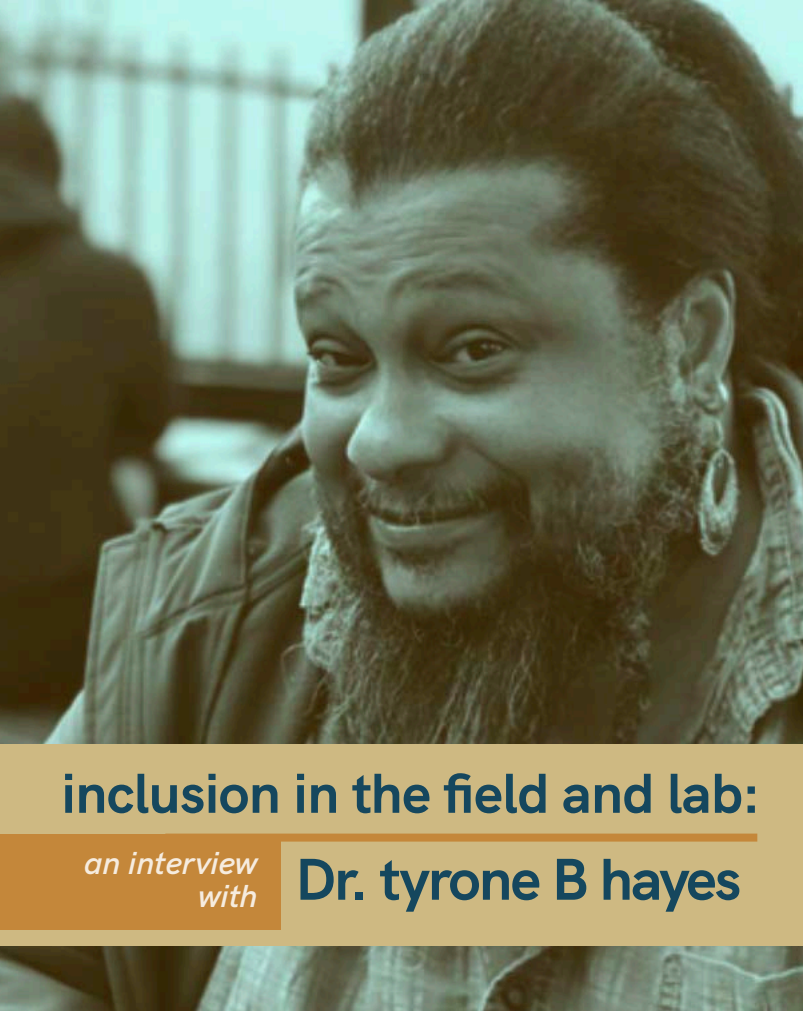
Since graduating from UC Berkeley, I interned for the Bureau of Land Management and the Elkhorn Slough Reserve, worked as a Geospatial Analyst primarily on projects about land conservation, participated as a panelist representing young BIPOC professionals in an environmental field at the UC Berkeley Students of Color Environmental Collective conference, and published a map on tree canopy equity in the ESRI 2022 Map Book. Currently, I am a board member of the organization Environment for the Americas which provides natural resource experiences with federal agencies for people from underrepresented backgrounds in this field and I am pursuing a Master's in City Planning degree with a focus on Environmental Planning and Policy at MIT. The field classes available at UC Berkeley revealed a career path I may not have known of otherwise. The opportunities and experiences these field classes provided were invaluable in informing and leading to my prior, current, and future endeavors.

—Kimberly Becerril
BA Geography, 2016

I have had the opportunity to participate in multiple field lab classes, including the Biology 1B Field Section as well as IB104LF (Natural History of Vertebrates). Compared to other solely lecture-based courses, these classes provided me with the chance to fully engage in the material and indulge in my curiosities through out of the classroom learning experiences that can be fairly challenging to come by. Without the opportunity to further apply my skills and knowledge in the field, I feel as though I would not have been able to grasp, let alone enjoy and respect, the subject matter fully. I was more excited about attending these classes and field trips than I ever have been about prior coursework as being in the field allowed me to feel a strong genuine connection to my peers, instructors, and the class itself. These were truly life-changing experiences that helped to foster my passions and facilitate a positive and inspiring learning environment.

—Camille Welch
Integrative Biology &
Molecular and Environmental Biology

DEI Newsletter is looking to collect more testimonials. Tell us about your experiences with field and lab class opportunities in IB or at UC Berkeley at DeiNewsletters@gmail.com.



inclusion in the field and lab:

*an interview
with*

Dr. tyrone B hayes

by C. DeCurrens
Greenhouse Staff

Dr. tyrone B hayes is a developmental endocrinologist and outgoing co-chair of the Department of Integrative Biology. As a professor, Dr. hayes has spent the last 33 not only exploring the effects of hormone regulation and animal reproductive development and physiology but as a passionate educator and mentor. In leaving his position as department chair, Dr. hayes steps into a new role as one of the University's Associate Dean of Diversity, Equity, Inclusion and Belonging. In our ongoing conversation on the value of undergraduate field and laboratory experiences, DEI Newsletter spoke with Dr. hayes to get his perspective on what Integrative Biology has to offer. Dr. hayes shared his thoughts on the ingredients for equitable learning outcomes, his strategies for creating inclusion and belonging in the classroom, and his new role on campus.

You've been a longtime advocate for fostering educational opportunities for all students in IB. What has been your relationship to field and lab classes, and what are some of the student opportunities you've been involved in developing?

Let me just start by saying that the hands-on experiences that are associated with being able to do independent research in a laboratory, or being able to do field research, or to participate in courses that have labs and field trips and field components, those kinds of activities are critical to undergraduates. Undergraduates who may be exploring the potential of going to graduate school or careers in the sciences. And, as you know, those types of opportunities can be limited for students who have financial constraints. As an undergraduate, taking a full course load, and having to work because I was on financial aid, there was no way I would have been able to volunteer in a laboratory or do independent research. And even for some students, including myself at the time, being able to take field courses—meaning a weekend away from work when you have a job—can be very difficult.

So I've done a couple things in my own lab, to allow my students to be both able to do field and laboratory work. I have an endowment of sorts, that's supported by a private donor [Mitch Kapor and Fread Klein-Kapor], so that all of my students are supported for the summer and semester, so that they can be able to volunteer in the lab and in field work.

The other grant is the discovery grant. Bob Full is the lead professor on that grant, and the co-PI's are me and Eileen Lacy as department co-chairs. As part of that grant we got funding from the dean's office to support students to work in labs and get research experience. The funding is specifically for students who otherwise wouldn't be able to afford to have a summer or semester experience in the lab. We've been trying to choose students

from our survey course, IB77¹, and we've also been trying to involve postdocs, who are often lost in the midst, to have access to students to assist them in the laboratory.

Fostering a culture of community for undergraduates has been an evolving conversation in IB. Some solutions can be found in programs like the IB Research Mixers and BSP but these programs may not reach every student. UC Berkeley will be launching an expanded Theme program, centering common student interests in collaborative learning environments. IB 82 will be one example of this model. How do you see this more intimate approach to education shaping the undergraduate experience?

Just like with BSP, SEED, and cal nerds, IB 82 will certainly help create more belonging. When I ask students who do well, who get an A in my class what they do to get that grade, the number one thing students say is 'study groups. We met up freshman year, we took all of our classes together.' And oftentimes, I notice, the study groups fall along ethnic lines. So if you're really in an underrepresented minority, there may not be enough of you to have your own study group. Theme programs, IB 82, could be really useful and helpful to create these study groups. I've done that in my class, where I've taken otherwise marginalized students and said 'you're going to be a study group.' And they drastically improve in their performance. So I think creating these cohorts is a really excellent idea and will improve the experience and sense of community.

There's a growing recognition of the value of personalizing the educational experience. You teach IB 137, Human Endocrinology, which is a popular course among undergraduates. In larger classes where there isn't a lab or field component it can sometimes be hard to connect with students. How have you as an instructor overcome that obstacle?

I still start the course with the index cards. So the students write down who they are, their major

Dr. Hayes and Verenice Bravo (former IB major and BSP student) in the field in South Africa collecting frogs

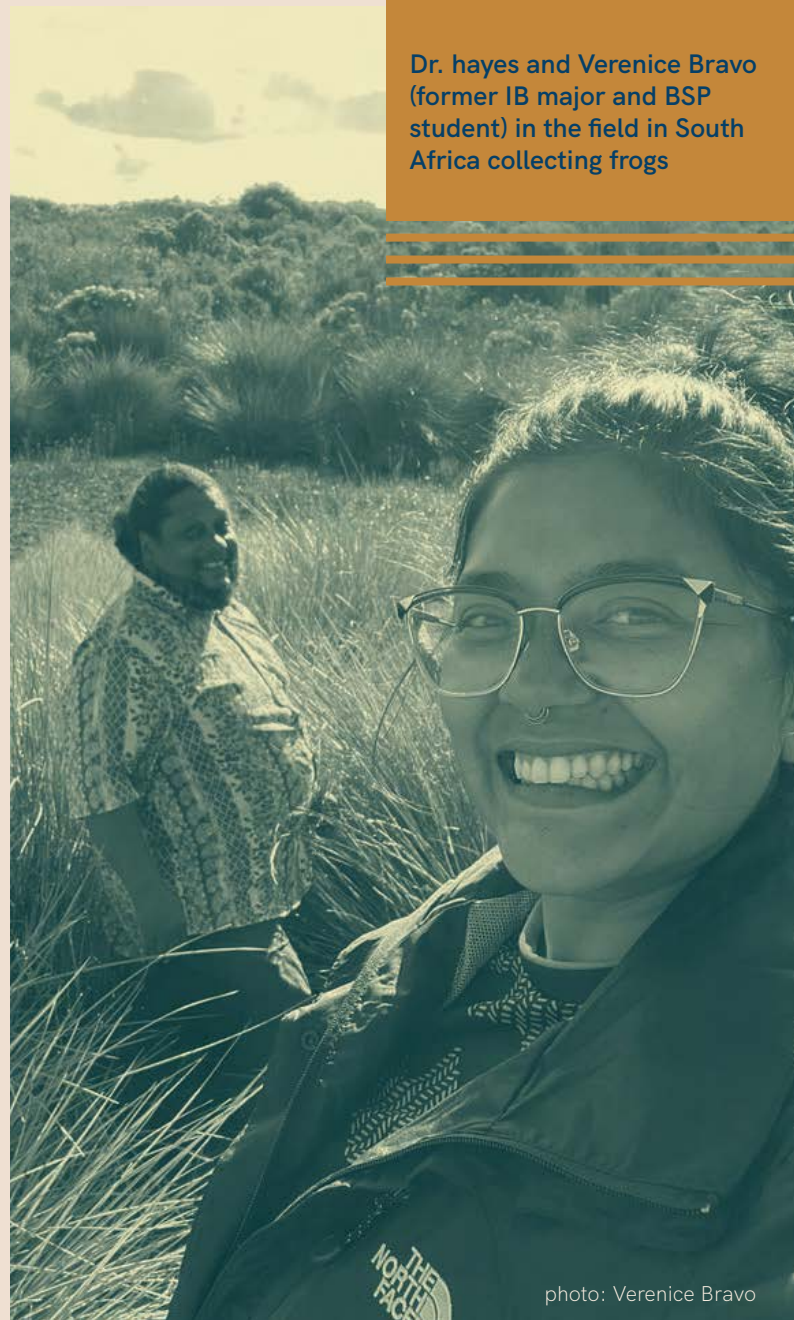


photo: Verenice Bravo

and why they are taking the course. And, I often ask them to write some little fun fact, something they'd like me to know about them. And I use those cards to get to know the students personally. I also include a lot of personal experiences in the storytelling of my lecture, and it's very easy to do that for me, because it's a human endocrinology course. I talk about how I experienced diabetes in my family or of going through pregnancy when my kids were born. And I think that kind of personal touch lets students know that you are a person too and are more than just a professor. That's how we connect.

Discussion around access to research positions often focus on financial limitations. But it seems that who is providing that mentorship can be an important part of access too?

Knowing that that person who is teaching is like me and I can become like that person is a big part of finding belonging. Having a professor, or a mentor, or an advisor who even just looks like you is important. But I also think that your experience [as an instructor] dictates how you teach, what you teach, and how you represent yourself and your ideas. For example, in my endocrinology class, I talk about disparities with regard to cancer. I talk about how I experienced this in my own life, growing up black with family members at a higher risk of cancer or higher risk of diabetes. So I'm more likely to talk about and teach about things that will appeal to the experience and interest of students of color. How we do our research and talk about research all reflects our background and who we'll be able to reach. So while the financial side of things is important, I think that the make-up of our mentors and professors and teachers and advisors is also very important. Also, the understanding that comes with having a similar background or experiences. For example, I had a McNare student with full funding to work in the lab, but all of that money had to go to her family. There was just

"for some students, including myself at the time, being able to take field courses—meaning a weekend away from work when you have a job—can be very difficult."

*—Dr. tyrone B. hayes
Professor and co-chair for IB*

one family crisis after another. So having a mentor who will understand that the money isn't always the only support a student needs is important to giving that student what they need to succeed.

As with staff, postdocs and graduate students, faculty are not always directly compensated for the work they do in DEI, or the extra time or expenses invested in the course development. How do you think financial incentive informs faculty willingness to participate in work that can foster diversity, equity, inclusion and belonging?

There's so much that [faculty] are not compensated for. I've said many times before, that my job is the easiest job in the world. It's the easiest

vlsb foyer outside the
Museum of Vertebrate Zoology.



job, if you don't give a shit. If you really care, it's countless hours. It's more than just the two or three hours when you teach. It's also preparation, and there's no end to the preparation. There's no such thing as the best lecture. No matter how good the lecture was, it could always be better, could always reach more people. So there's probably lots we aren't compensated for if you really care about making a difference and really care about the students. I agree that these are trying times, but I think that the people who really care are still in there and willing to do it.

Recently, you were appointed Associate Dean of Diversity, Equity, Inclusion and Belonging at UC Berkeley. At the iBio symposium, you described that during the 33 years you've been at Berkeley, the conversations about what needs to improve haven't changed much. What does this appointment mean to you, and what do you envision for this role?

I don't know the answer to that. In some ways, there are very few things I'm confident in, when it comes to myself and my performance. I am confident I'm a good teacher, and I'm giving some of that up to do a job that I'm not exactly

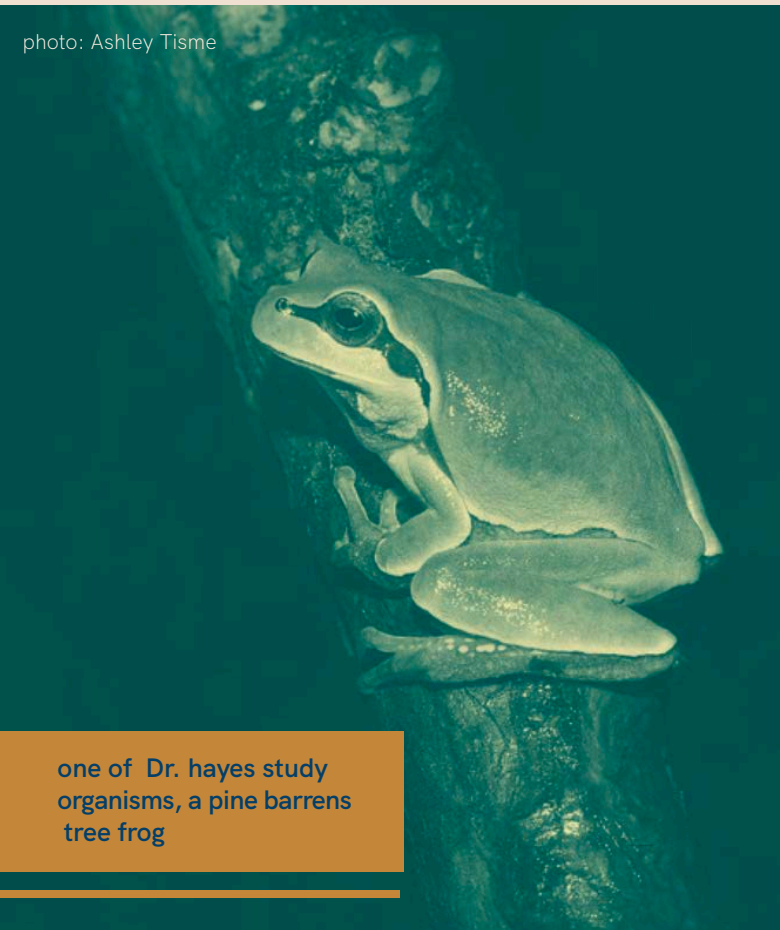
sure how to do. But I have ideas, and I've lived it. I've been here since 1989. And you are correct, I've said that some of the same things I saw as a graduate student, that I heard, that we talked about, we're still having some of those same conversations now. I've said many times we've come a long way, but we still have a long way to go. In terms of sense of belonging, not feeling included, or not being treated fairly on campus—many of the same things students are talking about now—are some of the same things we talked about 30 years ago. Partly we've made changes, but we haven't really made big changes. For example, since I started, we have increased the number of black faculty in the life sciences (13 departments) by three fold, but all that means is now we have three black faculty. So we've come a long way, but also not that far. So I think as a result, there haven't been enough people around, people who have had my experience or **Khansaa's experience**, to really get people to listen or to understand what the problems are. That prevents us from really feeling included, and that we belong.

I was telling a former dean once 'look, I've never been on this committee, or included in that activity' and he turned to me and said, 'well, you can't prove it's because you're black, because you're the only one.' And my response was: first of all, I never said it was because I was black, I was just telling you the experience that I've had. But secondly he had a good point. When there's not enough of you, it's easy to write things off and just say, 'oh well, tyrone's just angry...or not engaged.' But when you have enough people saying, 'no, this happened to me also,' then I think people start to listen and realize it's not the individual, it's the environment.

One of the reasons I'm hopeful is because such an awareness was raised with the George Floyd incident. This wasn't anything new, these are things that people of color, black people in particular, are very much aware of, in terms of what happened with the police. But with the lockdown and everyone watching the news, I think it started to raise a news sense of awareness in which people actually listen and really try to

photo: Ashley Tisme

one of Dr. Hayes study organisms, a pine barrens tree frog



make a difference. So many people at Berkeley, both through time and now in the present, have had these negative experiences, that I think that the campus is starting to realize that we have to do something to make a difference and make things better. And I'm hopeful that being in that position [as Associate Dean] and having the experience I've had at Berkeley, are really going to help me and the campus achieve a better environment, where people of color and people of all backgrounds can thrive and be comfortable and know that they belong in this place.

1. *IB77, Integrative Human Biology, is a recently added major requirement for IB undergraduates with weekly rotating faculty lectures, highlighting research in the department.*

community square

updates:

Newsletter contributors are now eligible to receive compensation at a rate of \$.05-\$.15 per word, or \$9.00 per hour for editing, curation of social media and online presence, newsletter infrastructure, calendar page, content development, design, art, and administrative work. We are always looking for contributors in you are interested in joining the Newsletter team.

announcements:

DEI Newsletter expresses thanks to Dr. Jack Tseng for financial support through the Life Sciences Faculty Diversity Initiative grant. DEI Newsletter plans to use these funds to compensate writers in order to create greater representation and include voices from across the Biological Sciences at UC Berkeley. The Newsletter recognizes that not everyone will be able to freely volunteer their time to contribute content. The goal of providing options for financial compensation to writers, artists, editors, administration-work, and

reflection questions:

1. How has sense of belonging, or your sense of identity shaped your willingness to want to participate in a class or opportunity?
2. Dr. Hayes describes how his own experiences influence how he teaches and how students respond to his teaching. How do your lived experiences inform how you communicate with those around you?
3. If you coordinate or instruct a field class, what are some ways you can make those experiences more inclusive?

consultants is to incentivize content submission, and reward our staff and contributors for the time they dedicate to DEI related efforts. Our thanks to Monica Albe for her assistance in managing these funds.

clarifications:

September-October 2022, article: **iBio Symposium** followed the work of some, but not all of this year's symposiums organizer. Here is a complete list of the dedicated students and staff who made iBio symposium possible: Jessica Aguilar, Monica Albe, Dr. Diana Bautista, Hannah Boom, Carina Galicia, Sarah Herrejon Chavez, Valeria King, Jaemin Lee, Khansaa Maar and Hector Torres Vera. Khansaa Maar (MCB PhD Student) who is quoted in this article, requested she and Lisa Eschun-Wilson (2018 founder of iMCB) be identified as black, to explicitly recognize the work by Black students, staff and faculty in the realization of this event.

in history: Dr. Helen Rodríguez Trías

by Abie S. Grandis
Blodgett Forest Research Station

Dr. Helen Rodríguez Trías, a pediatrician, public health expert and activist, spent her life in the service of others and the causes she believed in. Born in 1929 in New York City, Dr. Rodríguez Trías was the child of Puerto Rican immigrants. Though her parents had relocated to the mainland US with the aspiration of better opportunities for their children, she and her family were not met with open arms in their new home. Dr. Rodríguez Trías' mother, who had been a school teacher in Puerto Rico, struggled to find employment in New York City where she was never granted her teaching credentials. As a girl, Dr. Rodríguez Trías faced discrimination in the classroom, placed in remedial classes on the basis of her Spanish surname.

Amidst these barriers, Dr. Rodríguez Trías would go on to study medicine at the University of Puerto Rico, San Juan, graduating among the top of her class. From her experiences growing up poor in New York, as well as her years living in Puerto Rico, Dr. Rodríguez Trías was galvanized by an awareness of the intersections of race, poverty and health care, shaping a career that would combine medicine with her advocacy for the betterment of public health care and



infrastructure in systematically disadvantaged and marginalized communities.

As a resident at the University Hospital in San Juan Dr. Rodríguez Trías established the island's first postnatal care unit, which in just three years would reduce the hospital's new-born mortality rate by 50%. Following in the footsteps of her mother, who had fought for the reintroduction of the Spanish language in Puerto Rican schools, Dr. Rodríguez Trías became an impassioned voice



for **Puerto Rican independence** and racial justice. In her time at Lincoln Hospital in the South Brox, she developed systems to better serve Black and Latin American patients. As an instructor at Columbia and Yeshiva Universities she headed important reform of racial biased language and practices in medical textbooks and education.

While living in Puerto Rico, Dr. Rodríguez Trías first began her work with the victims of non-consenting sterilization. Between 1930 and 1970 roughly one third of Puerto Rican women had been subjected to **sterilization** first through US federal eugenics policies, and later, and more insidiously, through US sponsored pharmaceutical companies testing birth control procedures on an unsuspecting public. As a tireless agent for combating these atrocities, she was a founding member of the Committee to End Sterilization Abuse. In 1979, she would testify before congress for federal reparations to be granted to women

abused by these practices, and pushed a federal ban on forced or coerced sterilizations.

Her interest in the womens' rights and healthcare often centered her work. During the 1980's Dr. Rodríguez Trías served as medical director for New York State's AIDS Institute. In this role she was responsible for turning the Institute's attention toward the often overlooked demographic of children and mothers who suffer from HIV. As president of the American Public Health Association she was a pivotal actor in the advancement of a woman's right to safe and legal abortion, as well social and economic parity for women in the workforce.

In 2001, Dr. Rodríguez Trías was awarded the Presidential Citizens Medal, by then President Bill Clinton. In 2019 she died of complications from cancer at her home in Santa Cruz, California.

upcoming local events + resources

- Ongoing—**Donate** to support Hurricane Fiona reliefe efforts in Puerto Rico
- 4 Nov.—**Contemporary Jewish Museum**, free admission day, 736 Mission Street, San Francisco
- 5,6,12,13 Nov.— **Que Vivan los Muertos, Community Art Festival**. 2-4pm, 231 East 12th Street, Oakland.

Shares your thoughts and perspectives on these article or tell us about a story or event you would like to see featured in newsletters at DeiNewsletters@gmail.com

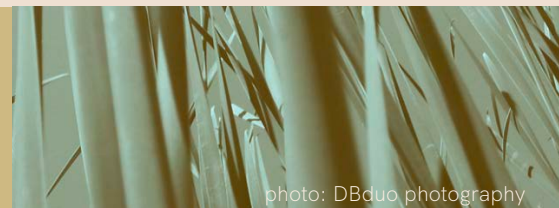


photo: DBduo photography

Supervisors—please circulate this newsletter to lab members and staff who may not be on our listserv.